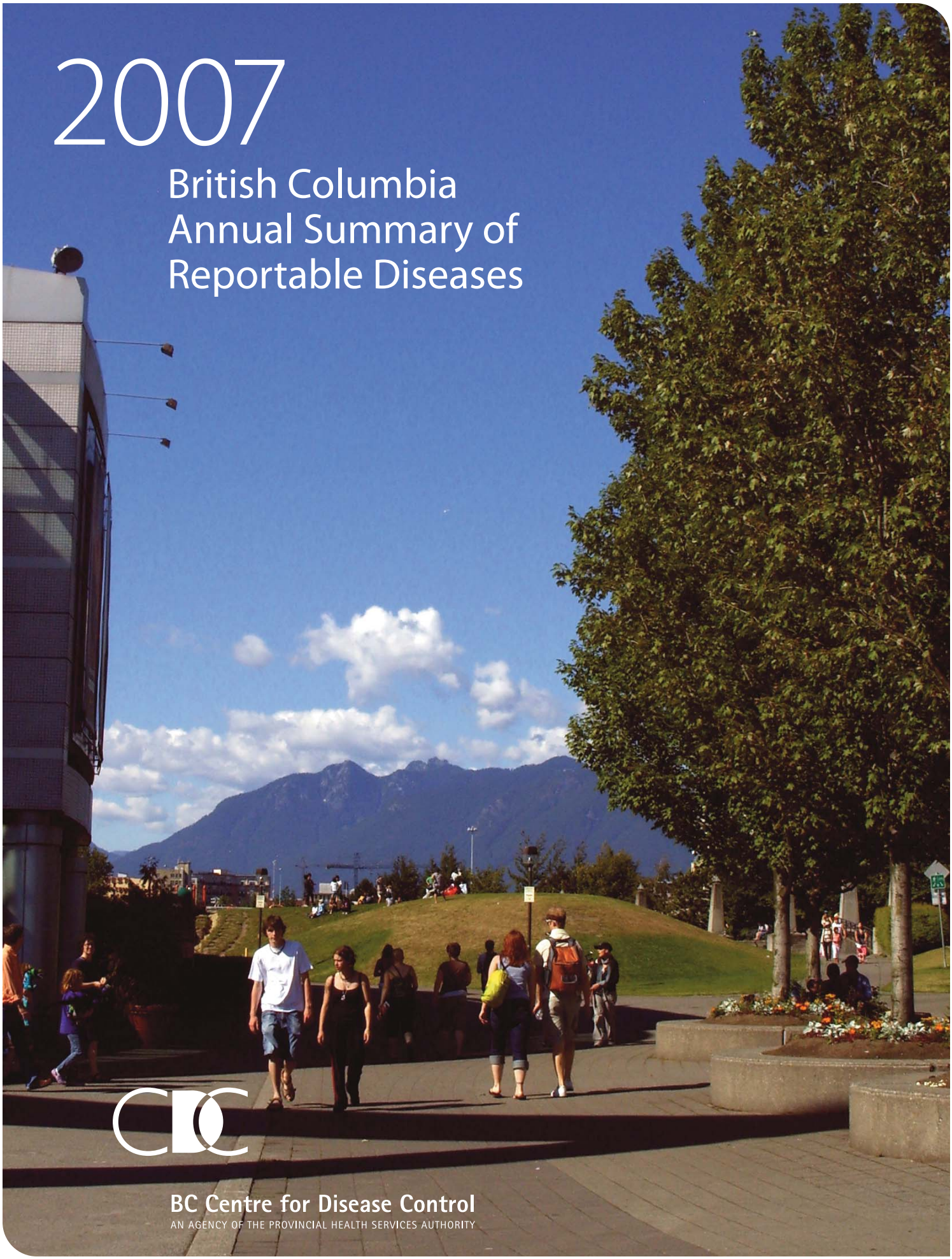
2007

British Columbia Annual Summary of Reportable Diseases



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

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2007 Highlights

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Vaccine Preventable Diseases

Surveillance of these diseases almost uniformly demonstrated no, low or declining rates, with a few exceptions. Mumps cases were at the highest level since 2001, with 23 cases reported, mainly among adults in their 20s. Most cases were sporadic or associated with a small number of transmissions. This increase occurred in parallel with large outbreaks of mumps in the Maritimes and Alberta. An increase in IPD (invasive pneumococcal disease) was observed for the second year in a row, related to an outbreak due to serotype 5 affecting indigent and drug-using adults in Vancouver Coastal and Interior Health Authorities. As a result, homeless and illicit drug using people have been added to those for whom pneumococcal 23-valent vaccine is recommended. Four cases of tetanus were reported. Of the four cases, 3 were among adults and had fatal outcomes. No records of prior immunization could be obtained. A pediatric case occurred in an intentionally unimmunized child. Prior to 2007, the most recent year in which cases had been reported is 2001. Influenza activity occurred later than usual in BC, with A/H1N1 predominating in the first peak of activity in January and influenza B predominating in February and March. Late in the season as activity declined, influenza A/H3 increased to become the predominant strain. The circulating strains identified indicated a good match to the seasonal vaccine for the A/H1N1 strain but a mismatch at the strain level to the A/H3N2 virus and at the lineage level to the B virus. Oseltamivir resistance was detected in a quarter of A/H1 isolates tested nationally.

Sexually Transmitted and Bloodborne Pathogens

While new positive HIV tests declined to 357 cases in 2006, and have continued to decline from a peak in 2004, there was an increase to 395 observed in 2007. The increase was noted in both sexes. Better detection of new infections because of enhanced follow up of test results starting in 2003 and related to HIV reportability may be part of the explanation. The greatest concentration of cases continues to be in Vancouver Health Service Delivery Area (HSDA). AIDS rates were reported for 2006 due to the usual delays in reporting. The number of reports declined from the prior year with 84 cases reported for a rate of 1.9 per 100,000. The highest rate continues to be in Vancouver HSDA followed by South Vancouver Island.

Chlamydia has been on the rise since 1997 in BC in keeping with a trend observed nationally. The highest rates are in young women aged 15–24, and geographically in Northern Interior and Northwest HSDAs. There was an increase in gonorrhea from the previous year, also in keeping with national trends, and women aged 15–24 years and males 20–29 had the highest reported rates. Geographically, the highest incidence was reported in Vancouver and Northwest HSDAs.

Infectious syphilis has been on the upswing since 1997, but a decline in 2005 and 2007 suggest that a plateau may have been reached. The majority of cases are in men aged 30–39 years, with the highest rate in Vancouver HSDA. Hepatitis C rates continued to decline but are still twice the national rate due to the prevalence of injection drug use. Twelve cases were reported in children under 5 and attributed to vertical transmission from mother to infant.

Diseases Transmitted by Direct Contact and Respiratory Routes

Invasive GAS reports were slightly higher than the year before, with a total of 244 cases reported, but the case fatality rate declined from 10% in 2005 and 7% in 2006, to 6.5% in 2007. Consistent with the lower case fatality,

a smaller proportion of cases were associated with toxic-shock-like syndrome (5%) and necrotizing fasciitis (7%) than in prior years. Age specific rates were highest in infants and mid-to-older adults. Tuberculosis declined by 15% in 2007, to 286 cases or 6.6 per 100,000, reversing a one year increase observed in 2006 but keeping with a gradual decline observed in the past decade. Highest rates were reported from Vancouver, Richmond and Fraser North HSDAs.

Antimicrobial Resistant Organisms

Surveillance using both provincial and national data sources for gram positive and gram negative bacterial resistance based on specimens collected in BC indicated some concerning trends. Methicillin resistance among *Staphylococcus aureus* (MRSA) isolates has increased significantly in the past decade, and is largely associated with community-associated isolates. Gram positive organisms including *S. aureus, S. pneumoniae* and *S. pyogenes* are showing increased erythromycin resistance, in association with increased utilization of new macrolide antibiotics such as azithromycin and clarithromycin. Gram negative urinary tract pathogens including *E. coli*, *Proteus mirabilis* and *Klebsiella pneumoniae* are showing increased resistance against ciprofloxacin and thimethoprim-sulfamethoxazole.

Enteric, Food and Waterborne Diseases

There were no consistent trends in this varied group of diseases, many of which predominate in children, show seasonal patterns with increases in the summer months, and are related to travel. Amebiasis, associated with oral-anal sex among men and diagnosis through screening among new immigrants, is highly concentrated in Vancouver HSDA; rates have remained stable. An infant case of botulism was reported in October, the first case reported in the past 5 years. No source was identified. Campylobacteriosis, the most common enteric infection reported, has been declining since 1998 but rates have been stable since 2004. An outbreak associated with inadvertent mud ingestion during a mountain-bike race occurred in June. Cryptosporidiosis declined to the lowest levels in the past decade, with no outbreaks detected; the highest rates are in children aged 1–9 years. Cyclosporiasis reports increased, in keeping with a 10 year trend, with many cases associated with travel to endemic countries. An outbreak associated with organic basil imported from Mexico occurred in May through July.

Verotoxigenic *E. coli* infection rates increased for the second year in a row with the highest rates in the pediatric age group. The typical seasonal trend with peaks in June through September was observed. BC cases were associated with two national outbreaks resulting in recalls of ground beef and beef sashimi. Giardiasis rates continued the downward trend observed in the past decade, with the highest rates observed in children aged 1–4 years followed by adults 20–39 years old. Acute hepatitis A rates have been stable or declining since 2003, having shown marked declines since the late 90s, with only 41 cases reported. An important risk factor remains travel to endemic parts of the world by unimmunized travelers. Listeriosis case rates were unchanged from recent years, with 8 cases reported; all were sporadic and primarily associated with pregnancy or elderly age.

Salmonellosis, the second most common reportable enteric infection, remained unchanged over prior years. The highest rates were reported among children under 5, with one infant death due to *S.* Enteritidis septicemia. *S.* Enteritidis, *S.* Typhimurium and *S.* Heidelberg were the commonest serotypes detected. An outbreak of 145 cases of a new strain of *S.* Enteritidis occurred, with investigations in a number of jurisdictions pointing to chicken as the likely source. Most cases of *S.* Typhi and *S.* Paratyphi were associated with travel and occurred mainly in the first quarter of the year.

Shigellosis in BC fluctuates from year to year and was up in 2007. A preponderance among male adults is explained in part due to a large outbreak of *S. sonnei* among homeless people in Vancouver and Fraser South. In past years this infection has caused outbreaks among men who have sex with men.

Vibrio parahaemolyticus infections were reported among 15 people, down from 29 last year. Most cases were among men, and associated with consumption of undercooked shellfish during the summer months.

Yersiniosis, the third most common reportable enteric infection, was comparable to last year with no outbreaks detected. Case reports are from across the

2007 Highlights (continued)

age span with some concentration in children aged 1–4 years.

Vectorborne and Other Zoonotic Diseases

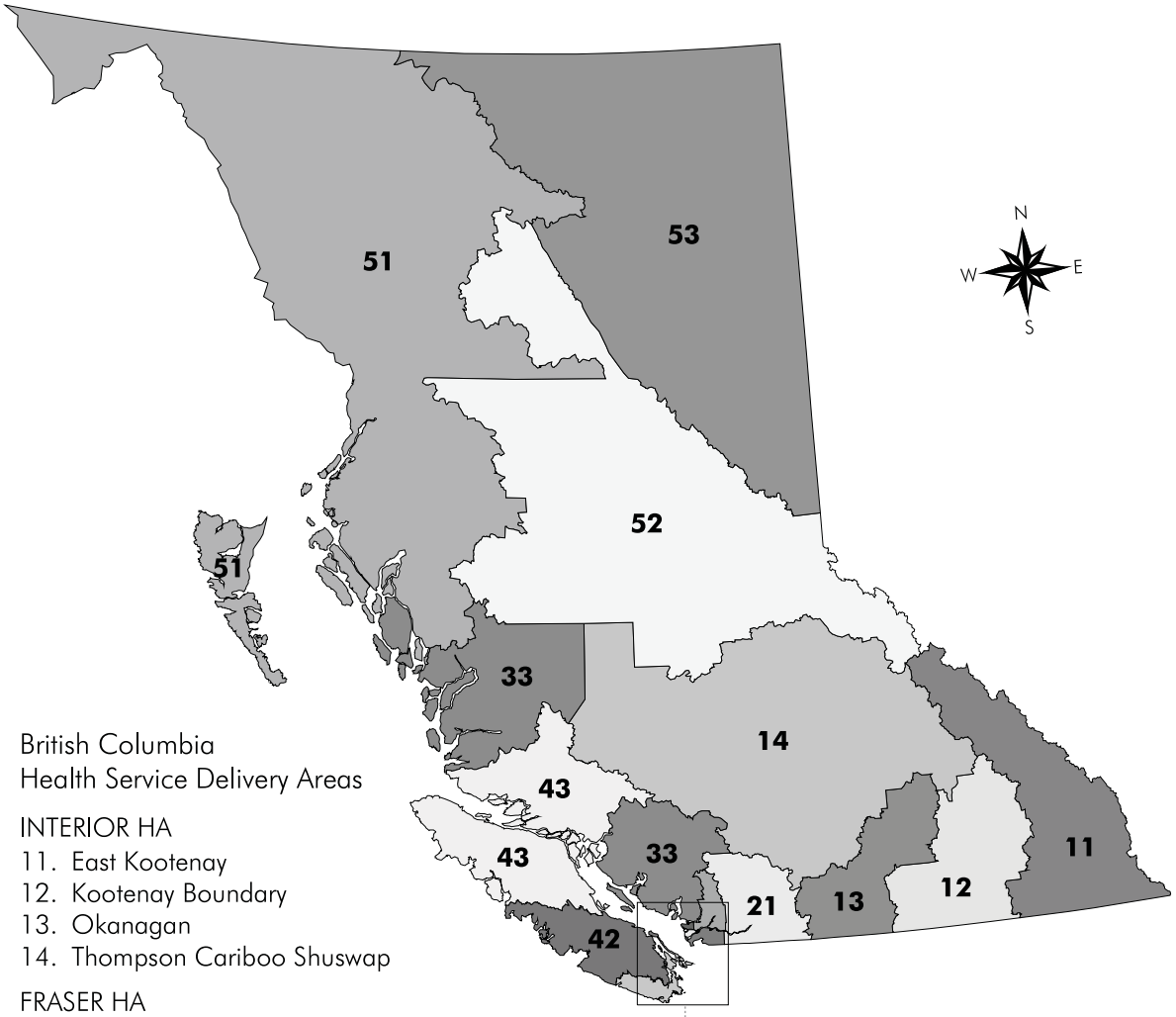
One non-fatal case of hantavirus infection was reported, bringing the total reported in BC since 1994 to 11; all but one of these were endemically acquired and most in the Interior Health Authority. Thirteen cases of Lyme disease were confirmed in 2007. Most were among young males, and just under half were acquired in highly endemic areas in Eastern Canada, the US or Europe. Thirty-eight cases of malaria were reported, up from 25 the year before. All were travel acquired with mainly Indian subcontinent and other Asian destinations.

This is the second annual report summarizing potential rabies exposure incidents in BC, including those for which rabies post-exposure prophylaxis was administered. Such incidents in BC, 384 in 2007, are highly seasonal with most potential exposures occurring June through August and three-quarters associated with bats. The highest numbers were reported from the Interior, and for children aged 5–14 years. Six percent of BC bats tested by the Canadian Food Inspection Agency (CFIA) were positive. No endemic West Nile virus activity was detected in BC despite extensive surveillance. Nineteen travel-associated cases of WNv were diagnosed in residents of BC, mainly with history of travel to Manitoba and Saskatchewan, where substantial rates of endemic activity were observed. Indicators of surveillance in other North American jurisdictions indicate continued westward and northern spread and the potential for BC activity in 2008.

Environmental Fungi

Continued surveillance of the pathogen *Cryptococcus gattii,* newly emerged as endemic to British Columbia, identified 34 cases in 2007, similar to 2006 but up from prior years. The increasing rates are likely due to establishment of endemicity of this fungus to the Lower Mainland; formerly it was newly endemic to Central and South Vancouver Island. Most cases were over 40 years old, but one pediatric case was reported in 2007.

British Columbia Health Service Delivery Areas



British Columbia
Health Service Delivery Areas

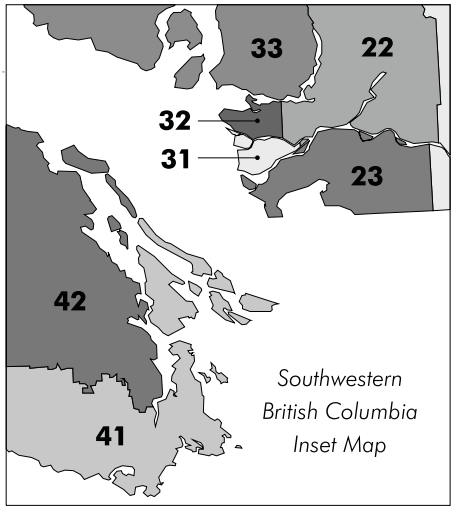
INTERIOR HA
11. East Kootenay
12. Kootenay Boundary
13. Okanagan
14. Thompson Cariboo Shuswap

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

***Haemophilus influenzae* type b (Hib), invasive**

Hepatitis B

Influenza

Measles

Meningococcal Disease, invasive

Mumps

Pertussis

Pneumococcal Disease, invasive

Rubella

Tetanus

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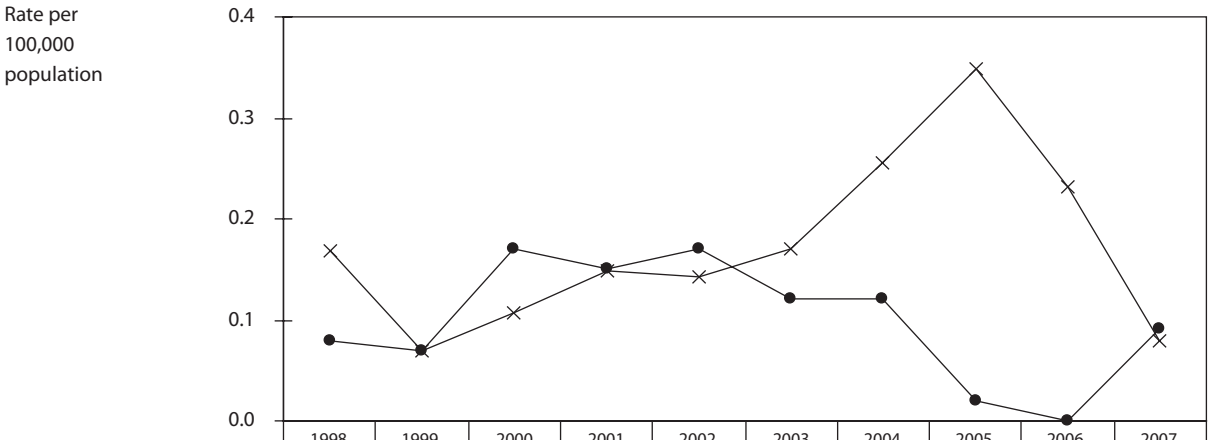
Haemophilus influenzae type b (Hib), invasive

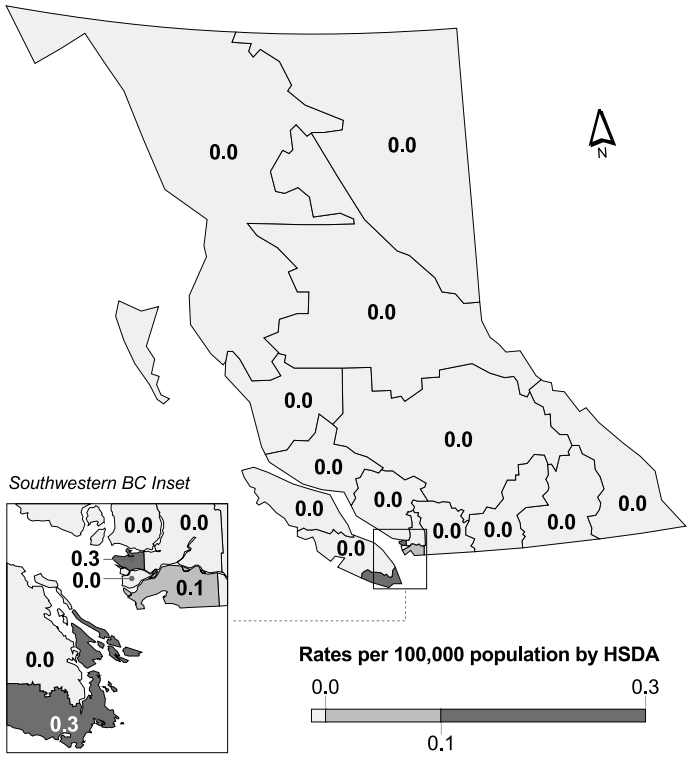
Four cases of invasive Hib disease were reported in 2007, up from no cases in 2006. Three of these cases were in adults ranging in age from 23 to 42 years. One was in a 2 month old infant who had received his first dose of Hib-containing vaccine two weeks prior to the episode date.

1.1 *Haemophilus influenzae* type b (Hib), invasive Rates by Year, 1998–2007



	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
BC Invasive Hib Reports	3	3	7	6	7	5	5	1	0	4
—●— BC Invasive Hib Rate	0.08	0.07	0.17	0.15	0.17	0.12	0.12	0.02	0.00	0.09
—×— Canadian Hib Rate	0.17	0.07	0.11	0.15	0.14	0.17	0.26	0.35	0.23	0.08

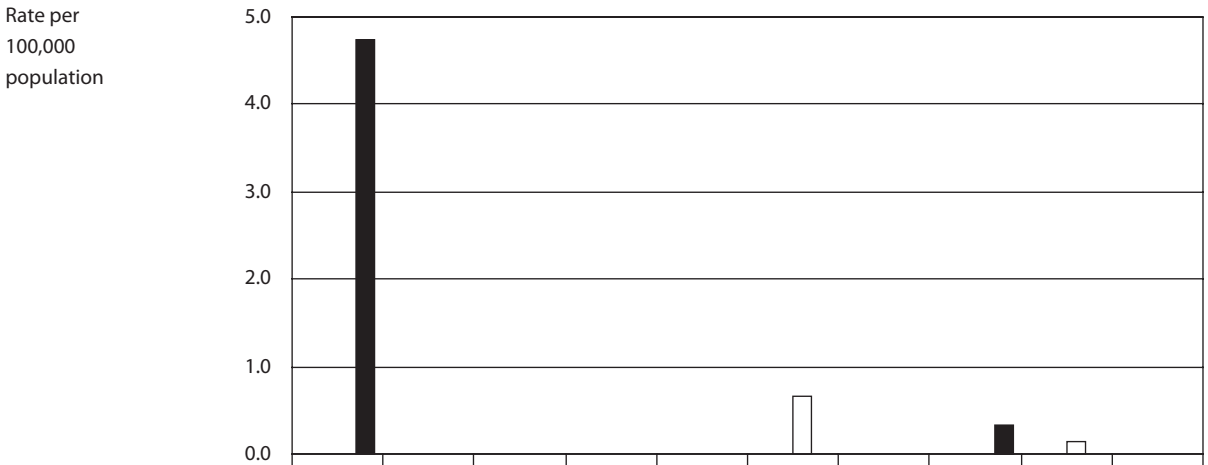
1.2 *Haemophilus influenzae* type b (Hib), invasive Rates by HSDA, 2007



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	0.1
31	Richmond	0	0.0
32	Vancouver	2	0.3
33	North Shore/Coast Garibaldi	0	0.0
41	South Vancouver Island	1	0.3
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.

1.3 *Haemophilus influenzae* type b (Hib), invasive Rates by Age Group and Sex, 2007



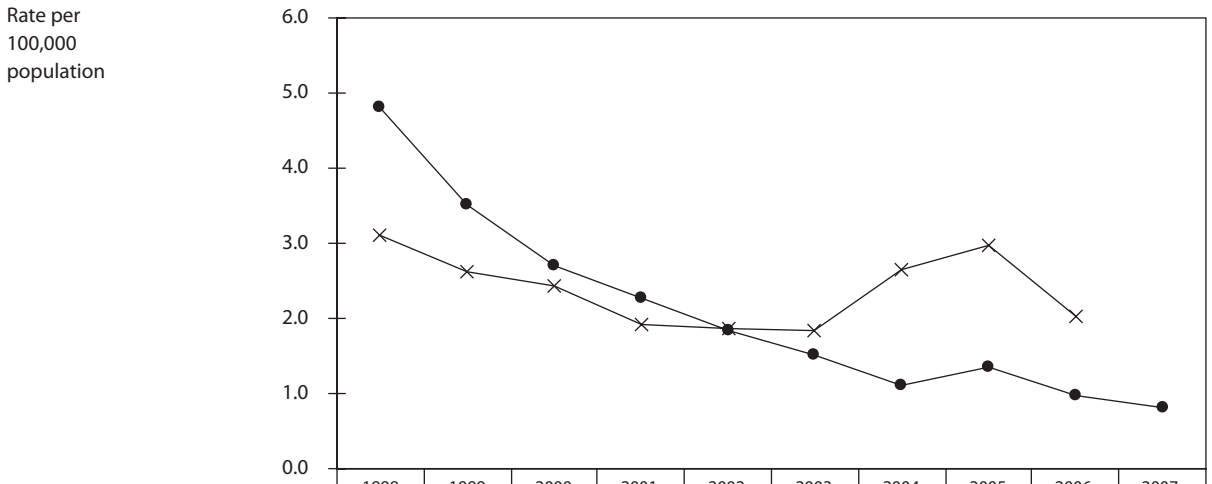
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30-39	40-59	60+
Invasive Hib Reports - Female	0	0	0	0	0	1	0	0	1	0
Invasive Hib Reports - Male	1	0	0	0	0	0	0	1	0	0
□ Invasive Hib Rate - Female	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.2	0.0
■ Invasive Hib Rate - Male	4.7	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0

Hepatitis B

The number of acute hepatitis B cases identified in BC has continued to decline keeping below the national rate since 2002. Thirty five cases of acute hepatitis B in BC have been reported to date for 2007. However this number must be considered provisional and likely to increase slightly. When hepatitis B is identified it may be necessary to perform follow-up testing at 6 months to determine if the case is an acute or chronic infection, and so there may be some cases entered as unknown/undetermined which will later be changed.

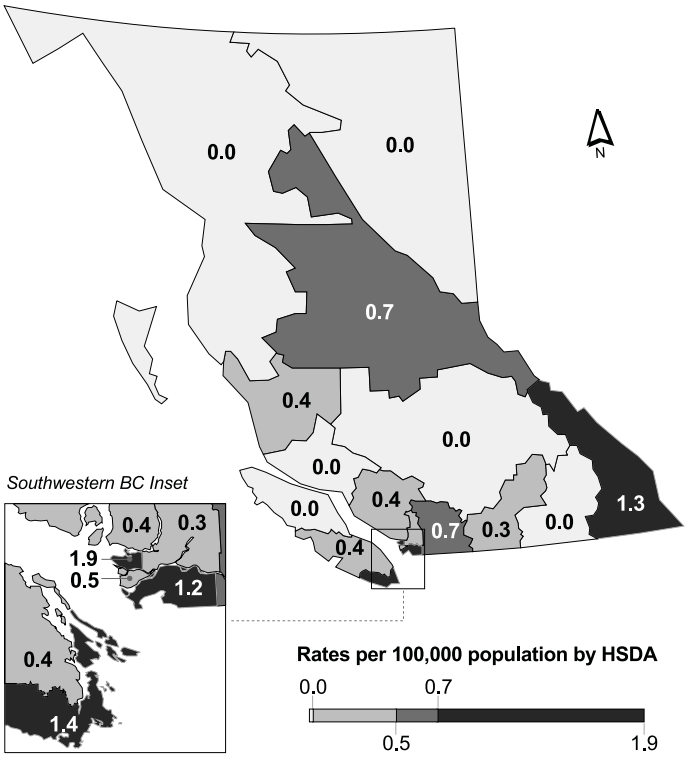
Excluding health service delivery areas where 2 or less acute hepatitis B cases were reported and rates likely to be unstable, Vancouver, South Vancouver Island and Fraser South have the highest rates of acute hepatitis B infection. Publicly funded hepatitis B vaccine programs in BC include the Grade 6 program since 1992 (in 2007 the first recipients were aged 26 years) and the universal infant program introduced in 2001. Only one case was reported in a person under 25 years of age. The vaccine is also publicly funded for individuals at high risk of infection including men who have sex with men. Less than 10% of acute hepatitis B cases reported in 2007 were female.

2.1 Acute Hepatitis B Rates by Year, 1998-2007



	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
BC Hepatitis B: Acute Reports	191	141	109	92	76	63	47	58	42	35
BC Hepatitis B: Acute Rate	4.8	3.5	2.7	2.3	1.9	1.5	1.1	1.4	1.0	0.8
Canadian Hepatitis B Rate	3.1	2.6	2.4	1.9	1.9	1.8	2.6	3.0	2.0	

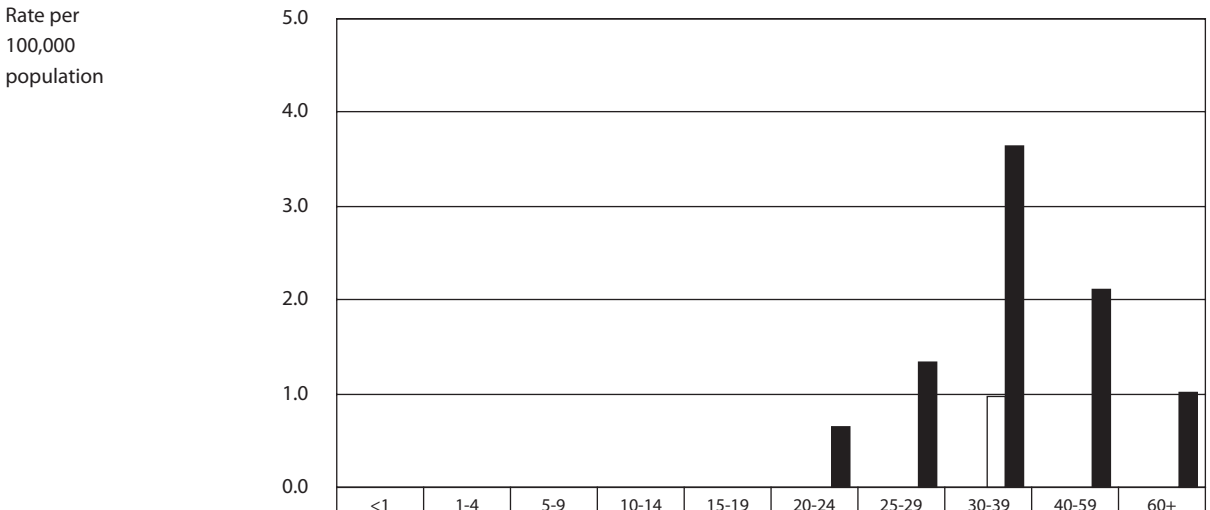
2.2 Acute Hepatitis B Rates by HSDA, 2007



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	0	0.0
21	Fraser East	2	0.7
22	Fraser North	2	0.3
23	Fraser South	8	1.2
31	Richmond	1	0.5
32	Vancouver	12	1.9
33	North Shore/Coast Garibaldi	1	0.4
41	South Vancouver Island	5	1.4
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.

2.3 Acute Hepatitis B Rates by Age Group and Sex, 2007



	<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	0	0	3	0	0
Hepatitis B: Acute Reports - Male	0	0	0	0	0	1	2	11	14	4
□ Hepatitis B: Acute Rate - Female	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
■ Hepatitis B: Acute Rate - Male	0.0	0.0	0.0	0.0	0.0	0.6	1.3	3.7	2.1	1.0

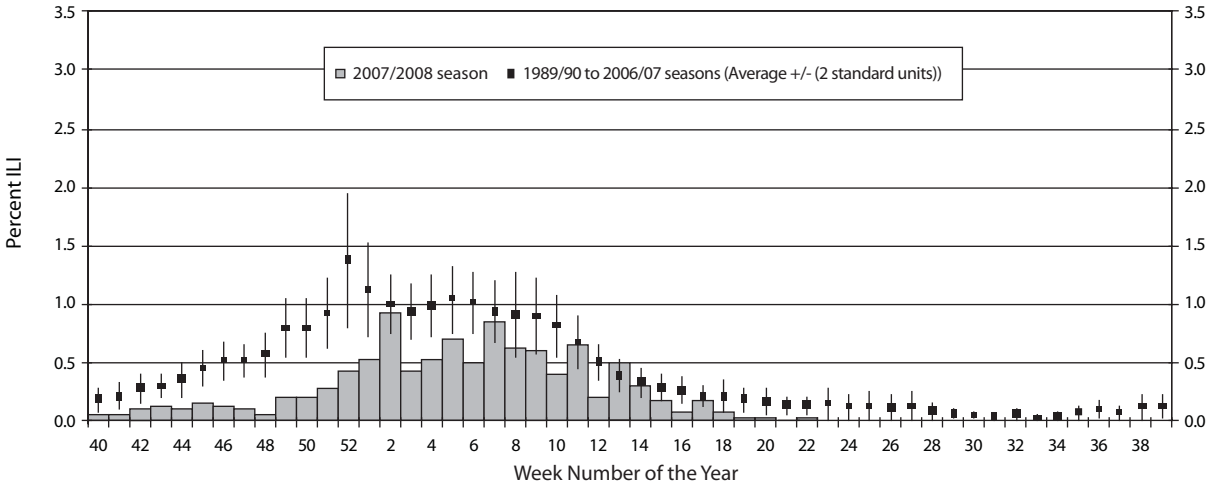
Influenza

Influenza surveillance in British Columbia consists of collection, analysis and reporting of results from 3 main sources of information: sentinel influenza-like-illness (ILI) tracking; facility and school outbreak notifications; and laboratory diagnosis including detailed subtype and strain characterization.

Surveillance is year-round in BC with a new period of sentinel surveillance typically commencing the first week of October (week 40) and continuing through the end of September (week 39) the following year. The data presented in this report captures surveillance data from week 40 in 2007 (September 30, 2007) to week 24 in 2008 (ending June 14, 2008).

Overall, the 2007–08 influenza season peaked later than usual. There were two peaks in activity, the first peak was around week 3 (January 13–19, 2008) and the second peak was around week 9 (February 24–March 1, 2008). Historically, the peak in influenza activity occurs at the end of December or early January. The first peak was mostly related to influenza A/H1N1 which predominated early in the season. The second peak was mostly related to influenza B activity which dominated in February and March. Throughout the late portion of the season (late March and throughout April) influenza A/H3 increased to become the predominant strain as overall activity decreased.

3.1 Proportion of Patient Visits due to Influenza-Like Illness (ILI) per Week Number Compared to Average Proportion of ILI Visits for the Past 18 Seasons Sentinel Physicians, 2007–2008, British Columbia

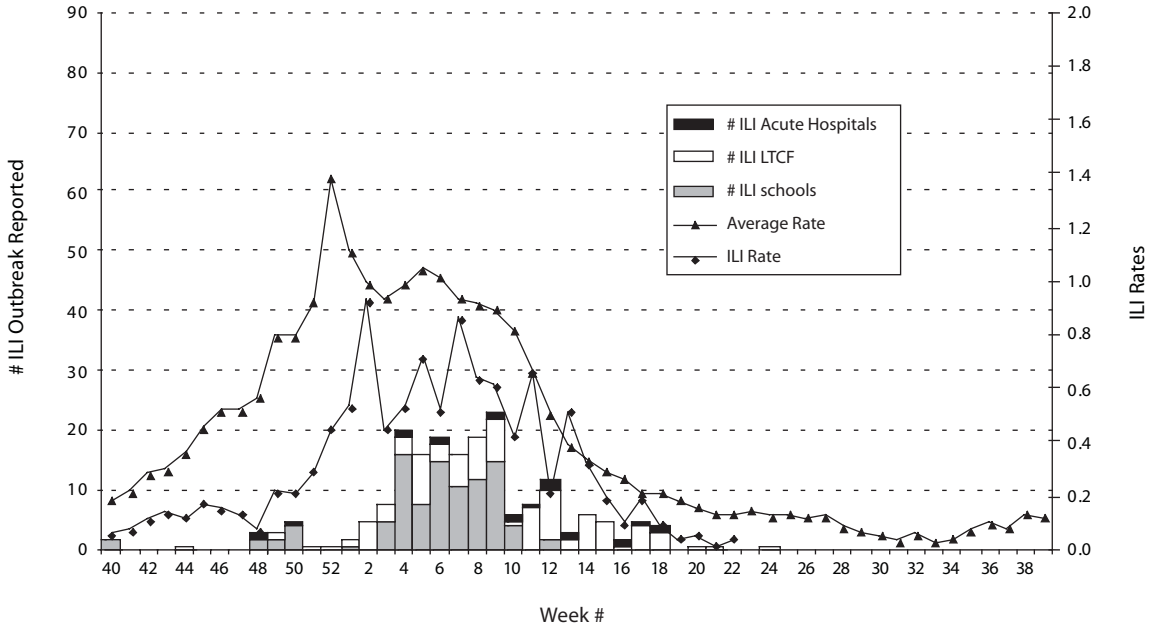


The BC Sentinel physician surveillance system for the 2007–08 influenza season consisted of 44 active sentinel sites comprising over 50 physicians representing all provincial health authorities. The proportion of patient visits due to ILI reported by sentinel physicians was below or within the expected range based on a historic average throughout the surveillance period with no unusual excess. The highest proportion of sentinel physician visits due to ILI occurred during week 2 (January 6–12, 2008) with 0.92% of the total sentinel physician visits attributed to ILI (see Figure 3.1).

During the 2007–08 season there were 198 outbreaks reported to BCCDC compared to 164 during the 2006–07 season; influenza A was identified from 41 (20%) of these, influenza B from 32 (16%) and 6 (3%) were lab confirmed as both influenza A and B. The 2007–08 season had a 99 school outbreaks of influenza-like-illness as well as seven outbreaks reported from correctional facilities (see Figure 3.2).

The BCCDC Virology Laboratory and the Children's and Women's Health Centre Virology Laboratory conducted 6,323 tests for respiratory viruses between September 30, 2007 and June 14, 2008. Of these, 1242 (19.7%) were positive for influenza, 715 (11.3%) were positive for influenza A and 530 (8.4%) were positive for influenza B. Additionally 497 (8%) of isolates tested were positive for

3.2 Number of Influenza-Like Illness (ILI) Outbreaks Reported, ILI Rates and Average ILI Rate for Past 18 Years, Per Week , 2007–2008, British Columbia



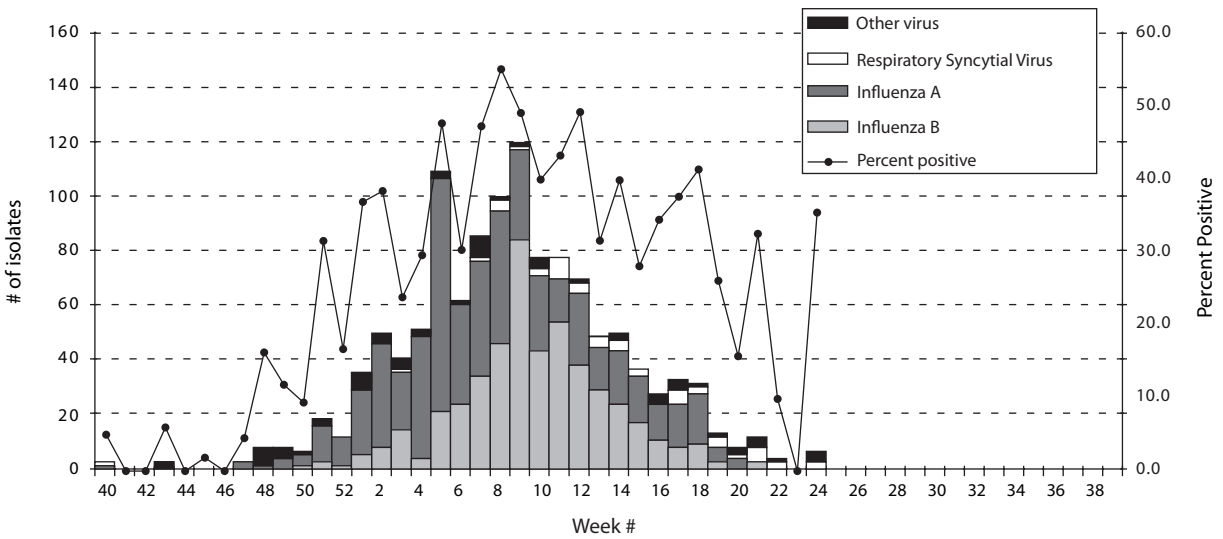
Influenza (continued)

respiratory syncytial virus, the majority of these were reported from Children's and Women's Health Centre Virology Laboratory. 265 (4.2%) specimens were positive for other respiratory viruses (adenovirus or parainfluenza virus) (see Figures 3.3 and 3.4).

BC laboratories send select influenza isolates to the National Microbiology Laboratory (NML) for further strain characterization. Between September 1, 2007 and June 5, 2008, 284 isolates were sent to NML from BC. Of the 284 isolates from the 2007–08 season, 121 (43%) were A/Solomon Islands/03/06 (H1N1), 2 (0.7%) were A/Brisbane/59/07-like (H1N1), 34 (12%) were A/Brisbane/10/2007-like (H3N2), 1 (0.4%) was A/Wisconsin/67/05-like (H3N2), 123 (43%) were B/Florida/04/2006 (Yamagata lineage)-like (B) and 3 (1%) were B/Malaysia/2506/04 (Victoria lineage)-like. A/Solomon Islands/03/06 (H1N1), A/Wisconsin/67/05-like (H3N2) and B/Malaysia/2506/04-like were vaccine components in BC for the 2007–08 season. A/Brisbane/59/07-like (H1N1), A/Brisbane/10/2007-like (H3N2) and B/Florida/04/2006-like are the recommended vaccine components for the coming 2008–09 season. The predominant circulating influenza A/H1N1 strain was a good match to the 2007–08 vaccine component, whereas the circulating A/H3N2 virus was strain-level mismatched to the vaccine and the circulating B virus was lineage-level mismatched to the vaccine.

Antiviral testing done by the National Microbiology Lab identified new emergence of oseltamivir resistance among influenza A (H1N1) isolates during the 2007–08

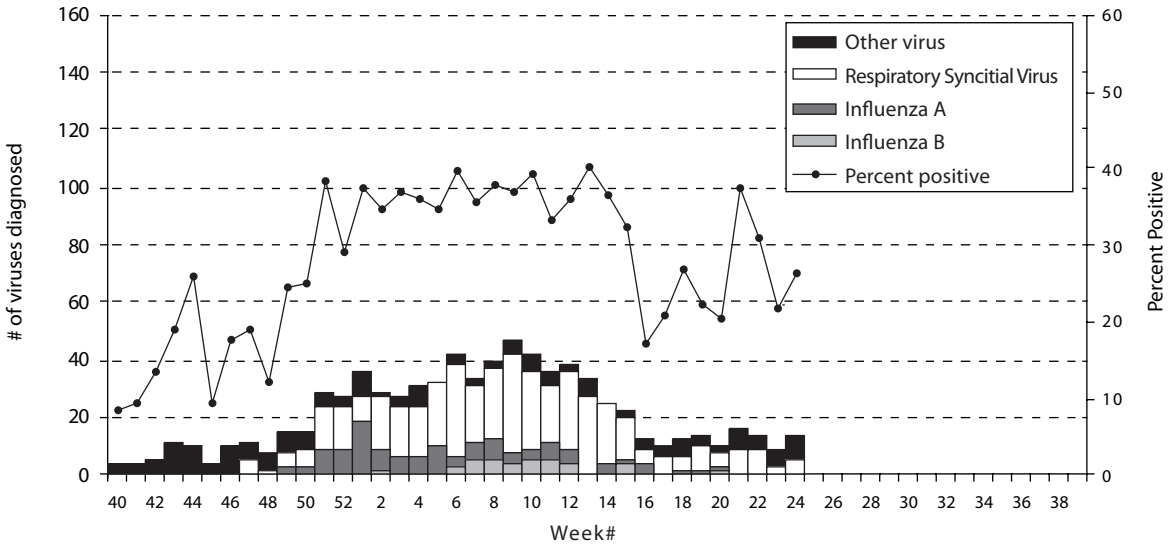
3.3 Virus Isolates and Percentage of Respiratory Specimens Submitted to BC Provincial Laboratory Diagnosed Positive for a Virus, per Week, 2007–2008, British Columbia



season. This phenomenon was recognized internationally. In Canada a total of 1348 influenza isolates (486 influenza A/H1, 231 influenza A/H3, and 631 influenza B) were tested for oseltamivir resistance between September 1, 2007 and June 4, 2008. Nationally, 127 of the 486 (26%) H1 isolates were resistant. 123 were A/Solomon Islands/03/06 and four were A/Brisbane/59/07-like. No resistance to oseltamivir was found among the 231 H3N2 and 631 B isolates that were tested. Eighteen resistant isolates were identified from BC. Follow-up investigations nationally did not identify difference in severity of illness associated with resistant isolates and no change to recommendations for oseltamivir use were issued during the 2007–08 season. Continued monitoring will inform recommendations for subsequent seasons.

During the 2004-05 influenza season, the BC Centre for Disease Control piloted a method using observational design to assess vaccine effectiveness against laboratory-confirmed influenza through the sentinel physician network. This project was repeated in the 2005–06 season, expanded in 2006–07 influenza season to include Alberta and Quebec and expanded again during the 2007–08 season to include Ontario. Vaccine effectiveness estimates for the 2007-08 season are currently being derived and, as with previous seasons, will be written into report for publication.

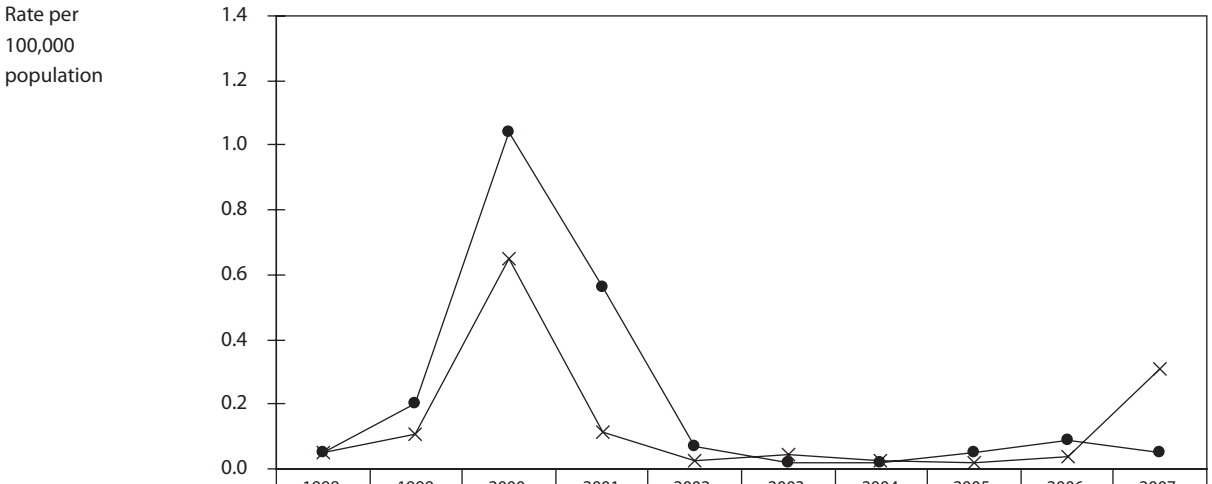
3.4 Virus Isolates and Percentage of Respiratory Specimens Submitted to Children and Women's Health Centre Laboratory Diagnosed Positive for a Virus, per Week, 2007–2008, British Columbia



Measles

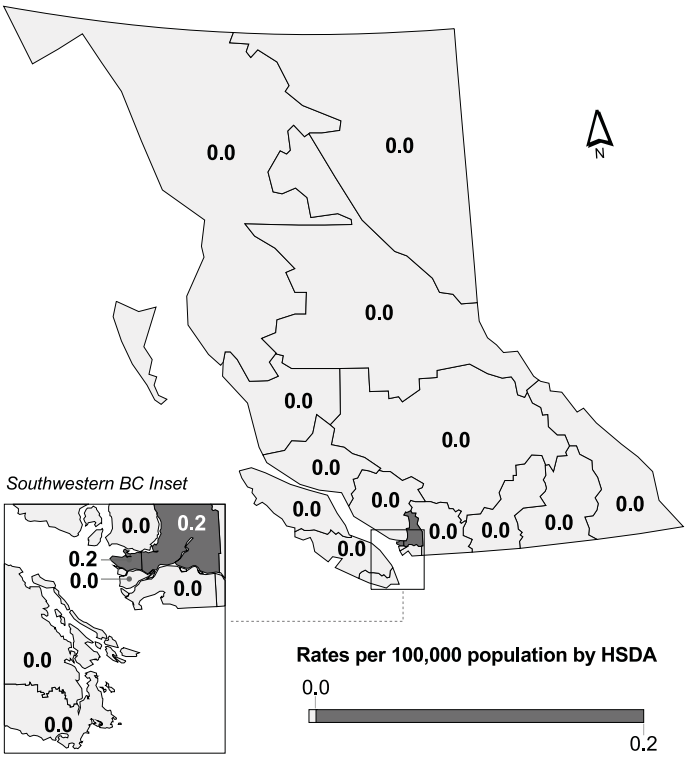
Two cases of measles were reported in 2007, both in young adult males. One case had a history of travel to Korea and Japan, with infection thought to have been acquired in Japan, and a history of unknown prior measles immunization. The second case did not have a travel history, did not have contact with a known case and reported receiving vaccine in China as an infant. No secondary cases were reported. A case of measles was also confirmed in an adolescent Japanese visitor with extensive contacts among her travel companions and several venues in BC, who traveled to Alberta prior to returning to Japan.

4.1 Measles Rates by Year, 1998–2007



	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
BC Measles Reports	2	8	42	23	3	1	1	2	4	2
BC Measles Rate	0.05	0.20	1.04	0.56	0.07	0.02	0.02	0.05	0.09	0.05
Canadian Measles Rate	0.05	0.10	0.65	0.12	0.02	0.05	0.02	0.02	0.04	0.31

4.2 Measles Rates by HSDA, 2007



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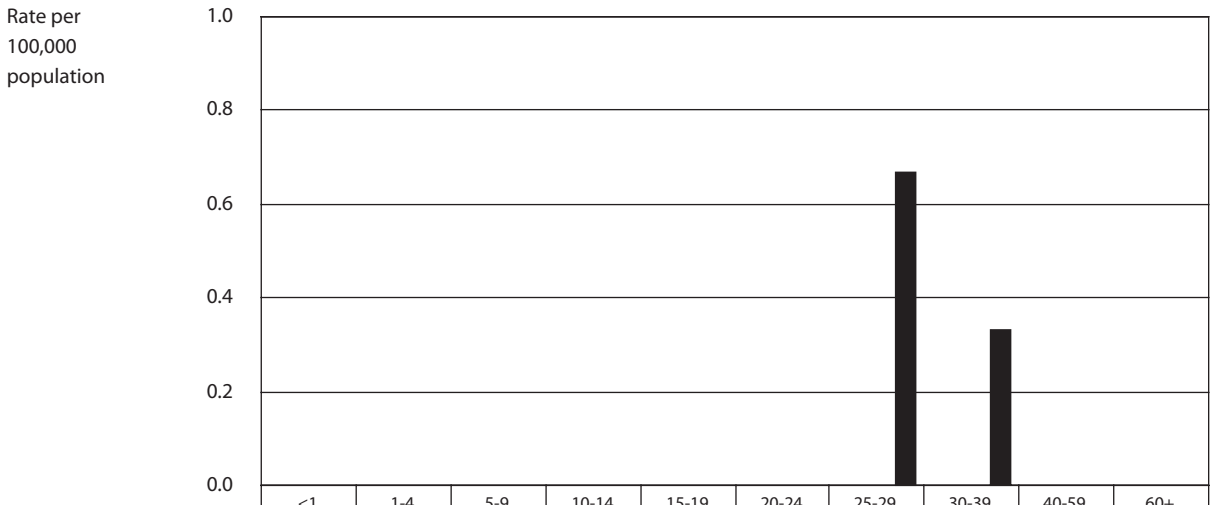
14	Thompson Cariboo Shuswap	0	0.0
21	Fraser East	0	0.0
22	Fraser North	1	0.2
23	Fraser South	0	0.0
31	Richmond	0	0.0
32	Vancouver	1	0.2
33	North Shore/Coast Garibaldi	0	0.0
41	South Vancouver Island	0	0.0
42	Central Vancouver Island	0	0.0
43	North Vancouver Island	0	0.0
51	Northwest	0	0.0
52	Northern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

Note: Map classification by Jenks natural breaks method.

4.3 Measles Rates by Age Group and Sex, 2007



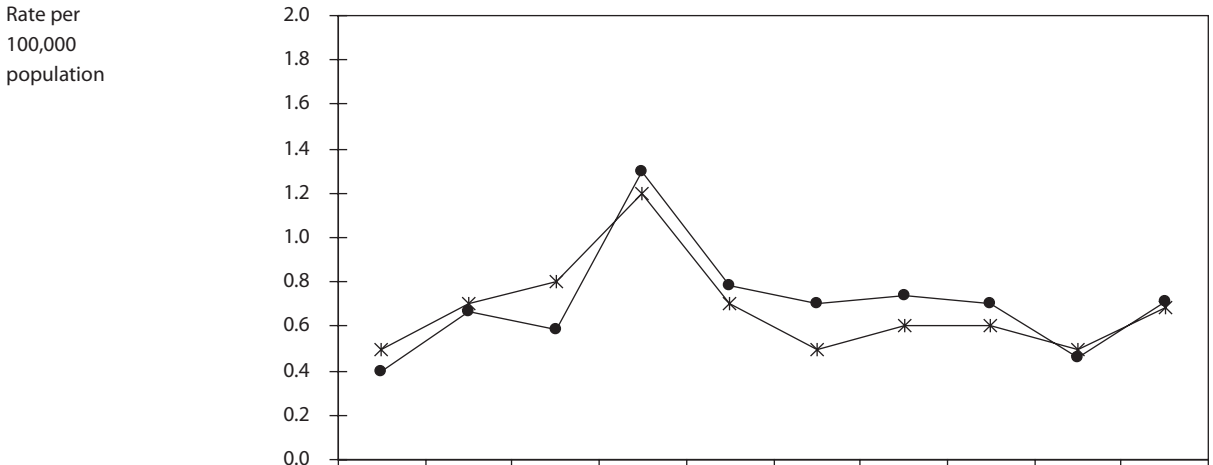
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30-39	40-59	60+
Measles Reports - Female	0	0	0	0	0	0	0	0	0	0
Measles Reports - Male	0	0	0	0	0	0	1	1	0	0
□ Measles Rate - Female	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
■ Measles Rate - Male	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.3	0.0	0.0

Meningococcal Disease (invasive)

The rate of invasive meningococcal disease (IMD) has been relatively stable in BC since 2002 and was 0.7 per 100,000 population during 2007. Notably, only one case was recorded in a child between the ages of 1 and 14 reflecting a sustained and significant decline in serotype C disease experienced by this immunized cohort.

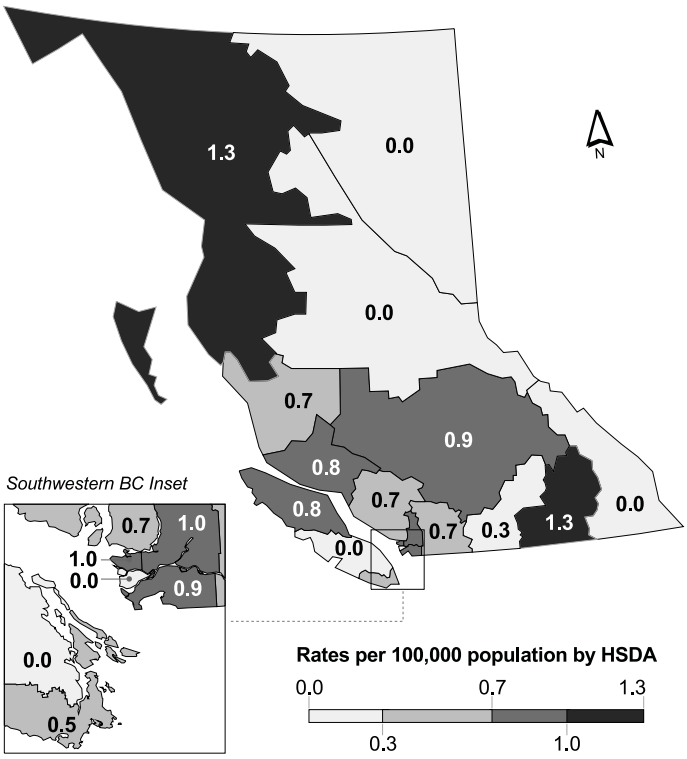
Of 30 serotyped cases, 11 were serotype B, 7 serotype C, 7 serotype Y, 2 serotype W-135 and 4 were untypable or of unknown serotype at the time of printing. There has been no significant upward trend in the rate of non-serotype C vaccine preventable IMD in BC observed to date.

5.1 Meningococcal Disease (invasive) Rates by Year, 1998–2007



	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
BC Meningococcal Reports	16	27	24	53	32	29	31	30	20	30
BC Meningococcal Rate	0.4	0.7	0.6	1.3	0.8	0.7	0.7	0.7	0.5	0.7
Canadian Meningococcal Rate	0.5	0.7	0.8	1.2	0.7	0.5	0.6	0.6	0.5	0.7

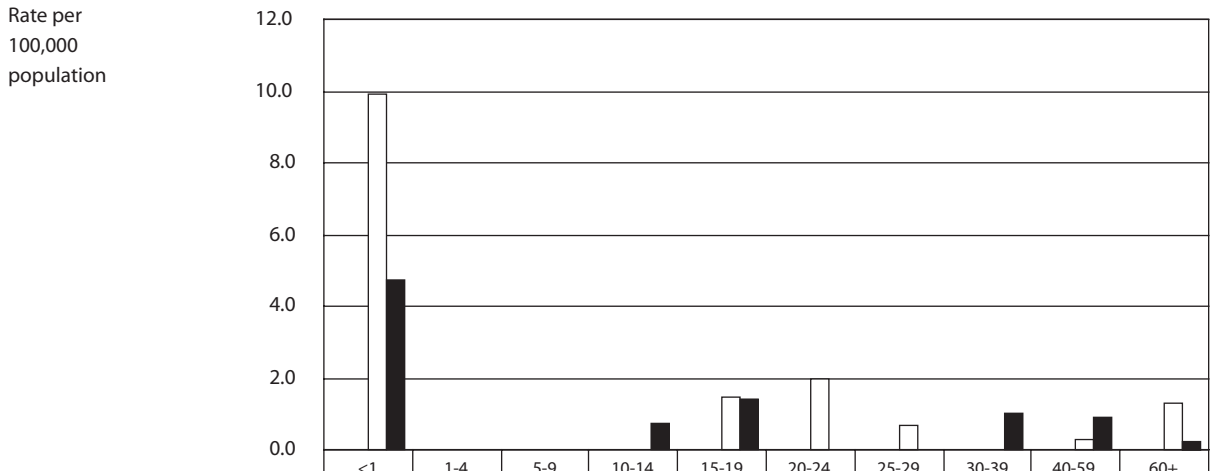
5.2 Meningococcal Disease (invasive) Rates by HSDA, 2007



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	2	0.9
21	Fraser East	2	0.7
22	Fraser North	6	1.0
23	Fraser South	6	0.9
31	Richmond	0	0.0
32	Vancouver	6	1.0
33	North Shore/Coast Garibaldi	2	0.7
41	South Vancouver Island	2	0.5
42	Central Vancouver Island	0	0.0
43	North Vancouver Island	1	0.8
51	Northwest	1	1.3
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, 2007

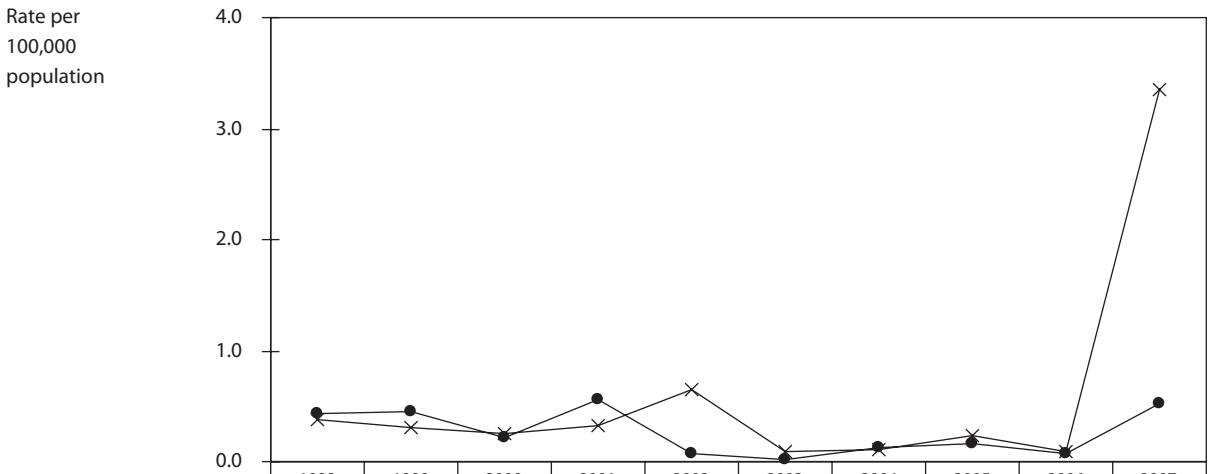


	<1	1-4	5-9	10-14	15-19	20-24	25-29	30-39	40-59	60+
Meningococcal Reports - Female	2	0	0	0	2	3	1	0	2	6
Meningococcal Reports - Male	1	0	0	1	2	0	0	3	6	1
□ Meningococcal Rate - Female	9.9	0.0	0.0	0.0	1.5	2.0	0.7	0.0	0.3	1.3
■ Meningococcal Rate - Male	4.7	0.0	0.0	0.8	1.4	0.0	0.0	1.0	0.9	0.3

Mumps

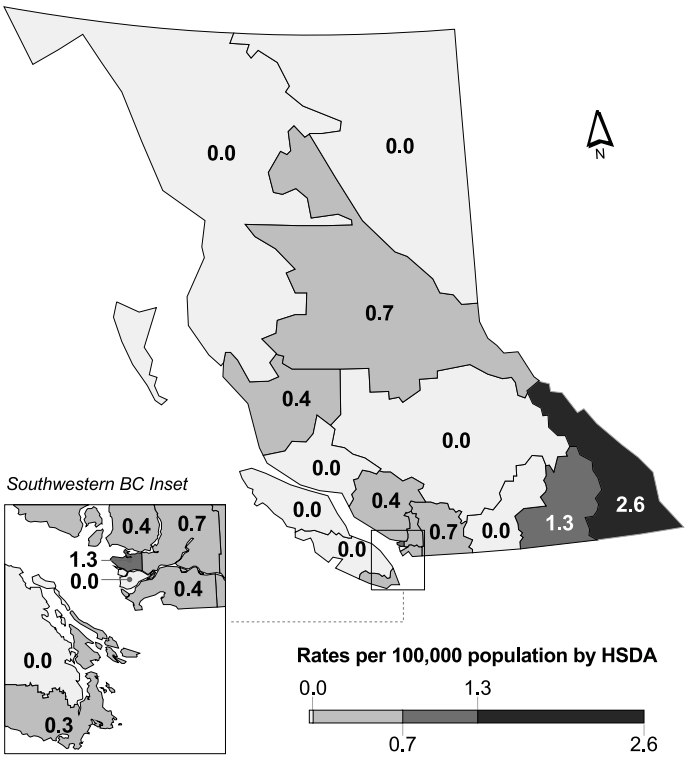
There were 23 confirmed cases of mumps reported in BC in 2007. Most cases were aged 20-29 years, and 61% were female. Immunization status was not reported. One case had links to the large outbreak of mumps that occurred in 2007 in the Maritimes. An additional 4 cases had travelled internationally during their exposure period to Europe and China. The remaining cases fell into one of four clusters, without sustained transmission beyond one or two generations.

6.1 Mumps Rates by Year, 1998–2007



	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
BC Mumps Reports	17	18	9	23	3	1	5	7	3	23
BC Mumps Rate	0.43	0.45	0.22	0.56	0.07	0.02	0.12	0.16	0.07	0.53
Canadian Mumps Rate	0.37	0.30	0.26	0.33	0.64	0.09	0.10	0.24	0.10	3.36

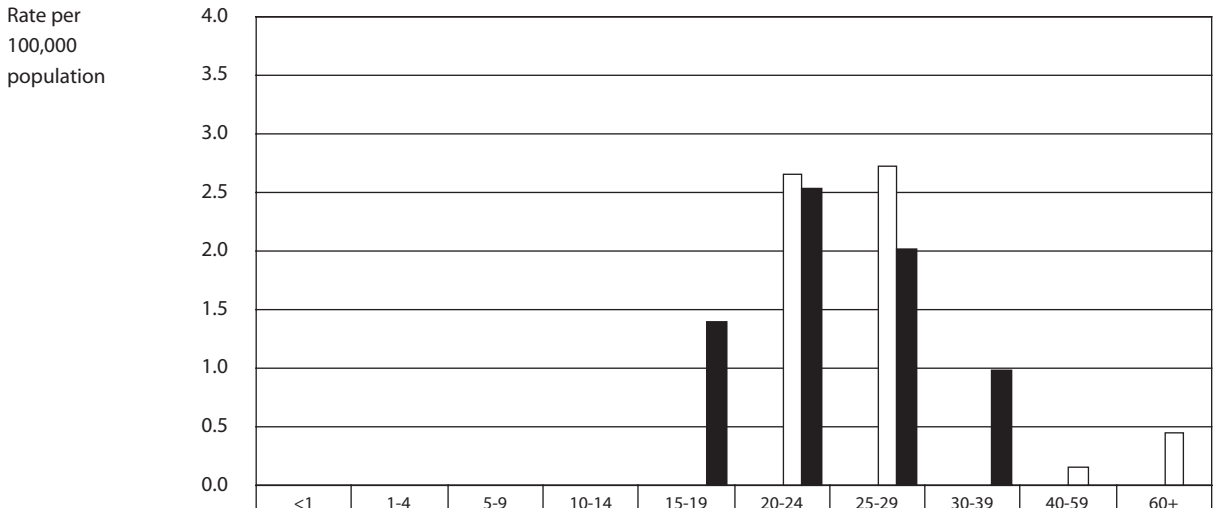
6.2 Mumps Rates by HSDA, 2007



HSDA	Health Service Delivery Area	Cases	Rate
11	East Kootenay	2	2.6
12	Kootenay Boundary	1	1.3
13	Okanagan	0	0.0
14	Thompson Cariboo Shuswap	0	0.0
21	Fraser East	2	0.7
22	Fraser North	4	0.7
23	Fraser South	3	0.4
31	Richmond	0	0.0
32	Vancouver	8	1.3
33	North Shore/Coast Garibaldi	1	0.4
41	South Vancouver Island	1	0.3
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.

6.3 Mumps Rates by Age Group and Sex, 2007



	<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	4	4	0	1	2
Mumps Reports - Male	0	0	0	0	2	4	3	3	0	0
□ Mumps Rate - Female	0.0	0.0	0.0	0.0	0.0	2.7	2.7	0.0	0.2	0.4
■ Mumps Rate - Male	0.0	0.0	0.0	0.0	1.4	2.5	2.0	1.0	0.0	0.0

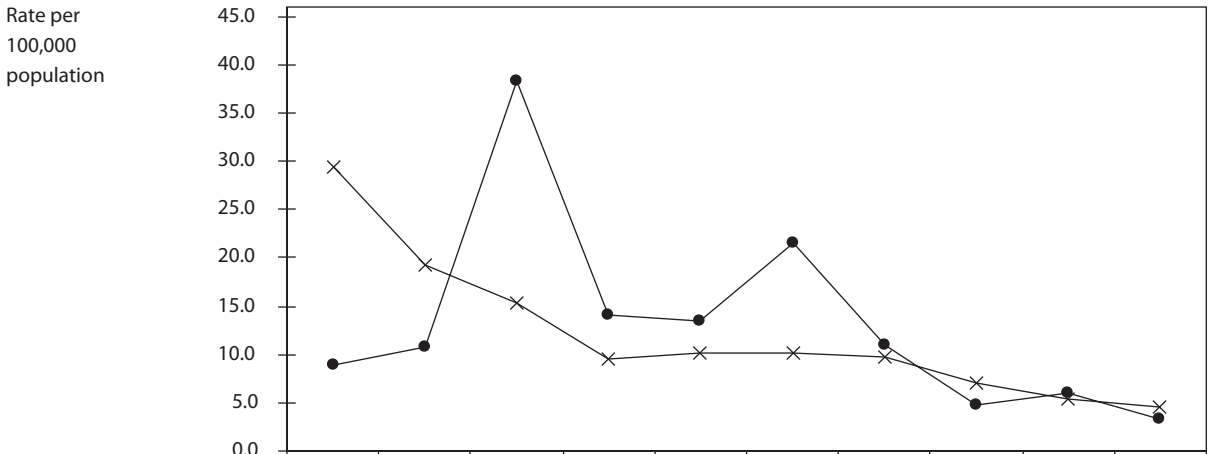
Pertussis

Pertussis demonstrates cyclical peaks every three to five years. In the early 1990s, overall pertussis rates in BC rose above 5 per 100,000 with substantial peaks in 1996 (25 per 100,000) 2000 (38 per 100,000) and 2003 (21.5 per 100,000).

Beginning in 2005, pertussis rates dropped to their lowest since the 1980s, and this is demonstrated again for 2007 (3 per 100,000). In particular, rates among infants < 1 year of age are dramatically reduced in 2007, falling ~10-fold in this young age group compared to 2000 and earlier.

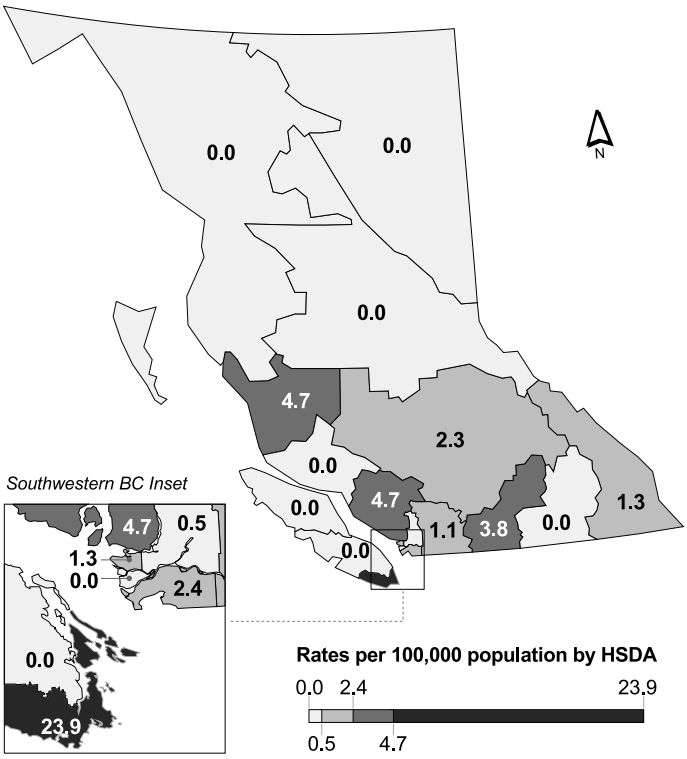
Recent low levels of pertussis activity are attributed in part to important immunization program changes. These include introduction of acellular pertussis vaccine with improved efficacy over previous whole cell vaccine for routine childhood immunization beginning in 1997, and for adolescents 14–16 years of age beginning in January 2004.

7.1 Pertussis Rates by Year, 1998–2007



	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
BC Pertussis Reports	357	435	1549	577	557	895	464	206	258	149
BC Pertussis Rate	9.0	10.8	38.4	14.2	13.5	21.5	11.0	4.8	6.0	3.4
Canadian Pertussis Rate	29.5	19.2	15.4	9.5	10.2	10.2	9.7	7.1	5.3	4.5

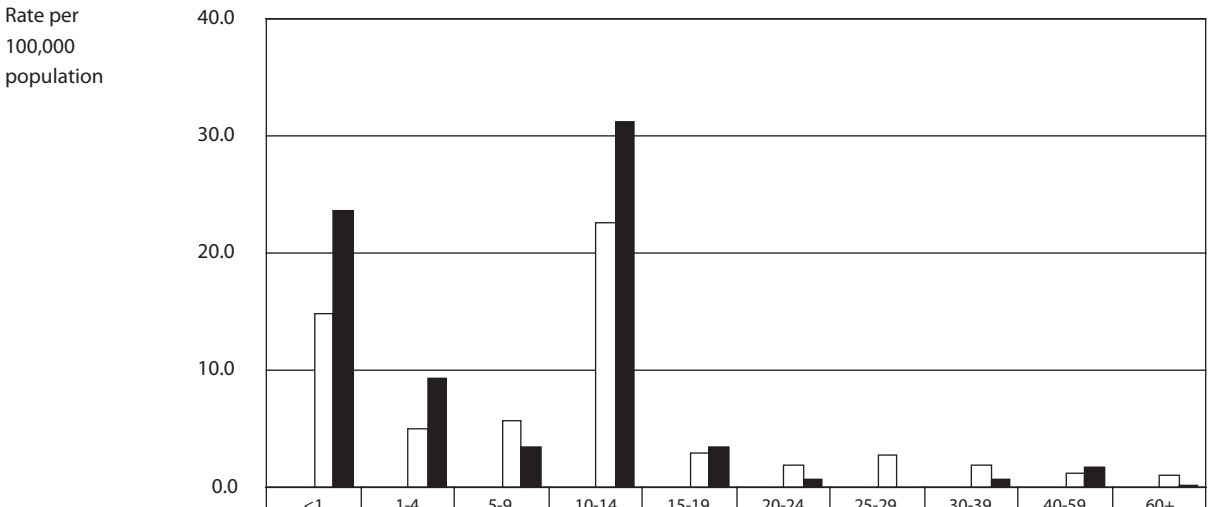
7.2 Pertussis Rates by HSDA, 2007



HSDA	Health Service Delivery Area	Cases	Rate
11	East Kootenay	1	1.3
12	Kootenay Boundary	0	0.0
13	Okanagan	13	3.8
14	Thompson Cariboo Shuswap	5	2.3
21	Fraser East	3	1.1
22	Fraser North	3	0.5
23	Fraser South	16	2.4
31	Richmond	0	0.0
32	Vancouver	8	1.3
33	North Shore/Coast Garibaldi	13	4.7
41	South Vancouver Island	87	23.9
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.

7.3 Pertussis Rates by Age Group and Sex, 2007



	<1	1-4	5-9	10-14	15-19	20-24	25-29	30-39	40-59	60+
Pertussis Reports - Female	3	4	6	28	4	3	4	6	8	5
Pertussis Reports - Male	5	8	4	41	5	1	0	2	11	1
□ Pertussis Rate - Female	14.9	4.9	5.6	22.6	2.9	2.0	2.7	2.0	1.2	1.1
■ Pertussis Rate - Male	23.7	9.3	3.5	31.2	3.5	0.6	0.0	0.7	1.7	0.3

Pneumococcal Disease (invasive)

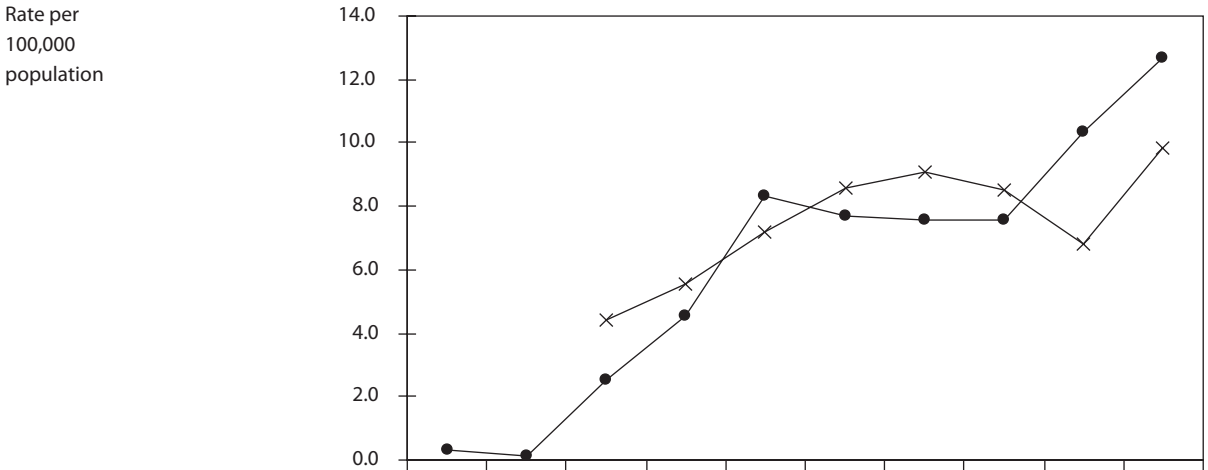
The rate of invasive pneumococcal disease (IPD) increased in 2007 to 12.7 reports per 100,000 residents. This was driven by two outbreaks of IPD. The first was a geographically concentrated outbreak of serotype 5 disease identified by Providence Health Care and Vancouver Coastal Health Authority.[1] The outbreak occurred mainly in the fall of 2006 but continued into the beginning months of 2007. The second outbreak was also serotype 5 disease in the Interior Health Authority of BC occurring mainly in the Kelowna area.[2] Both of these outbreaks were focused among indigent and drug using populations. As a result of these two outbreaks, homelessness and illicit drug use have been added to the indications for publicly funded pneumococcal polysaccharide vaccine in BC.

Rates of IPD among children < 5 years old in British Columbia have fallen by 70% since the introduction of conjugate pneumococcal vaccine (from 54.6 per 100,000 to 15.4 per 100,000 in 2007). In 2006, rates were 12 per 100,000 in the < 1 year age group. In 2007 they were 9.7 per 100,000. Compared to 2006, rates in the 1–4 year old age group have increased slightly from 14 per 100,000 in 2006 to 16.8 per 100,000 in 2007.

[1]Romney M, Hull M, Gustafson R *et al*. Large Community Outbreak of *Streptococcus pneumoniae* serotype 5 invasive infections in an impoverished urban population. Clinical Infectious Diseases 2008; 47:768-774. http://www.journals. uchicago.edu/doi/abs/10.1086/591128

[2]Kozoriz K, Fraser J, McKay D, Grunert B, Ferris D, Parker R. Serotype 5 Invasive Pneumococcal Disease Outbreak – Kelowna, British Columbia, Canada. Canada Communicable Disease Report, 4 January 2008; http://www.phac-aspc.gc.ca/ccdrw-rmtch/2008/r0108-eng.php

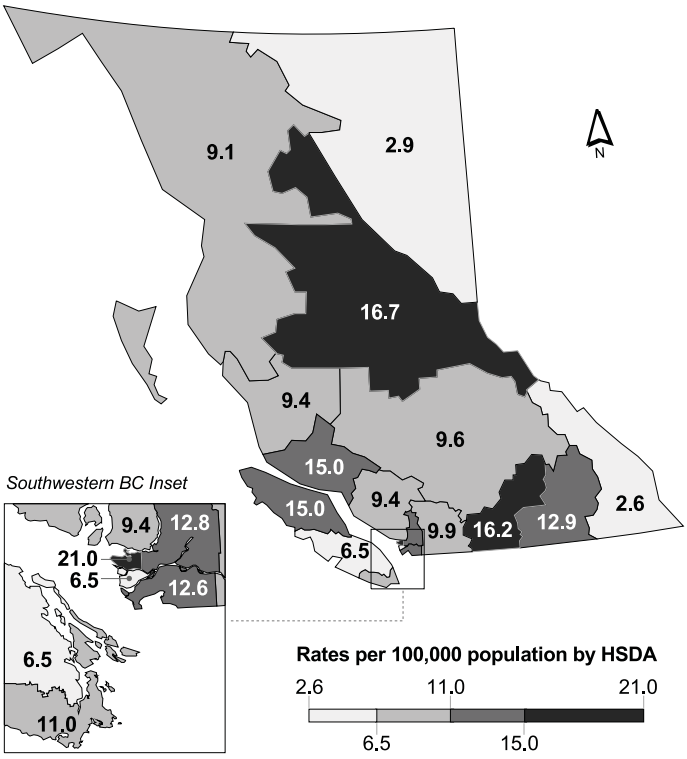
8.1 Pneumococcal Disease (invasive) Rates by Year, 1998–2007



	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
BC Invasive Pneumococcal Reports	12	5	102	186	343	319	318	323	446	552
BC Invasive Pneumococcal Rate	0.3	0.1	2.5	4.6	8.3	7.7	7.6	7.6	10.4	12.7
Canadian Invasive Pneumococcal Rate			4.4	5.6	7.2	8.6	9.1	8.5	6.8	9.9

Note: Reporting of pneumococcal meningitis under regulations under the Health Act was replaced with Invasive Pneumococcal Disease in Jan. 2000

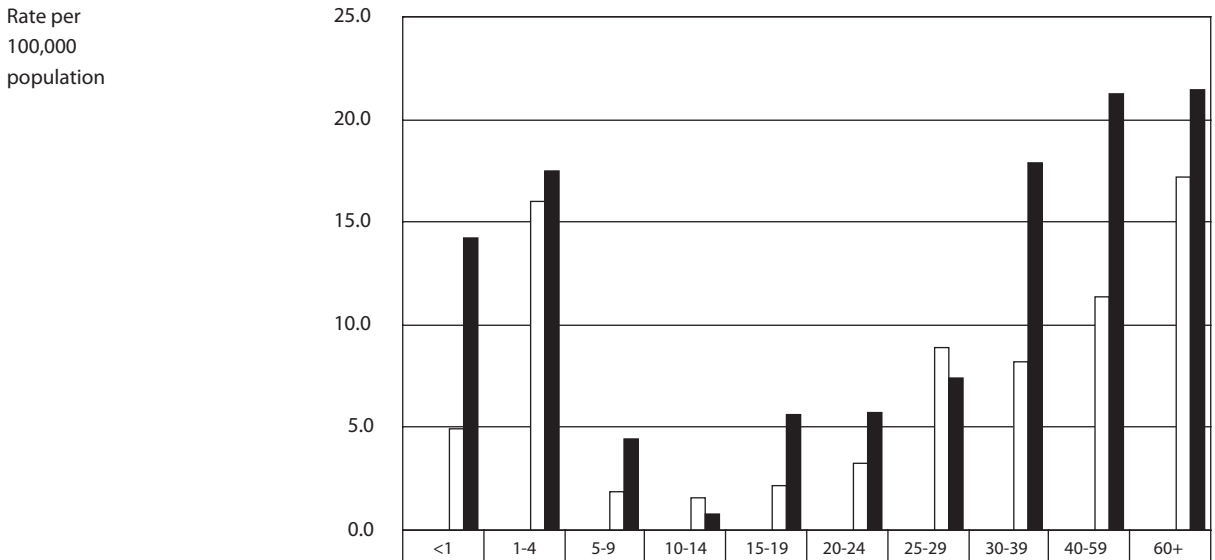
8.2 Pneumococcal Disease (invasive) Rates by HSDA, 2007



HSDA	Health Service Delivery Area	Cases	Rate
11	East Kootenay	2	2.6
12	Kootenay Boundary	10	12.9
13	Okanagan	55	16.2
14	Thompson Cariboo Shuswap	21	9.6
21	Fraser East	27	9.9
22	Fraser North	74	12.8
23	Fraser South	85	12.6
31	Richmond	12	6.5
32	Vancouver	132	21.0
33	North Shore/Coast Garibaldi	26	9.4
41	South Vancouver Island	40	11.0
42	Central Vancouver Island	17	6.5
43	North Vancouver Island	18	15.0
51	Northwest	7	9.1
52	Northern Interior	24	16.7
53	Northeast	2	2.9

Note: Map classification by Jenks natural breaks method.

8.3 Pneumococcal Disease (invasive) Rates by Age Group and Sex, 2007

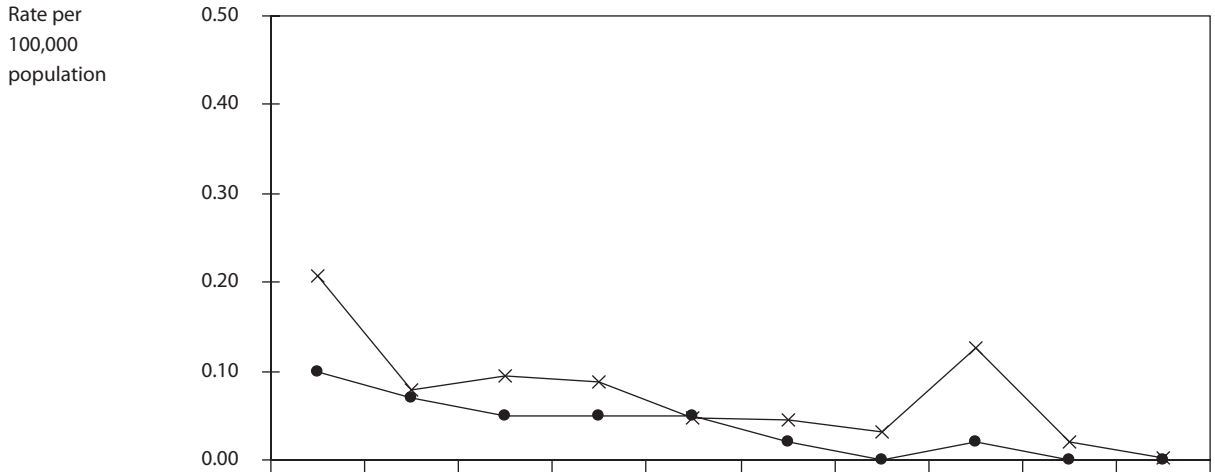


	<1	1-4	5-9	10-14	15-19	20-24	25-29	30-39	40-59	60+
Invasive Pneumococcal Reports - Female	1	13	2	2	3	5	13	25	77	78
Invasive Pneumococcal Reports - Male	3	15	5	1	8	9	11	54	141	85
Invasive Pneumococcal Reports - Unknown	0	0	0	0	0	0	0	0	0	1
□ Invasive Pneumococcal Rate - Female	5.0	16.0	1.9	1.6	2.2	3.3	8.9	8.2	11.4	17.2
■ Invasive Pneumococcal Rate - Male	14.2	17.5	4.4	0.8	5.6	5.7	7.4	17.9	21.2	21.5

Rubella

No cases of rubella were reported in 2007. Two or fewer cases have been reported each year since 2000. No cases of congenital rubella syndrome (CRS) were reported in 2007; the last CRS case was reported in 2005.

9.1 Rubella Rates by Year, 1998–2007



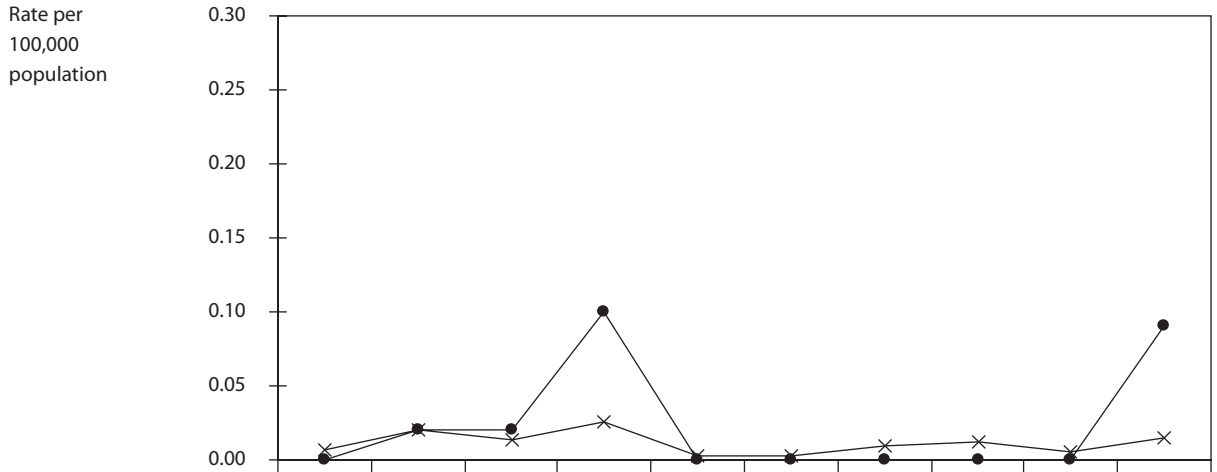
	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
BC Rubella Reports	4	3	2	2	2	1	0	1	0	0
BC Rubella Rate	0.10	0.07	0.05	0.05	0.05	0.02	0.00	0.02	0.00	0.00
Canadian Rubella Rate	0.21	0.08	0.09	0.09	0.05	0.04	0.03	0.13	0.02	0.00

Tetanus

Four cases of tetanus were reported in BC in 2007; two were laboratory confirmed and two diagnosed on the basis of clinical presentation alone. These are the first cases of tetanus reported in BC since 2001. One case was in a child who had sustained a minor injury outdoors and was unimmunized due to philosophical objections. The three other cases were aged over 50 years, and had no available records of immunization, with unknown immunization status. The adult cases were fatal.

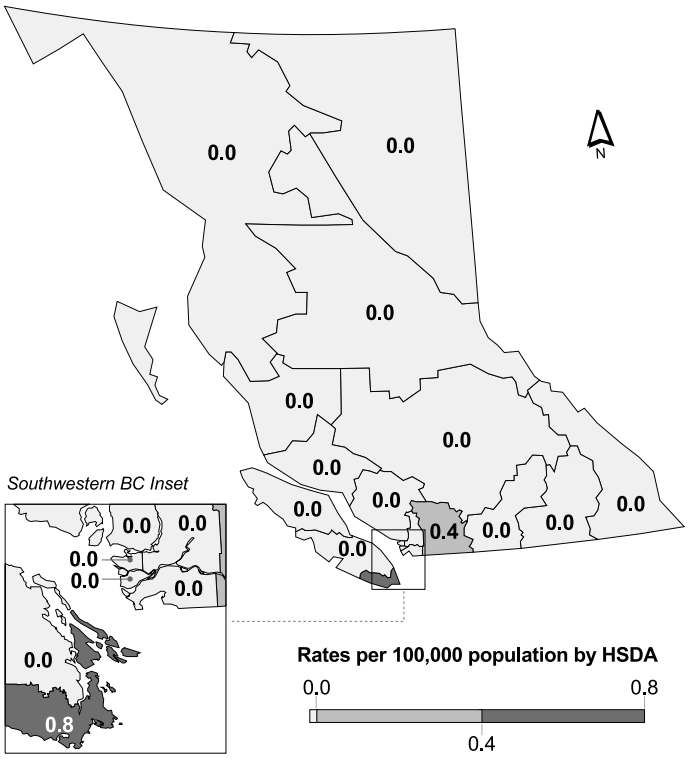
In adults who have completed a primary series in childhood, a booster dose of tetanus toxoid is recommended every 10 years to maintain protection against tetanus, which is ubiquitous in the environment.

10.1 Tetanus Rates by Year, 1998–2007



	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
BC Tetanus Reports	0	1	1	4	0	0	0	0	0	4
BC Tetanus Rate	0.00	0.02	0.02	0.10	0.00	0.00	0.00	0.00	0.00	0.09
Canadian Tetanus Rate	0.01	0.02	0.01	0.03	0.00	0.00	0.01	0.01	0.01	0.02

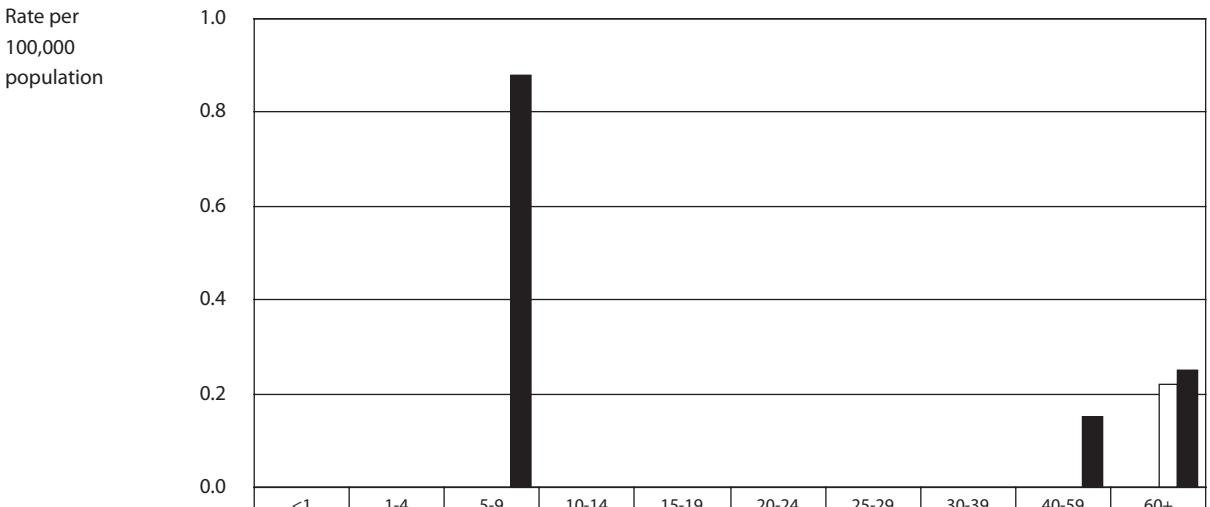
10.2 Tetanus Rates by HSDA, 2007



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	1	0.4
22	Fraser North	0	0.0
23	Fraser South	0	0.0
31	Richmond	0	0.0
32	Vancouver	0	0.0
33	North Shore/Coast Garibaldi	0	0.0
41	South Vancouver Island	3	0.8
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.

10.3 Tetanus Rates by Age Group and Sex, 2007



	<1	1-4	5-9	10-14	15-19	20-24	25-29	30-39	40-59	60+
Tetanus Reports - Female	0	0	0	0	0	0	0	0	0	1
Tetanus Reports - Male	0	0	1	0	0	0	0	0	1	1
□ Tetanus Rate - Female	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
■ Tetanus Rate - Male	0.0	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.2	0.3

sexually transmitted and bloodborne pathogens

HIV

AIDS

Genital Chlamydia

Gonorrhea

Hepatitis C

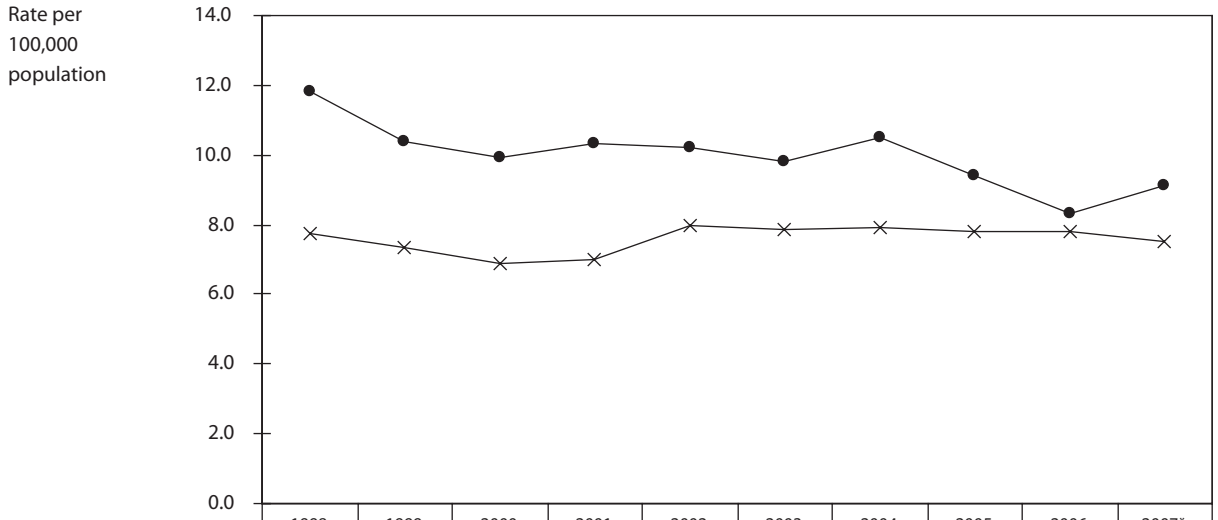
Infectious Syphilis

HIV

The rate of new positive HIV tests increased in 2007 to 9.1 (395 cases) from 8.3 per 100,000 (357 cases) in 2006, with an increased number of HIV cases among both males and females. While new positive HIV test rates have declined overall in BC from a peak in 2004, this may in part be attributed to reportability of HIV and enhanced follow-up of all HIV test results starting in 2003.[1] In 2007, a similar distribution of new positive HIV cases was observed around the province. The highest rate of new positive HIV tests was in Vancouver HSDA (30.7 per 100,000; 193 cases), followed by Northern Interior HSDA (16.0 per 100,000; 23 cases) and South Vancouver Island HSDA (9.9 per 100,000; 36 cases).

[1]See *2006 British Columbia Annual Summary of Reportable Diseases* (p.31) for further explanation.

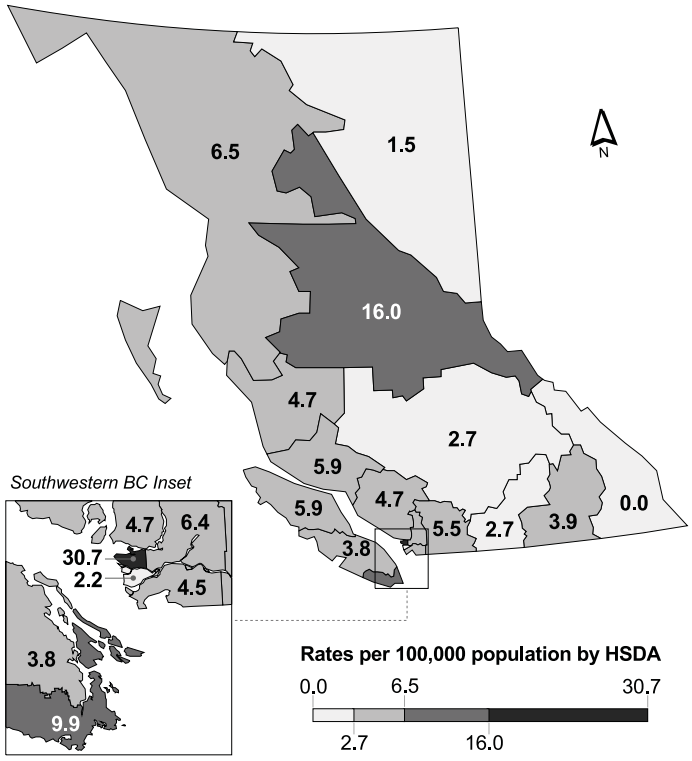
11.1 HIV Rates by Year, 1998–2007



	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007*
BC HIV Reports	471	416	400	420	418	409	441	400	357	395
BC HIV Rate	11.8	10.4	9.9	10.3	10.2	9.8	10.5	9.4	8.3	9.1
Canadian HIV Rate	7.7	7.3	6.9	7.0	8.0	7.9	7.9	7.8	7.8	7.5

*2007 Canadian rate is projected and is subject to change (Public Health Agency of Canada, 2008).

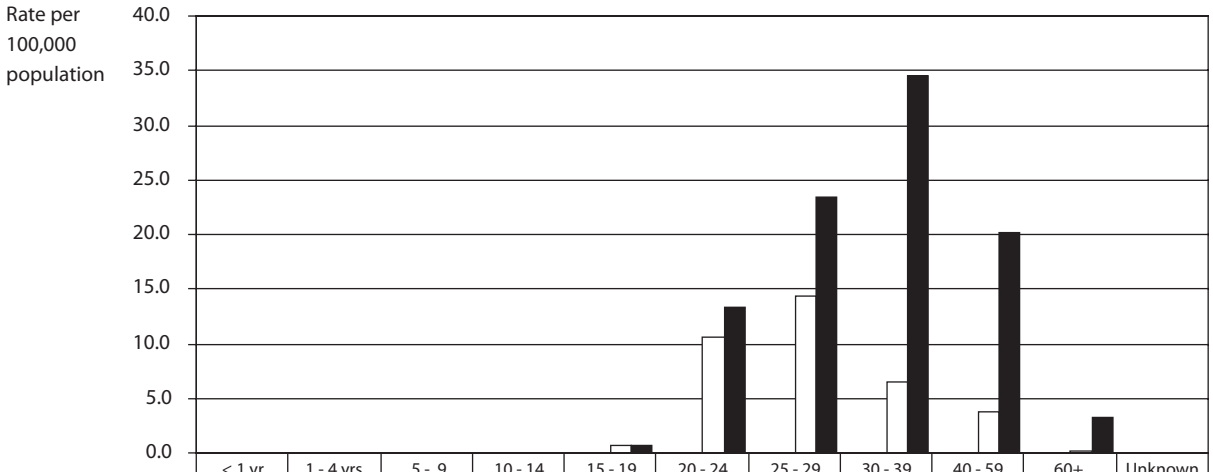
11.2 HIV Rates by HSDA, 2007



HSDA	Health Service Delivery Area	Cases	Rate
11	East Kootenay	0	0.0
12	Kootenay Boundary	3	3.9
13	Okanagan	9	2.7
14	Thompson Cariboo Shuswap	6	2.7
21	Fraser East	15	5.5
22	Fraser North	37	6.4
23	Fraser South	30	4.5
31	Richmond	4	2.2
32	Vancouver	193	30.7
33	North Shore/Coast Garibaldi	13	4.7
41	South Vancouver Island	36	9.9
42	Central Vancouver Island	10	3.8
43	North Vancouver Island	7	5.9
51	Northwest	5	6.5
52	Northern Interior	23	16.0
53	Northeast	1	1.5

Note: Map classification by Jenks natural breaks method.

11.3 HIV Rates by Age Group and Sex, 2007

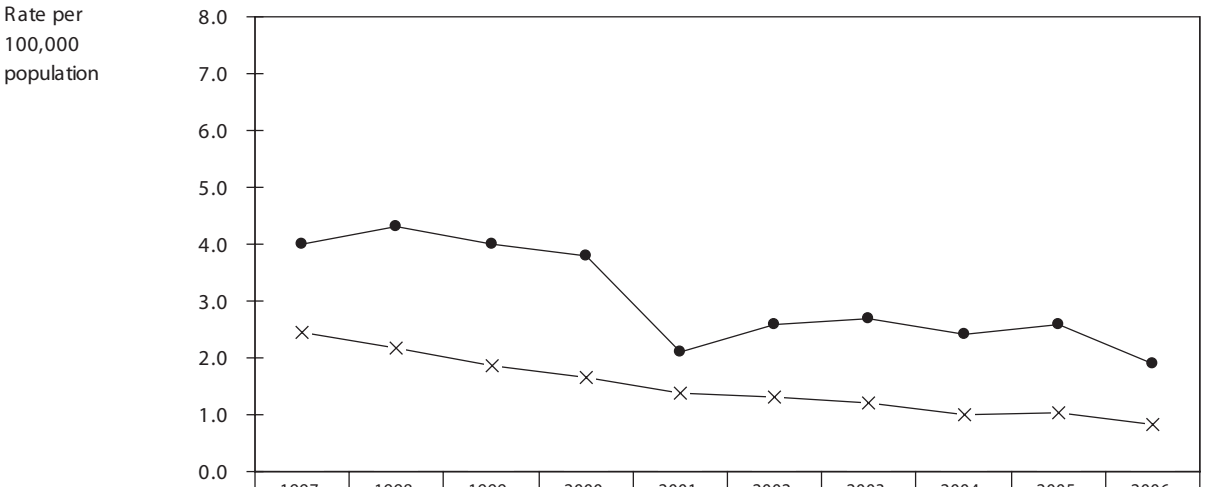


	< 1 yr	1 - 4 yrs	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 39	40 - 59	60+	Unknown
HIV Reports - Female	0	0	0	0	1	16	21	20	25	1	0
HIV Reports - Male	0	0	0	0	1	21	35	104	134	13	0
□ HIV Rate - Female	0.0	0.0	0.0	0.0	0.7	10.6	14.3	6.5	3.7	0.2	
■ HIV Rate - Male	0.0	0.0	0.0	0.0	0.7	13.3	23.5	34.5	20.2	3.3	

AIDS

Due to the delays associated with AIDS reporting, this 2007 report includes data on AIDS through 2006 only. In 2006, the AIDS rate in BC declined to 1.9 per 100,000 (84 cases) from 2.6 per 100,000 (109 cases) in 2005. The majority of AIDS cases occurred in males, with the greatest concentration in males aged 30-59. The highest rate was recorded in South Vancouver Island HSDA (5.3 per 100,000; 19 cases) followed by Vancouver HSDA (5.0 per 100,000; 31 cases).

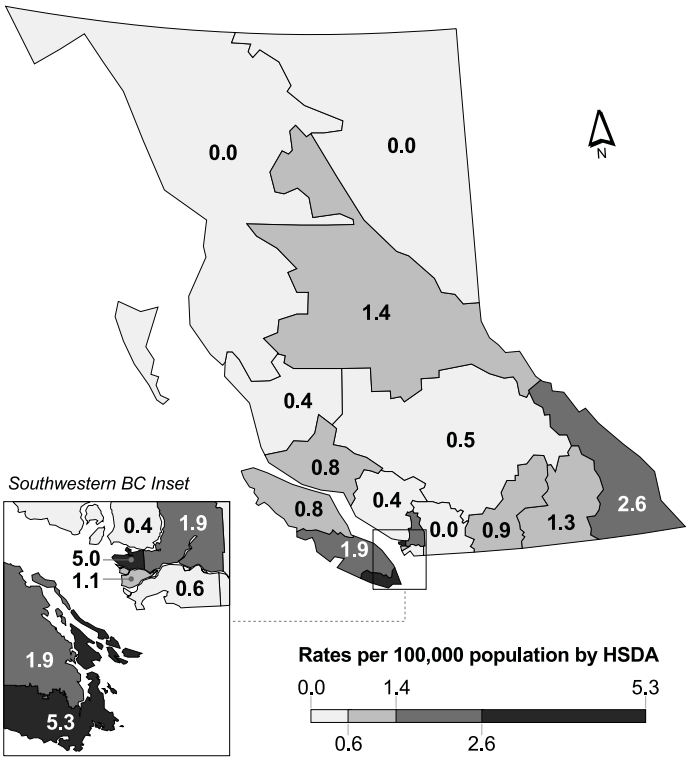
12.1 AIDS Rates by Year, 1997–2006*



	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
BC AIDS Reports	158	171	160	152	87	106	114	100	109	84
—●— BC AIDS Rate	4.0	4.3	4.0	3.8	2.1	2.6	2.7	2.4	2.6	1.9
—×— Canadian AIDS Rate	2.5	2.2	1.8	1.6	1.4	1.3	1.2	1.0	1.0	0.8

*2007 AIDS numbers are not yet available due to delayed reporting.

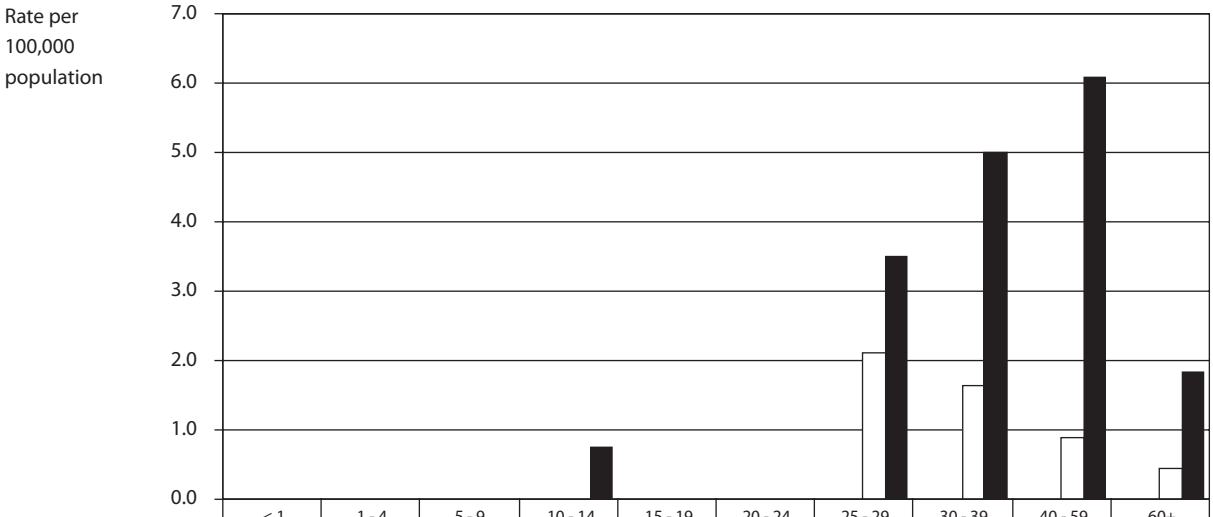
12.2 AIDS Rates by HSDA, 2006



HSDA	Health Service Delivery Area	Cases	Rate
11	East Kootenay	2	2.6
12	Kootenay Boundary	1	1.3
13	Okanagan	3	0.9
14	Thompson Cariboo Shuswap	1	0.5
21	Fraser East	0	0.0
22	Fraser North	11	1.9
23	Fraser South	4	0.6
31	Richmond	2	1.1
32	Vancouver	31	5.0
33	North Shore/Coast Garibaldi	1	0.4
41	South Vancouver Island	19	5.3
42	Central Vancouver Island	5	1.9
43	North Vancouver Island	1	0.8
51	Northwest	0	0.0
52	Northern Interior	2	1.4
53	Northeast	0	0.0

Note: Map classification by Jenks natural breaks method.

12.3 AIDS Rates by Age Group and Sex, 2006

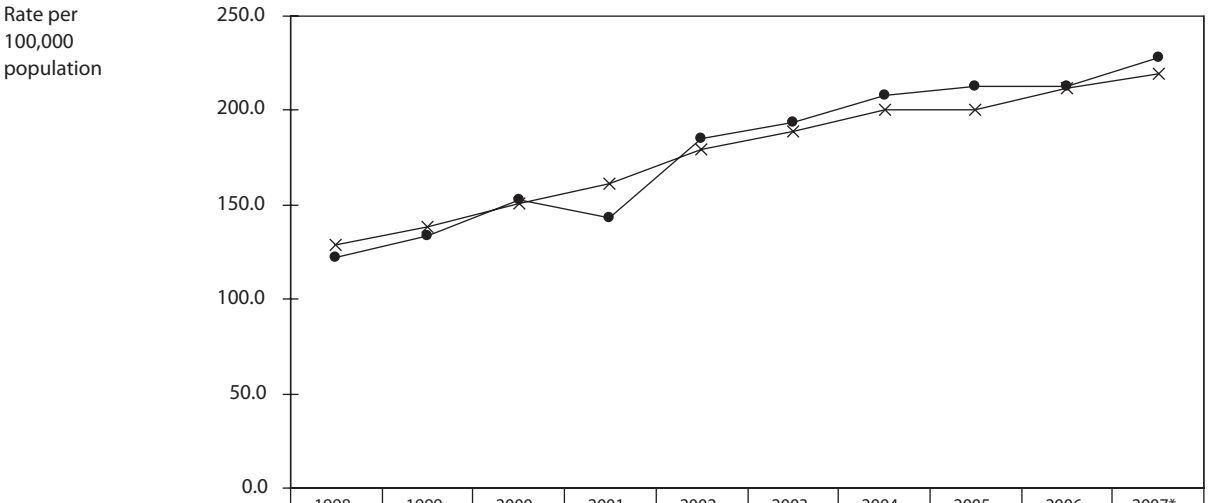


	< 1	1 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 39	40 - 59	60+
AIDS Reports - Female	0	0	0	0	0	0	3	5	6	2
AIDS Reports - Male	0	0	0	1	0	0	5	15	40	7
☐ AIDS Rate - Female	0.0	0.0	0.0	0.0	0.0	0.0	2.1	1.6	0.9	0.5
■ AIDS Rate - Male	0.0	0.0	0.0	0.7	0.0	0.0	3.5	5.0	6.1	1.8

Genital Chlamydia

Chlamydia rates in BC continue to increase in parallel with Canadian rates, to 228.2 per 100,000 (9,961 cases) in 2007. The overall trend in chlamydia infection rates has been increasing since 1997. By age, women aged 15–19 and 20–24 continue to have the highest chlamydia rates at 1413.8 and 1627.5 per 100,000 respectively. Increased rates have been observed in almost all HSDAs, with the greatest rates observed in Northern Interior (409.1 per 100,000; 588 cases) and Northwest (324.0 per 100,000; 250 cases) HSDA.

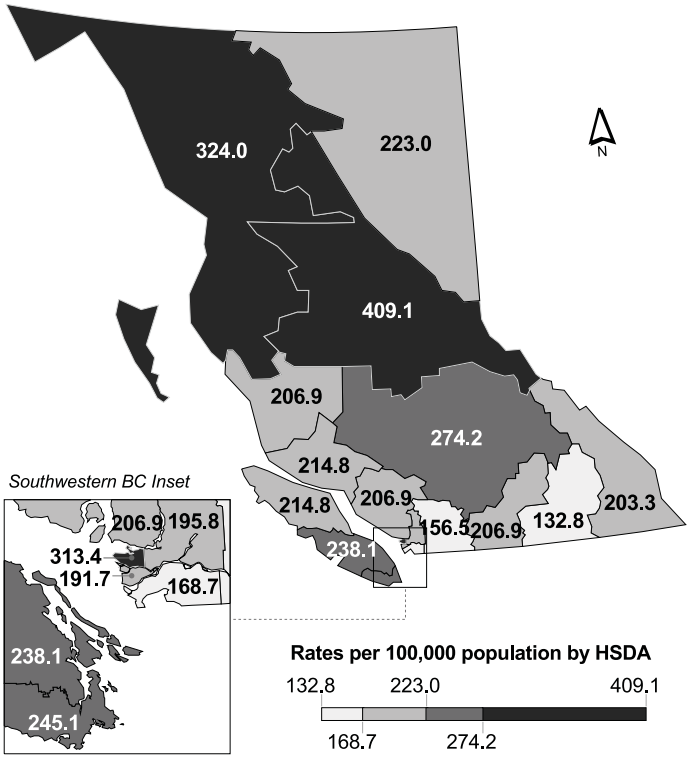
13.1 Genital Chlamydia Rates by Year, 1998–2007



	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007*
BC Chlamydia Reports	4,877	5,342	6,148	5,856	7,603	8,068	8,734	9,043	9,169	9,961
BC Chlamydia Rate	122.4	133.2	152.2	143.6	184.7	194.2	207.8	212.4	212.7	228.2
Canadian Chlamydia Rate	129.0	138.2	150.9	161.4	179.4	189.4	200.1	200.4	211.4	219.5

*2007 Canadian rate is preliminary and is subject to change (Public Health Agency of Canada, 2008).

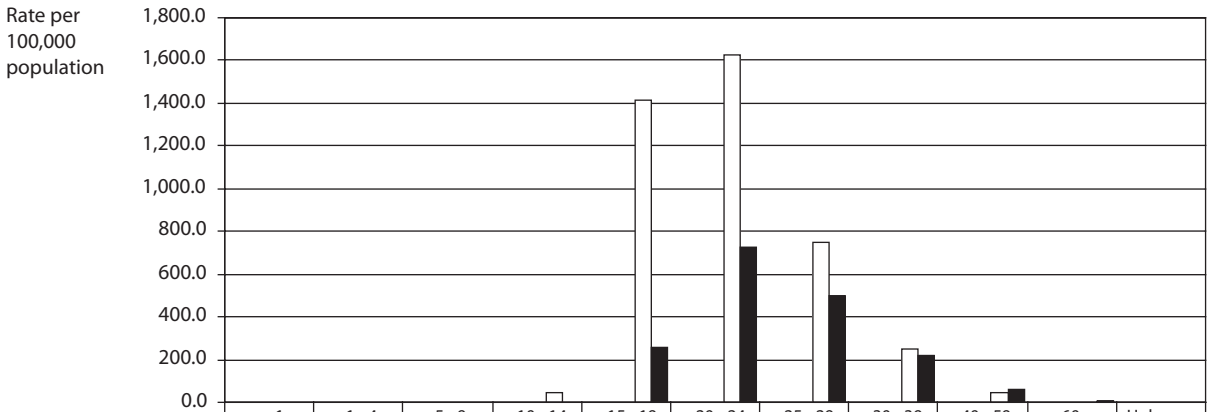
13.2 Genital Chlamydia Rates by HSDA, 2007



HSDA	Health Service Delivery Area	Cases	Rate
11	East Kootenay	159	203.3
12	Kootenay Boundary	103	132.8
13	Okanagan	701	206.9
14	Thompson Cariboo Shuswap	602	274.2
21	Fraser East	427	156.5
22	Fraser North	1136	195.8
23	Fraser South	1134	168.7
31	Richmond	355	191.7
32	Vancouver	1969	313.4
33	North Shore/Coast Garibaldi	573	206.9
41	South Vancouver Island	893	245.1
42	Central Vancouver Island	623	238.1
43	North Vancouver Island	257	214.8
51	Northwest	250	324.0
52	Northern Interior	588	409.1
53	Northeast	152	223.0

Note: Map classification by Jenks natural breaks method.

13.3 Genital Chlamydia Rates by Age Group and Sex, 2007

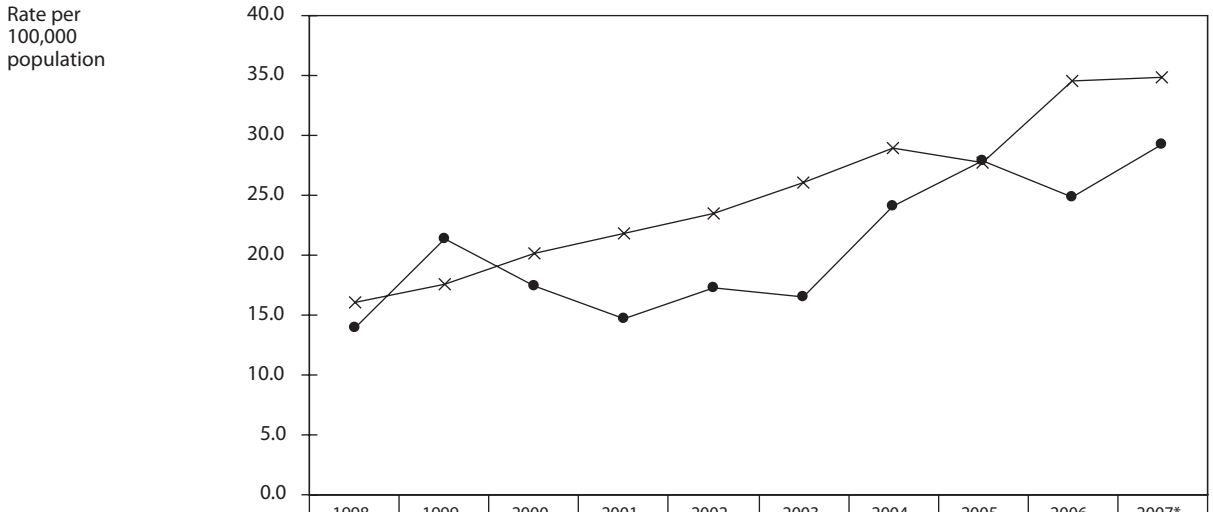


	< 1	1 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 39	40 - 59	60+	Unknown
Chlamydia Reports - Female	0	0	1	60	1,924	2,460	1,096	761	296	6	12
Chlamydia Reports - Male	0	0	0	2	365	1,137	740	652	406	35	3
Chlamydia Reports - Unknown	0	0	0	0	2	0	0	0	1	0	2
□ Chlamydia Rate - Female	0.0	0.0	0.9	48.4	1413.8	1627.5	747.9	248.8	43.8	1.3	
■ Chlamydia Rate - Male	0.0	0.0	0.0	1.5	254.9	722.5	496.1	216.2	61.2	8.8	

Gonorrhea

There has been an increasing trend in gonorrhea rates in BC, paralleling Canadian rates. The gonorrhea rate for BC increased in 2007 (29.2 per 100,000) from 2006 (24.9 per 100,000), reflecting an increase in case reports from 1072 to 1275. Increases were observed for both males and females; similar to previous years, the highest rates of gonorrhea were for females between the ages of 15–24 years, and for males between 20–29 years. Most HSDAs had similar or increased rates of gonorrhea infection compared to 2006. The highest rate was observed in Vancouver HSDA (74.3 per 100,000; 467 cases) followed by Northwest HSDA (67.4 per 100,000 HSDA; 52 cases).

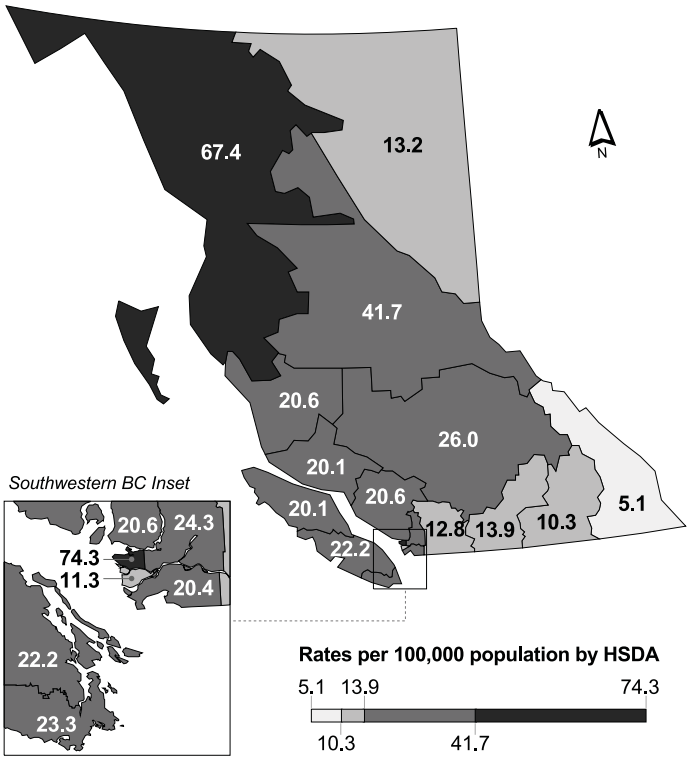
14.1 Gonorrhea Rates in BC by Year, 1998–2007



	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007*
BC Gonorrhea Reports	558	859	707	600	714	684	1,013	1,188	1,072	1,275
BC Gonorrhea Rate	14.0	21.4	17.5	14.7	17.3	16.5	24.1	27.9	24.9	29.2
Canadian Gonorrhea Rate	16.1	17.6	20.1	21.8	23.5	26.0	28.9	27.8	34.5	34.9

*2007 Canadian rate is preliminary and is subject to change (Public Health Agency of Canada, 2008).

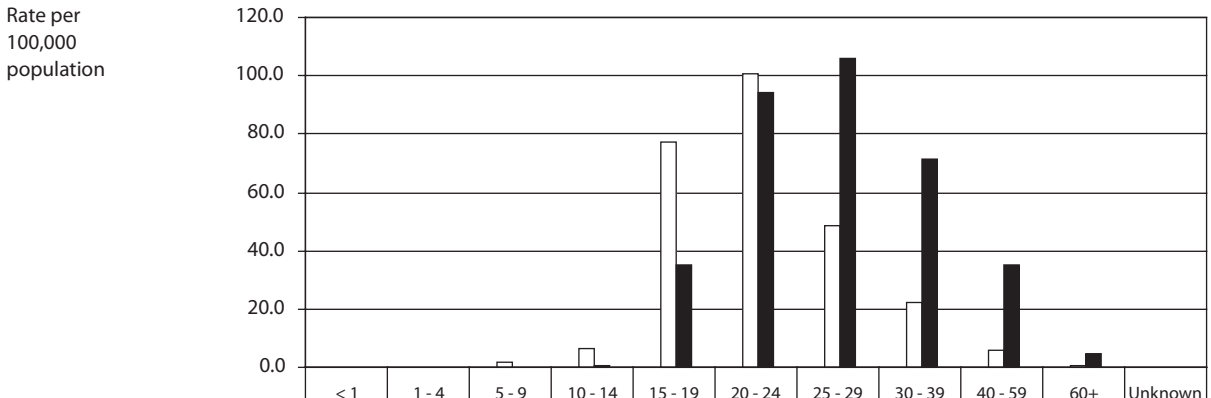
14.2 Gonorrhea Rates by HSDA, 2007



HSDA	Health Service Delivery Area	Cases	Rate
11	East Kootenay	4	5.1
12	Kootenay Boundary	8	10.3
13	Okanagan	47	13.9
14	Thompson Cariboo Shuswap	57	26.0
21	Fraser East	35	12.8
22	Fraser North	141	24.3
23	Fraser South	137	20.4
31	Richmond	21	11.3
32	Vancouver	467	74.3
33	North Shore/Coast Garibaldi	57	20.6
41	South Vancouver Island	85	23.3
42	Central Vancouver Island	58	22.2
43	North Vancouver Island	24	20.1
51	Northwest	52	67.4
52	Northern Interior	60	41.7
53	Northeast	9	13.2

Note: Map classification by Jenks natural breaks method.

14.3 Gonorrhea Rates by Age Group and Sex, 2007



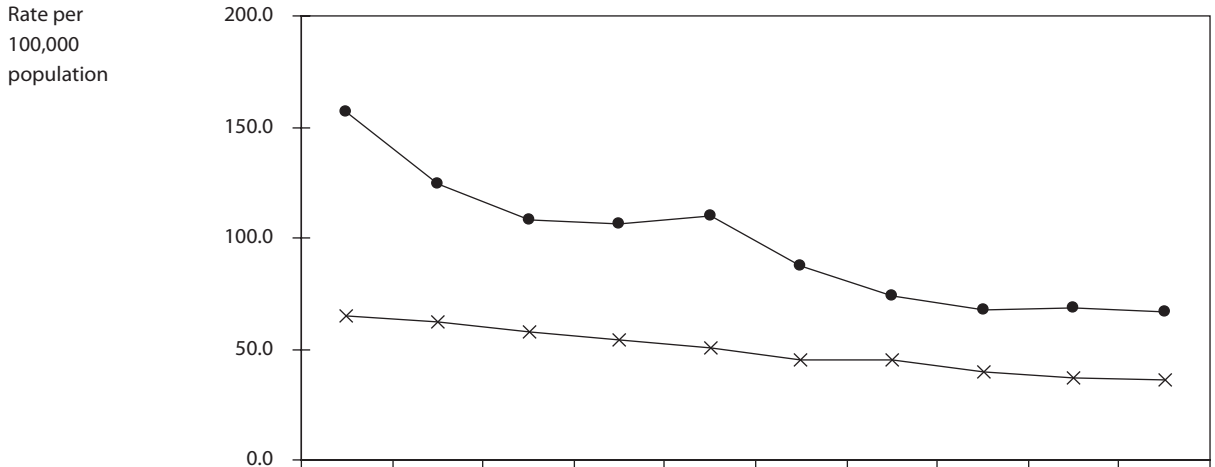
	< 1	1 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 39	40 - 59	60+	Unknown
Gonorrhea Reports - Female	0	0	2	8	105	152	71	68	40	2	0
Gonorrhea Reports - Male	0	0	0	1	50	148	158	215	234	19	0
Gonorrhea Reports - Transgender/Unknown	0	0	0	0	0	0	0	1	0	0	1
□ Gonorrhea Rate - Female	0.0	0.0	1.9	6.5	77.2	100.6	48.4	22.2	5.9	0.4	
■ Gonorrhea Rate - Male	0.0	0.0	0.0	0.8	34.9	94.0	105.9	71.3	35.3	4.8	

Hepatitis C

In 2007, reported hepatitis C cases in BC continued to decline slightly compared to the previous year to 2893 cases for a rate of 66 per 100,000 population; but remain twice the Canadian rate. The highest rate occurred in Fraser East with 120 cases per 100,000 population, almost twice the BC rate. Fraser East is also the location of some federal correctional institutions where inmates may be tested and hepatitis C identified for the first time. Other health service delivery areas where the reported hepatitis C rate was above the provincial rate are South and Central Vancouver Island and Vancouver.

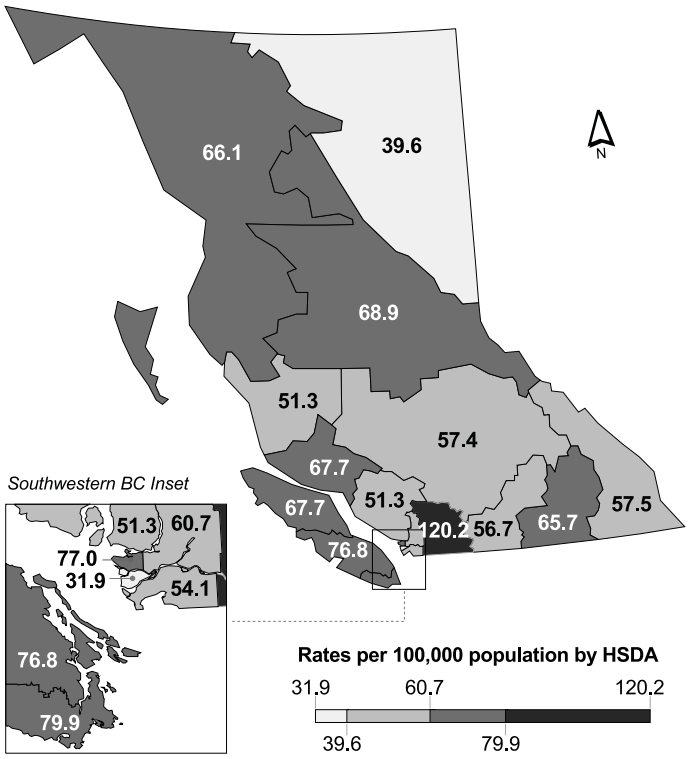
Twelve cases were reported in children aged less than five years which were likely to have been transmitted vertically from mother to infant during pregnancy. Reported cases in males exceeded females in age groups 25 years and above but were higher in females 15–19 and 20–24 years old. Reported cases may reflect testing patterns.

15.1 Hepatitis C Rates by Year, 1998–2007



	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
BC Hepatitis C Reports	6252	4998	4384	4351	4512	3632	3094	2882	2943	2893
BC Hepatitis C Rate	157.0	124.6	108.5	106.7	109.6	87.4	73.6	67.7	68.3	66.3
Canadian Hepatitis C Rate	65.0	61.7	57.8	54.1	50.7	45.5	45.1	39.3	36.5	35.8

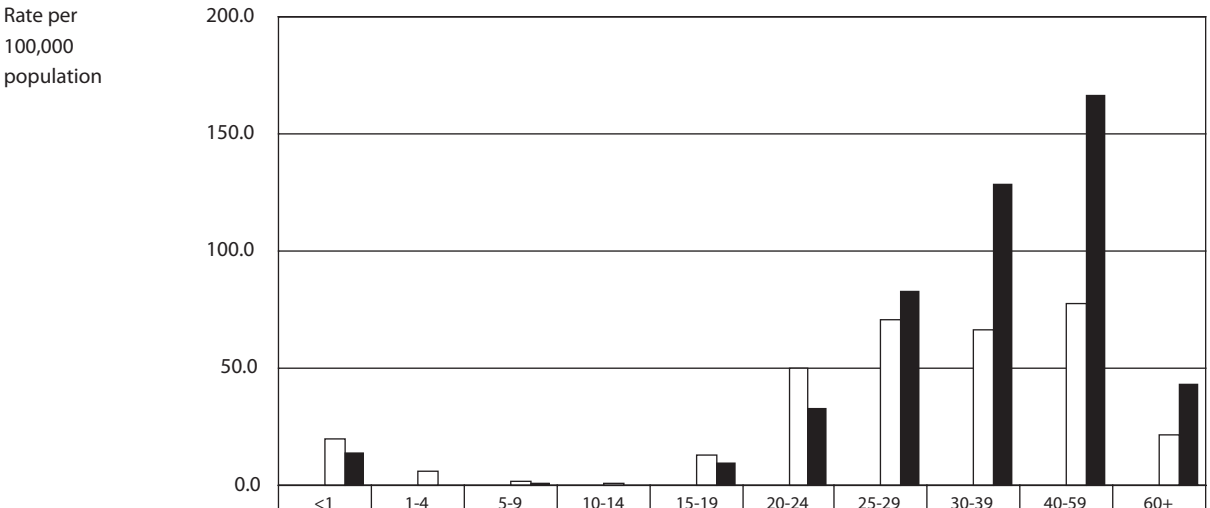
15.2 Hepatitis C Rates by HSDA, 2007



HSDA	Health Service Delivery Area	Cases	Rate
11	East Kootenay	45	57.5
12	Kootenay Boundary	51	65.7
13	Okanagan	192	56.7
14	Thompson Cariboo Shuswap	126	57.4
21	Fraser East	328	120.2
22	Fraser North	352	60.7
23	Fraser South	364	54.1
31	Richmond	59	31.9
32	Vancouver	484	77.0
33	North Shore/Coast Garibaldi	142	51.3
41	South Vancouver Island	291	79.9
42	Central Vancouver Island	201	76.8
43	North Vancouver Island	81	67.7
51	Northwest	51	66.1
52	Northern Interior	99	68.9
53	Northeast	27	39.6

Note: Map classification by Jenks natural breaks method.

15.3 Hepatitis C Rates by Age Group and Sex, 2007

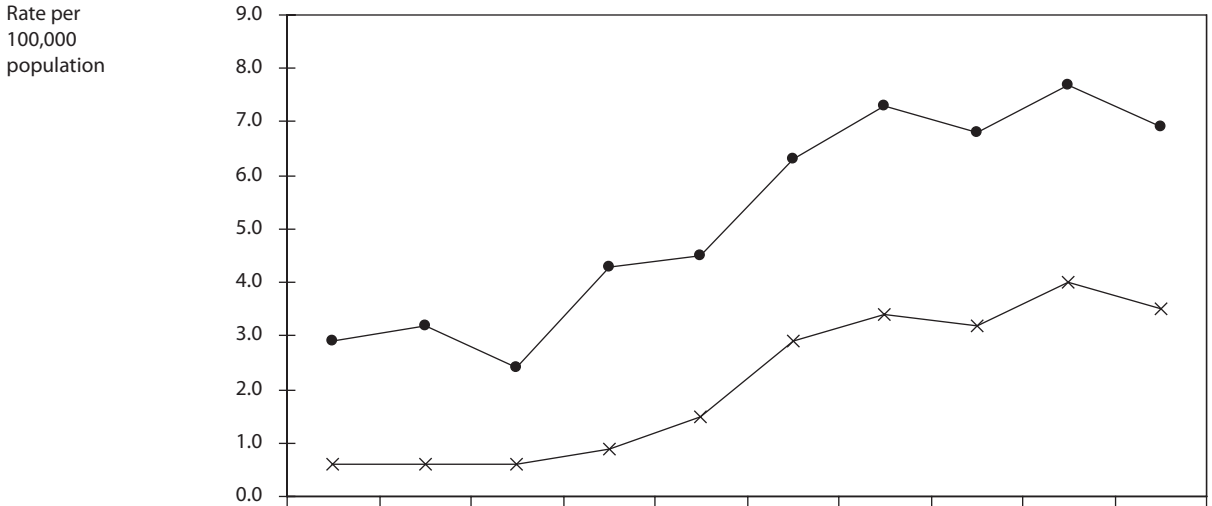


	<1	1-4	5-9	10-14	15-19	20-24	25-29	30-39	40-59	60+
Hepatitis C Reports - Female	4	5	2	1	18	76	104	202	523	97
Hepatitis C Reports - Male	3	0	1	0	14	52	123	388	1107	171
□ Hepatitis C Rate - Female	19.8	6.2	1.9	0.8	13.2	50.3	71.0	66.1	77.5	21.3
■ Hepatitis C Rate - Male	14.2	0.0	0.9	0.0	9.8	33.0	82.5	128.7	166.8	43.2

Infectious Syphilis

The rate of infectious syphilis decreased from 7.7 in 2006 to 6.9 per 100,000 population in 2006 reflecting a decrease from 333 to 301 cases. Overall provincial rates of syphilis may be stabilizing following steady increases since 1997. The majority of cases occurred among men, with the greatest concentration in men aged 30–59. Trends are variable by HSDA; the highest rate was observed in Vancouver HSDA (29.1 per 100,000; 183 cases).

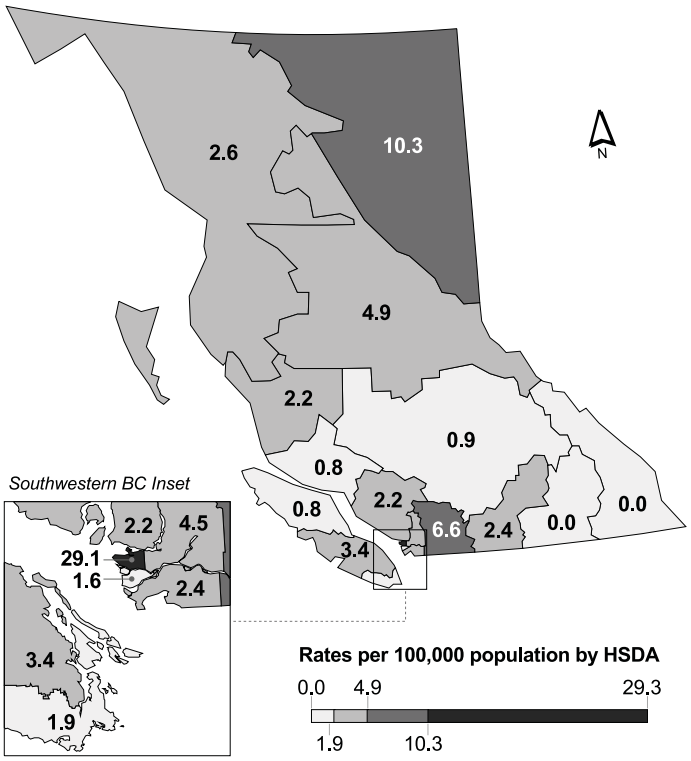
16.1 Infectious Syphilis Rates by Year, 1998–2007



	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007*
BC Syphilis Reports	116	128	96	177	186	262	305	291	333	301
BC Syphilis Rate	2.9	3.2	2.4	4.3	4.5	6.3	7.3	6.8	7.7	6.9
Canadian Syphilis Rate	0.6	0.6	0.6	0.9	1.5	2.9	3.4	3.2	4.0	3.5

*2007 Canadian rate is preliminary and is subject to change (Public Health Agency of Canada, 2008).

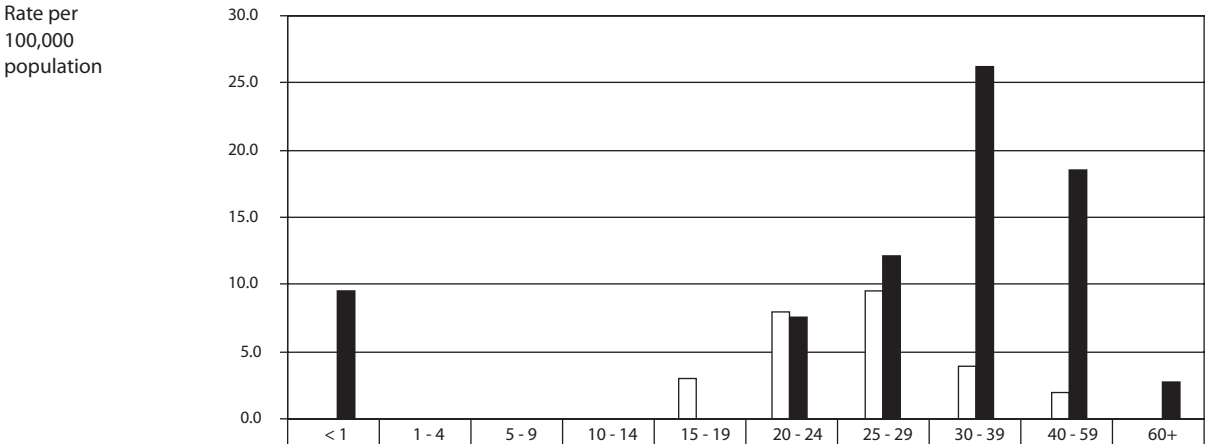
16.2 Infectious Syphilis Rates by HSDA, 2007



HSDA	Health Service Delivery Area	Cases	Rate
11	East Kootenay	0	0.0
12	Kootenay Boundary	0	0.0
13	Okanagan	8	2.4
14	Thompson Cariboo Shuswap	2	0.9
21	Fraser East	18	6.6
22	Fraser North	26	4.5
23	Fraser South	16	2.4
31	Richmond	3	1.6
32	Vancouver	183	29.1
33	North Shore/Coast Garibaldi	6	2.2
41	South Vancouver Island	7	1.9
42	Central Vancouver Island	9	3.4
43	North Vancouver Island	1	0.8
51	Northwest	2	2.6
52	Northern Interior	7	4.9
53	Northeast	7	10.3

Note: Map classification by Jenks natural breaks method.

16.3 Infectious Syphilis Rates by Age Group and Sex, 2007



	< 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	12	14	12	13	0
Syphilis Reports - Male	2	0	0	0	0	12	18	79	123	11
Syphilis Reports - Transgender/Unknown	0	0	0	0	0	0	0	1	0	0
□ Syphilis Rate - Female	0.0	0.0	0.0	0.0	2.9	7.9	9.6	3.9	1.9	0.0
■ Syphilis Rate - Male	9.5	0.0	0.0	0.0	0.0	7.6	12.1	26.2	18.5	2.8

Streptococcal Disease, invasive, Group A

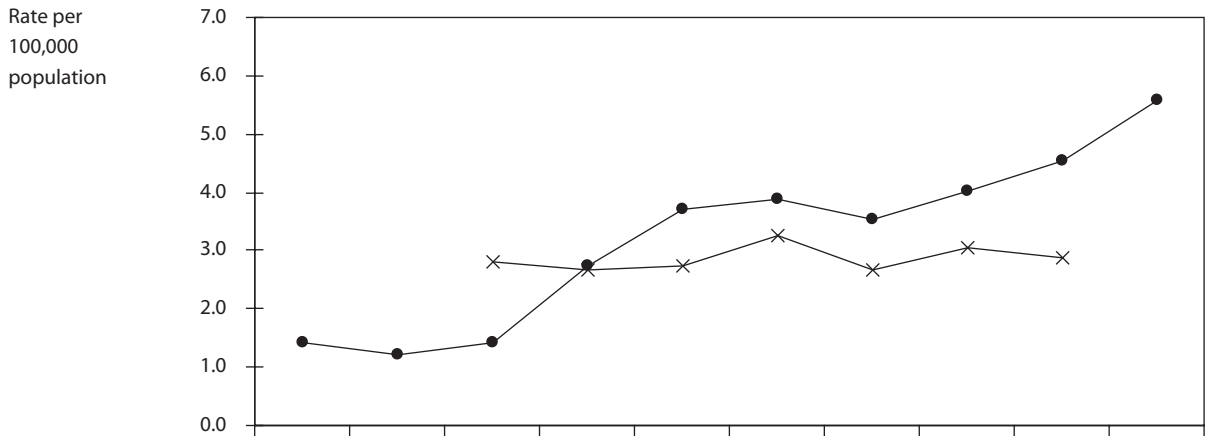
Tuberculosis

diseases transmitted by direct contact and respiratory routes

Streptococcal Disease (invasive) Group A

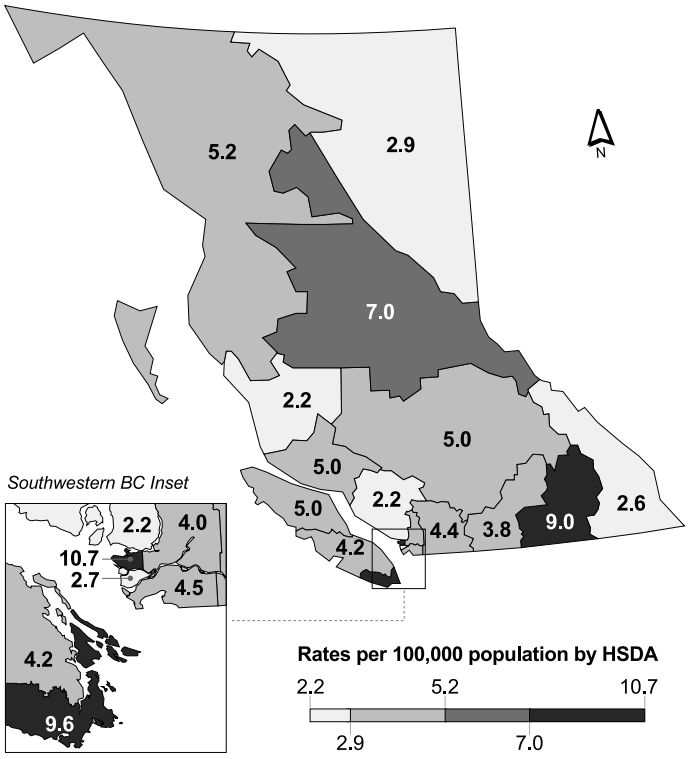
The rate of reported cases of invasive group A streptococcal (iGAS) disease increased from 4.6 to 5.6 per 100,000 from 2006 to 2007. This is the highest rate reported since the beginning of the enhanced surveillance program in 1998. Infants <1 year of age had the highest rate per 100,000 (males, 23.7 and females, 9.9), followed by the age group of 30-39 years (females 9.2/100,000 and males 8.6/100,000). Vancouver HSDA reported the highest rate of 10.7 per 100,000, followed by South Vancouver Island HSDA with a rate of 9.6 per 100,000. Twelve or 5% of cases were associated with toxic shock-like syndrome, lower than in prior years, and 17 cases (7%) were associated with necrotizing fasciitis (NF), also less than in 2006. NF-associated cases had accounted for 31% of iGAS in 2000 with subsequent declines to a low of 7% in 2007. This is suggestive of increased reporting of less severe cases over time. The case fatality among the 243 confirmed cases was 6.5% compared to 7% in 2006.

17.1 Streptococcal Disease (invasive) Group A Rates by Year, 1998–2007



	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
BC iGAS Reports	57	49	57	111	153	161	149	171	196	244
BC iGAS Rate	1.4	1.2	1.4	2.7	3.7	3.9	3.5	4.0	4.5	5.6
Canadian iGAS Rate			2.8	2.7	2.7	3.3	2.7	3.1	2.9	

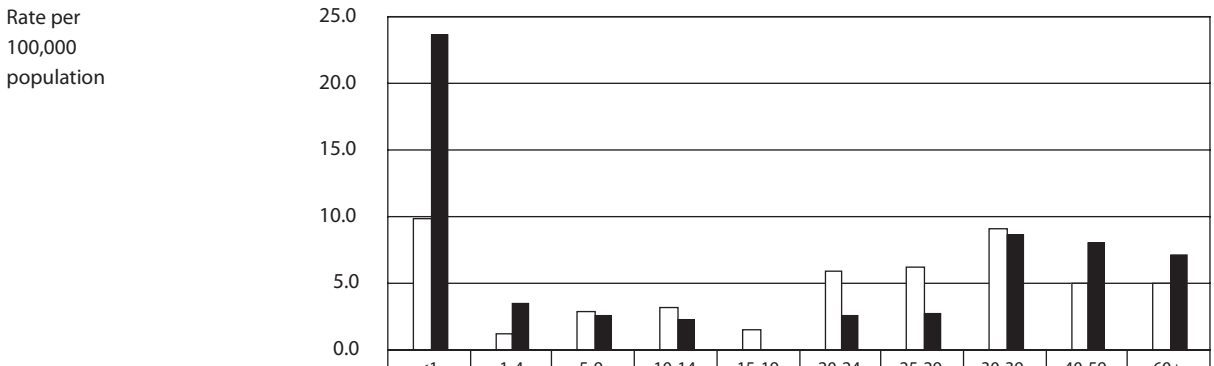
17.2 Streptococcal Disease (invasive) Group A Rates by HSDA, 2007



HSDA	Health Service Delivery Area	Cases	Rate
11	East Kootenay	2	2.6
12	Kootenay Boundary	7	9.0
13	Okanagan	13	3.8
14	Thompson Cariboo Shuswap	11	5.0
21	Fraser East	12	4.4
22	Fraser North	23	4.0
23	Fraser South	30	4.5
31	Richmond	5	2.7
32	Vancouver	67	10.7
33	North Shore/Coast Garibaldi	6	2.2
41	South Vancouver Island	35	9.6
42	Central Vancouver Island	11	4.2
43	North Vancouver Island	6	5.0
51	Northwest	4	5.2
52	Northern Interior	10	7.0
53	Northeast	2	2.9

Note: Map classification by Jenks natural breaks method.

17.3 Streptococcal Disease (invasive) Group A Rates by Age Group and Sex, 2007



	<1	1-4	5-9	10-14	15-19	20-24	25-29	30-39	40-59	60+
Streptococcal Disease, Group A, Invasive Reports - Female	2	1	3	4	2	9	9	28	34	23
Streptococcal Disease, Group A, Invasive Reports - Male	5	3	3	3	0	4	4	26	53	28
□ Streptococcal Disease, Group A, Invasive Rate - Female	9.9	1.2	2.8	3.2	1.5	6.0	6.1	9.2	5.0	5.1
■ Streptococcal Disease, Group A, Invasive Rate - Male	23.7	3.5	2.7	2.3	0.0	2.5	2.7	8.6	8.0	7.1

Tuberculosis

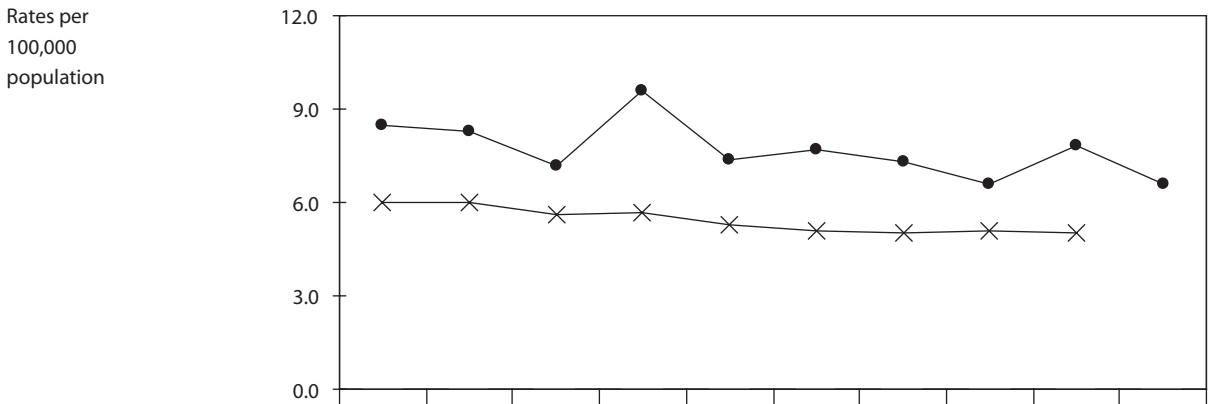
In 2007 there were 286 cases of reported tuberculosis in British Columbia, for a rate of 6.6 per 100,000, a 15% decrease in the number and a 15% decrease in the rate of reported cases compared to 2006.

Rates for health regions vary across the province. The Vancouver, Richmond, Northwest, Fraser North, Fraser South and Northern Interior health service delivery areas have rates exceeding the provincial rate (6.6 / 100,000 population). The highest incidence rate was reported from Vancouver and Richmond (14.0 and 9.7 / 100,000 population respectively) while the lowest was in East Kootenay and North Vancouver Island (no cases and 0.8 / 100,000 population respectively).

Compared to 2006, the rate of tuberculosis increased in Northeast, South Vancouver Island, Northern Interior and Northwest.

The age specific rates are shown in figure 18.3. Overall, the tuberculosis rate was higher in men than in women (7.6 vs 5.5 per 100,000). For the age group < 40 years the rate of tuberculosis in women was higher than in men (5.1 vs 3.8 per 100,000). In those ≥ 40 years old, the rate of tuberculosis in men was higher than that in women (11.5 vs 5.9 per 100,000).

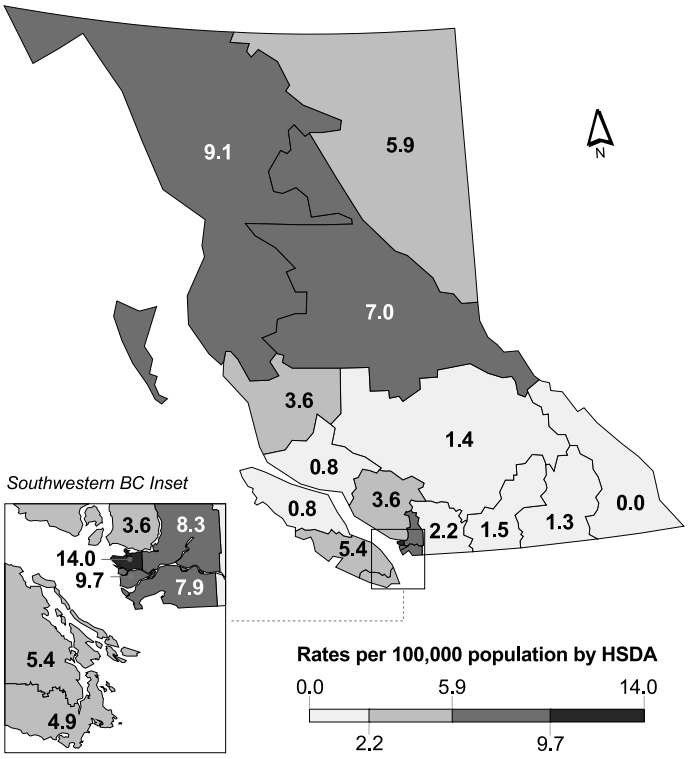
18.1 Tuberculosis Rates by Year, 1998–2007



	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
BC Tuberculosis Cases	337	332	290	391	303	319	303	277	336	286
BC Tuberculosis Rate	8.5	8.3	7.2	9.6	7.4	7.7	7.3	6.6	7.8	6.6
Canadian Tuberculosis Rate	6.0	6.0	5.6	5.7	5.3	5.1	5.0	5.1	5*	

*Canadian Tuberculosis Rate is Pre-Release for 2006

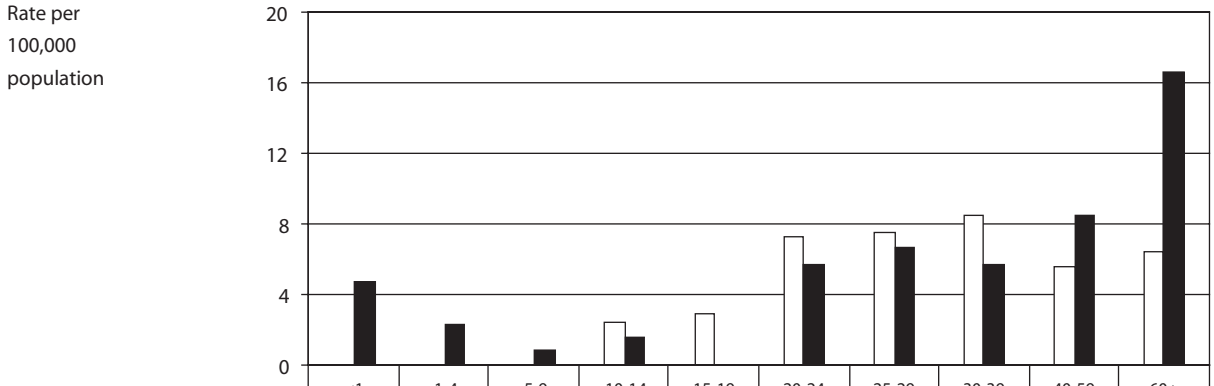
18.2 Tuberculosis Rates by HSDA, 2007



HSDA	Health Service Delivery Area	Cases	Rate
11	East Kootenay	0	0.0
12	Kootenay Boundary	1	1.3
13	Okanagan	5	1.5
14	Thompson Cariboo Shuswap	3	1.4
21	Fraser East	6	2.2
22	Fraser North	48	8.3
23	Fraser South	53	7.9
31	Richmond	18	9.7
32	Vancouver	88	14.0
33	North Shore/Coast Garibaldi	10	3.6
41	South Vancouver Island	18	4.9
42	Central Vancouver Island	14	5.4
43	North Vancouver Island	1	0.8
51	Northwest	7	9.1
52	Northern Interior	10	7.0
53	Northeast	4	5.9

Note: Map classification by Jenks natural breaks method.

18.3 Tuberculosis Rates by Age Group and Sex, 2007



	<1	1-4	5-9	10-14	15-19	20-24	25-29	30-39	40-59	60+
Tuberculosis Cases-Female	0	0	0	3	4	11	11	26	38	29
Tuberculosis Cases-Male	1	2	1	2	0	9	10	17	56	66
□ Tuberculosis Rate-Female	0.0	0.0	0.0	2.4	2.9	7.3	7.5	8.5	5.6	6.4
■ Tuberculosis Rate-Male	4.7	2.3	0.9	1.5	0.0	5.7	6.7	5.6	8.4	16.7

Antimicrobial Resistant Organism Surveillance in BC, 2007

Executive Summary

Objective

The purpose of this report is to provide a comprehensive overview of antimicrobial resistance (AMR) trends in the province of British Columbia (BC) and to correlate these AMR trends with antibiotic utilization.

Methods

Data were obtained from various provincial and national sources for a broad-spectrum view of clinically relevant gram-positive and gram-negative bacteria. Rates of antimicrobial utilization were available from the Pharmanet database. Data were analyzed in Microsoft Excel and SPSS using a two-sided Spearman Rank test.

Results

- The percent of ***Staphylococcus aureus*** isolates that were methicillin-resistant (MRSA) has significantly increased between the years 1998 to 2008. This increase is primarily due to the prevalence of community-associated (CA) isolates. The percent of ***Enterococcus*** *spp*. isolates demonstrating resistance against vancomycin has remained under 1% in BC for years 1999 to 2008.
- Gram-positive organisms such as ***Staphylococcus aureus***, ***Streptococcus pneumoniae***, and ***Streptococcus pyogenes*** **have demonstrated** an increasing resistance against erythromycin. These trends are correlated with utilization of new macrolides such as azithromycin and clarithromycin.
- Urinary tract pathogens such as ***Escherichia coli, Proteus mirabilis*** and ***Klebsiella pneumoniae***, have demonstrated an increasing resistance against both ciprofloxacin and trimethoprim-sulfamethoxazole (TMP-SMX) as well as variable resistance against nitrofurantoin. These trends are concerning as all three of these drugs are currently considered first line agents for urinary tract infections.
- Overall antimicrobial utilization decreased over the available time period, 1996 to 2007 but an upward rebound was observed from 2003 to 2005 which appears to have ended. B-lactam antimicrobials constitute the majority of antimicrobial prescriptions with a rate of 5.2 defined daily doses per 1000 inhabitant days in 2007. β-lactams are followed by macrolides, tetracyclines, quinolones and trimethoprim/sulfa combinations.
- Macrolide and quinolone utilization rates significantly increased between years 1996 to 2007, while β-lactam, tetracycline, and trimethoprim/sulfa utilization significantly decreased.

Conclusion

Continued reporting and surveillance of AMR trends is necessary to ascertain the prevalence of AMR pathogens in BC and to guide control efforts. The compilation of this report would not be possible without the provision of data from both provincial and national sources. Continued collaboration with these and additional data sources will be necessary to monitor changes in AMR trends in subsequent years.

For the full report, please refer to: *Antimicrobial Resistance Trends in the Province of British Columbia – December 2007. Epidemiology Services, British Columbia Centre for Disease Control.* URL: http://www.bccdc.org/content.php?item=34

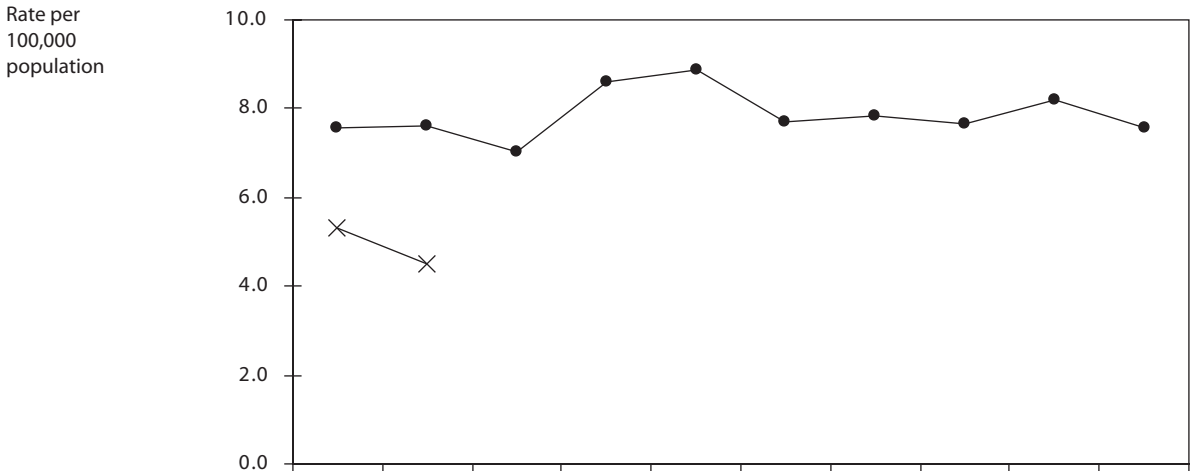
enteric, food and waterborne diseases

Amebiasis

Throughout the last ten years, the rate of amebiasis in British Columbia has remained fairly constant. In 2007, no outbreaks were identified and no seasonal pattern was evident. As in previous years, reporting rates were highest in adult males. Men who have sex with men may be at increased risk of infection as amebiasis is known to be transmitted sexually through oral-anal contact.

Vancouver, as in previous years, reported the highest rate of illness (24.5 cases per 100,000 population). The screening program for refugees in Vancouver may partially account for this; large numbers of cases identified through this program caused incidence for several weeks in 2007 to exceed historic medians.

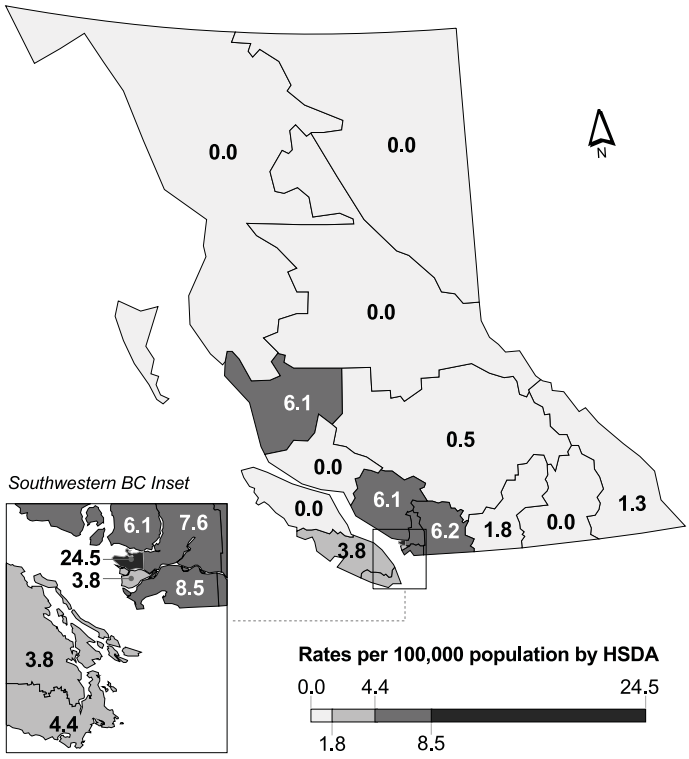
19.1 Amebiasis Rates by Year, 1998–2007



	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
BC Amebiasis Reports	302	306	284	351	366	321	330	326	353	330
BC Amebiasis Rate	7.6	7.6	7.0	8.6	8.9	7.7	7.9	7.7	8.2	7.6
Canadian Amebiasis Rate	5.3	4.5								

Note: Amebiasis was removed from national surveillance in January 2000

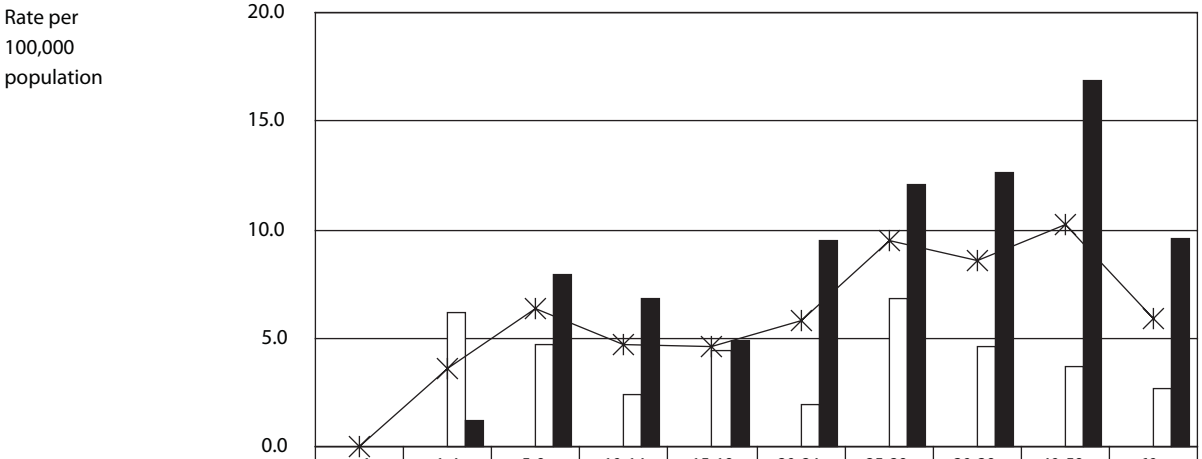
19.2 Amebiasis Rates by HSDA, 2007



HSDA	Health Service Delivery Area	Cases	Rate
11	East Kootenay	1	1.3
12	Kootenay Boundary	0	0.0
13	Okanagan	6	1.8
14	Thompson Cariboo Shuswap	1	0.5
21	Fraser East	17	6.2
22	Fraser North	44	7.6
23	Fraser South	57	8.5
31	Richmond	7	3.8
32	Vancouver	154	24.5
33	North Shore/Coast Garibaldi	17	6.1
41	South Vancouver Island	16	4.4
42	Central Vancouver Island	10	3.8
43	North Vancouver Island	0	0.0
51	Northwest	0	0.0
52	Northern Interior	0	0.0
53	Northeast	0	0.0

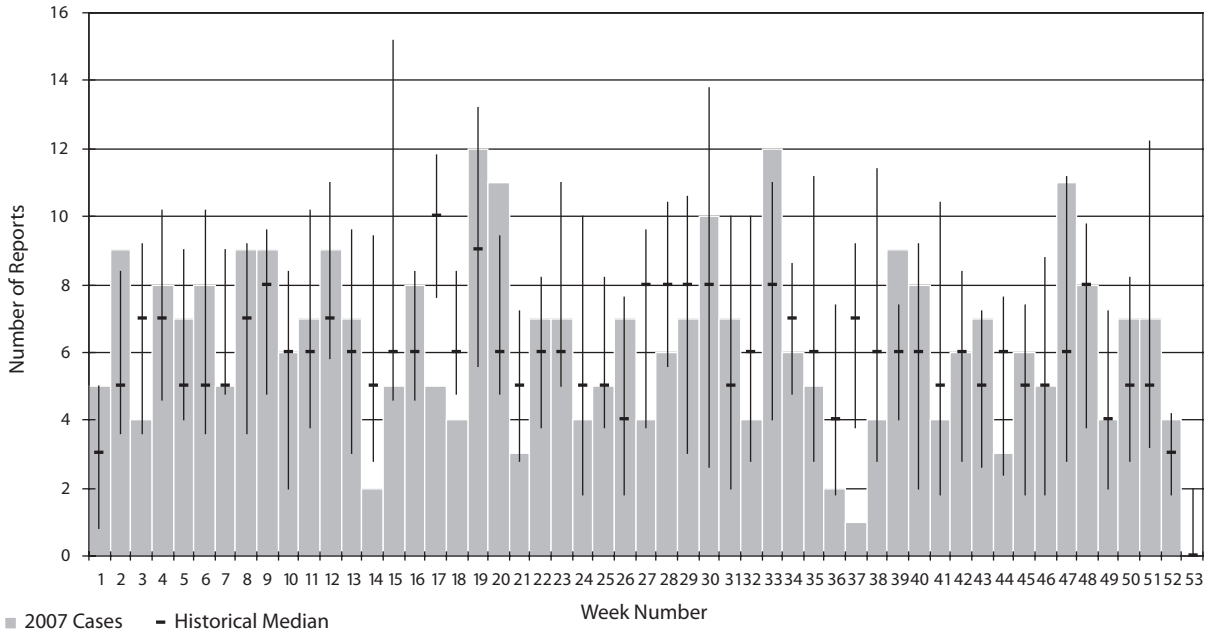
Note: Map classification by Jenks natural breaks method.

19.3 Amebiasis Rates by Age Group and Sex, 2007



	<1	1-4	5-9	10-14	15-19	20-24	25-29	30-39	40-59	60+
Amebiasis Reports - Female	0	5	5	3	6	3	10	14	25	12
Amebiasis Reports - Male	0	1	9	9	7	15	18	38	112	38
Amebiasis Rate - Female	0.0	6.2	4.7	2.4	4.4	2.0	6.8	4.6	3.7	2.6
Amebiasis Rate - Male	0.0	1.2	7.9	6.8	4.9	9.5	12.1	12.6	16.9	9.6
Amebaisis Rate - Total	0.0	3.6	6.4	4.7	4.7	5.8	9.5	8.6	10.2	5.9

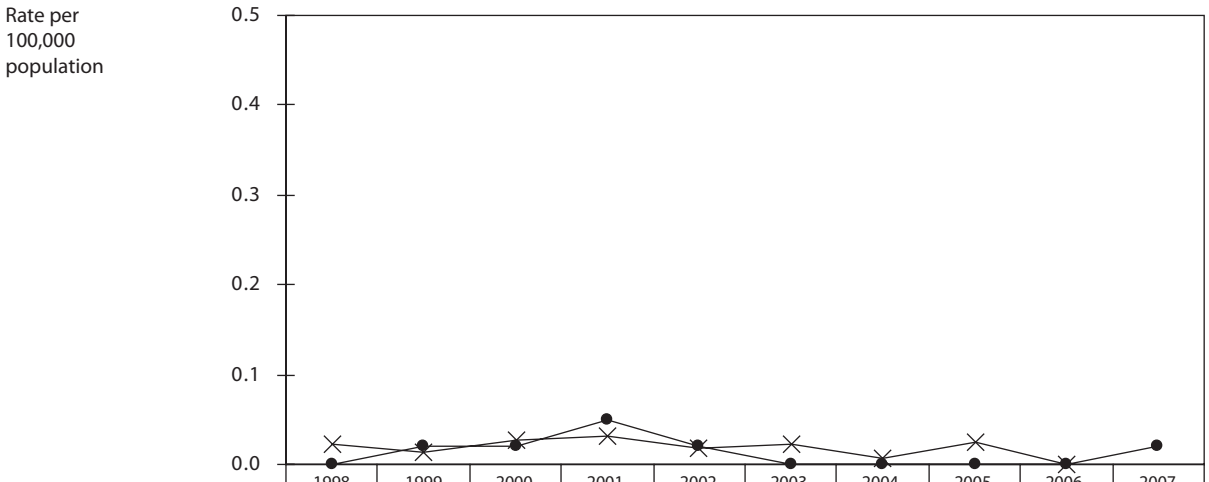
19.4 2007 Amebiasis Reports Compared to Historical Median and the 10th and 90th Percentiles Around the Median (1998 to 2006)



Botulism

One case of botulism was reported in October 2007 in an infant. The source of infection could not be determined. This is the first case reported in the last 5 years. In the last 10 years, a total of 6 cases were reported of which 3 were in infants.

20.1 Botulism Rates by Year, 1998–2007



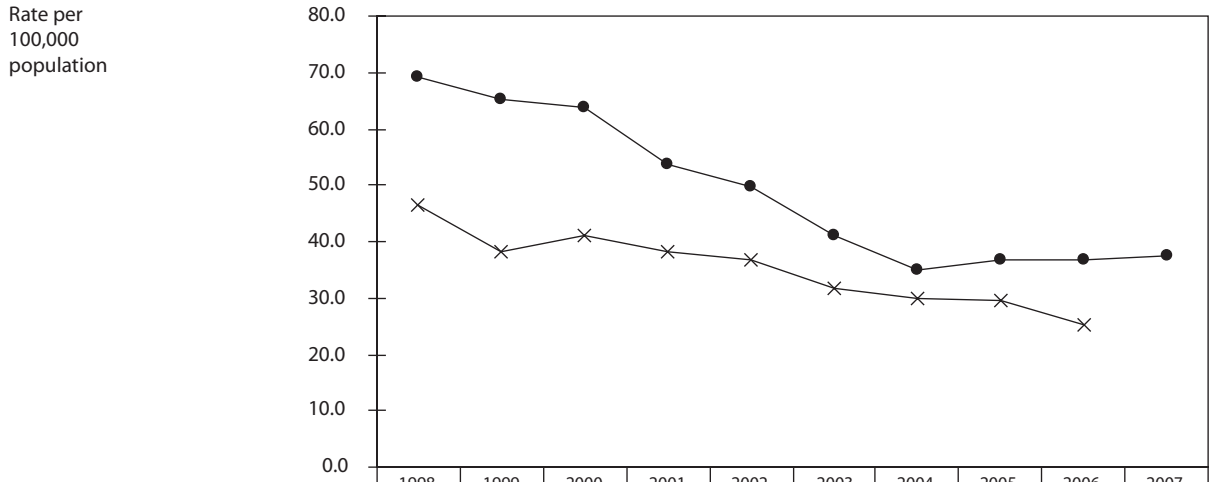
	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
BC Botulism Reports	0	1	1	2	1	0	0	0	0	1
BC Botulism Rate	0.00	0.02	0.02	0.05	0.02	0.00	0.00	0.00	0.00	0.02
Canadian Botulism Rate	0.02	0.01	0.03	0.03	0.02	0.02	0.01	0.02	0.00	

Campylobacteriosis

Campylobacteriosis remains the most commonly reported enteric disease with a total of 1640 cases in 2007. After several years of decline, the incidence has been stable since 2004. The usual peak was seen in children aged 1 to 4 years and adults aged 20–29 years.

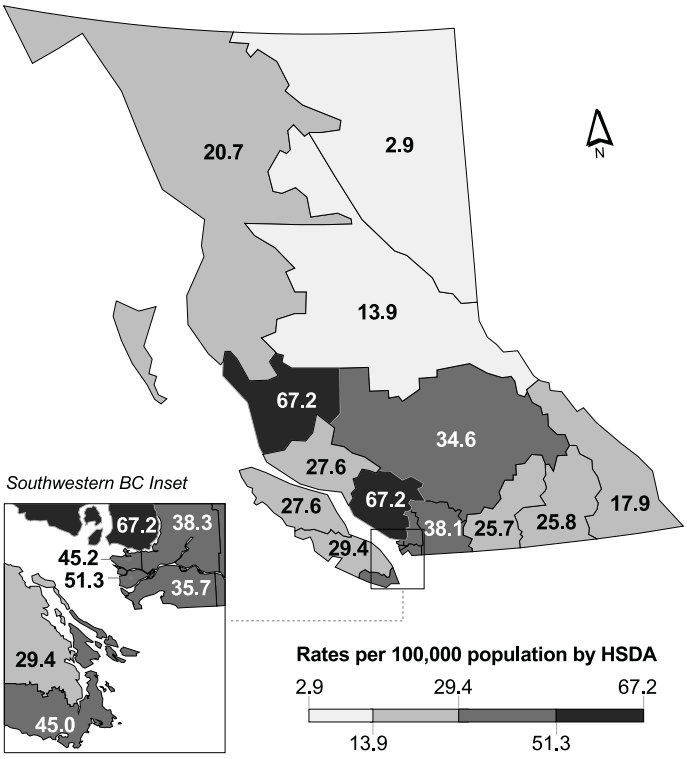
There were marked regional differences in the rate of reported *Campylobacter* infections. As in past years, the highest rates were reported from southern areas of the province (South Vancouver Island, Vancouver Coastal Health and Fraser Health Authorities) and ranged from 35.7 to 67.2 cases per 100,000 population. A large outbreak occurred in the North Shore/Coast Garibaldi region in June (week 26) associated with inadvertent contaminated mud ingestion during a mountain bike race.

21.1 Campylobacteriosis Rates by Year, 1998–2007



	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
BC Campylobacteriosis Reports	2760	2612	2583	2193	2052	1712	1471	1569	1586	1640
BC Campylobacteriosis Rate	69.3	65.1	64.0	53.8	49.9	41.2	35.0	36.9	36.8	37.6
Canadian Campylobacteriosis Rate	46.4	38.3	41.1	38.2	36.7	31.6	29.9	29.6	25.2	

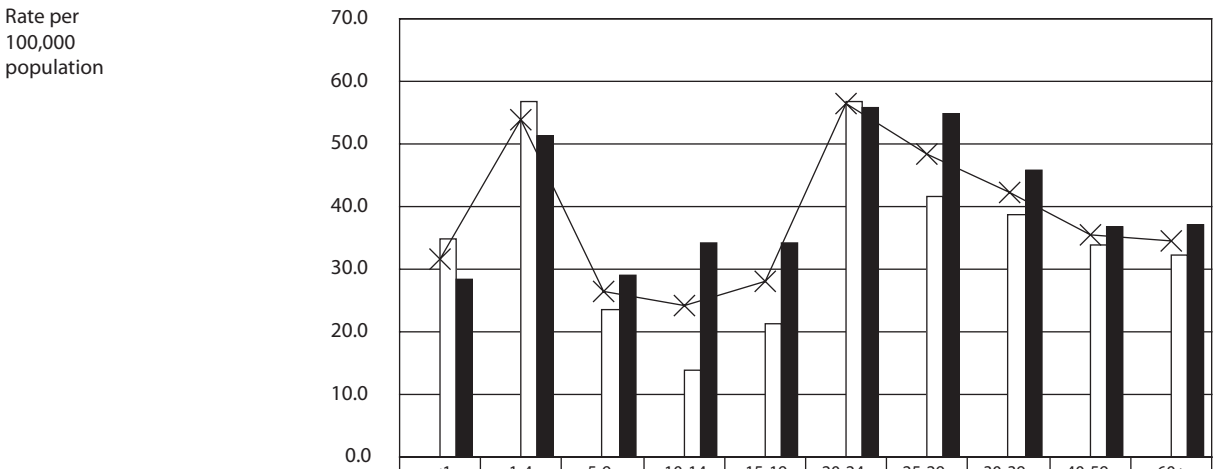
21.2 Campylobacteriosis Rates by HSDA, 2007



HSDA	Health Service Delivery Area	Cases	Rate
11	East Kootenay	14	17.9
12	Kootenay Boundary	20	25.8
13	Okanagan	87	25.7
14	Thompson Cariboo Shuswap	76	34.6
21	Fraser East	104	38.1
22	Fraser North	222	38.3
23	Fraser South	240	35.7
31	Richmond	95	51.3
32	Vancouver	284	45.2
33	North Shore/Coast Garibaldi	186	67.2
41	South Vancouver Island	164	45.0
42	Central Vancouver Island	77	29.4
43	North Vancouver Island	33	27.6
51	Northwest	16	20.7
52	Northern Interior	20	13.9
53	Northeast	2	2.9

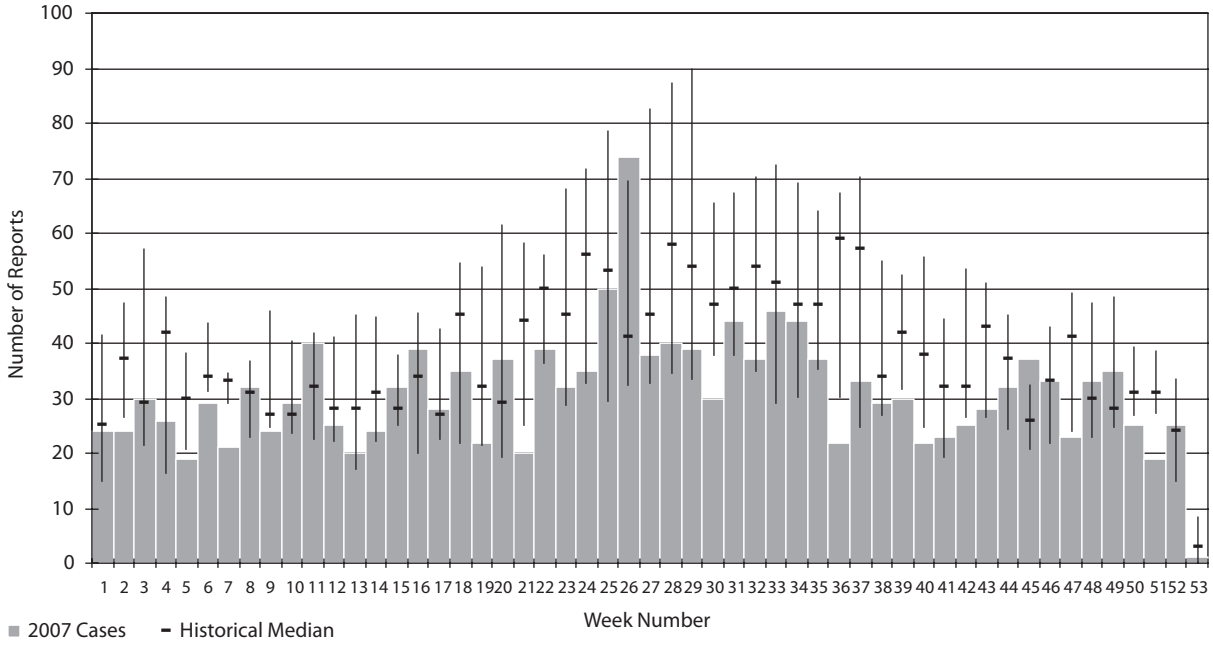
Note: Map classification by Jenks natural breaks method.

21.3 Campylobacteriosis Rates by Age Group and Sex, 2007



	<1	1-4	5-9	10-14	15-19	20-24	25-29	30-39	40-59	60+
Campylobacteriosis Reports - Female	7	46	25	17	29	86	61	118	228	146
Campylobacteriosis Reports - Male	6	44	33	45	49	88	82	138	245	147
Campylobacteriosis Rate - Female	34.7	56.6	23.4	13.7	21.3	56.9	41.6	38.6	33.8	32.1
Campylobacteriosis Rate - Male	28.4	51.3	29.1	34.2	34.2	55.9	55.0	45.8	36.9	37.1
Campylobacteriosis Rate - Total	31.5	53.9	26.4	24.3	27.9	56.4	48.4	42.2	35.3	34.4

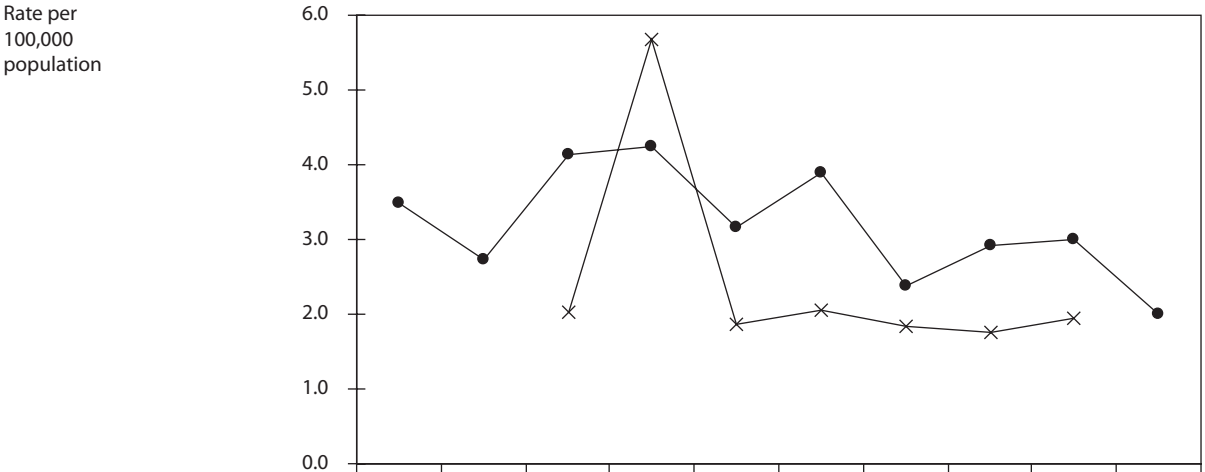
21.4 2007 Campylobacteriosis Reports Compared to Historical Median and the 10th and 90th Percentiles Around the Median (1998 to 2006)



Cryptosporidiosis

In 2007, 87 cases (2.0 per 100,000) of cryptosporidiosis were reported, the lowest number and rate in the last 10 years. It is not clear why the rate has been generally decreasing during this time period. This year, the highest rate was reported from Vancouver, followed by Fraser East. Infections were more common in children under 10 years of age. This year, there was no distinct seasonal pattern. No outbreaks were reported in 2007.

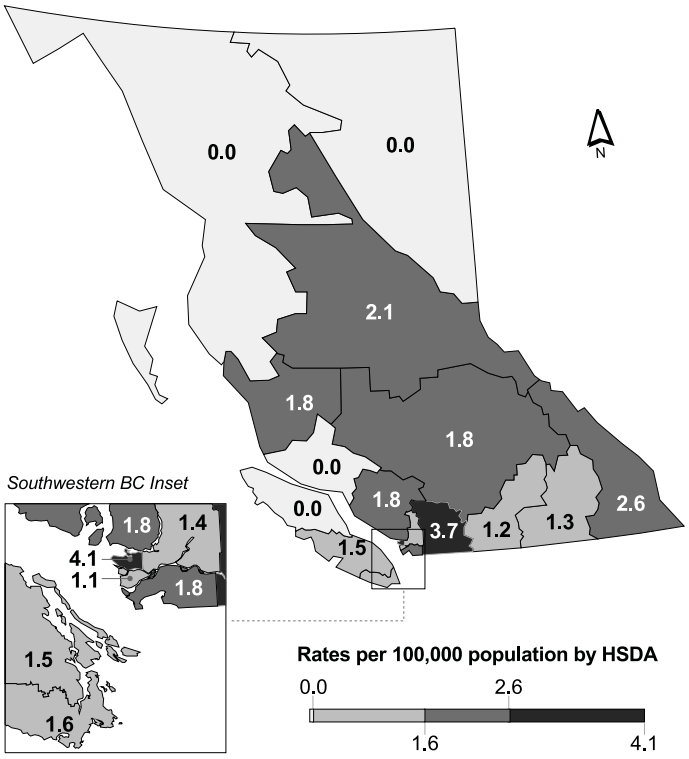
22.1 Cryptosporidiosis Rates by Year, 1998–2007



	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
BC Cryptosporidiosis Reports	139	109	167	173	130	162	100	124	129	87
BC Cryptosporidiosis Rate	3.5	2.7	4.1	4.2	3.2	3.9	2.4	2.9	3.0	2.0
Canadian Cryptosporidiosis Rate			2.0	5.7	1.9	2.0	1.8	1.8	1.9	

Note: Cryptosporidiosis became nationally notifiable in January 2000

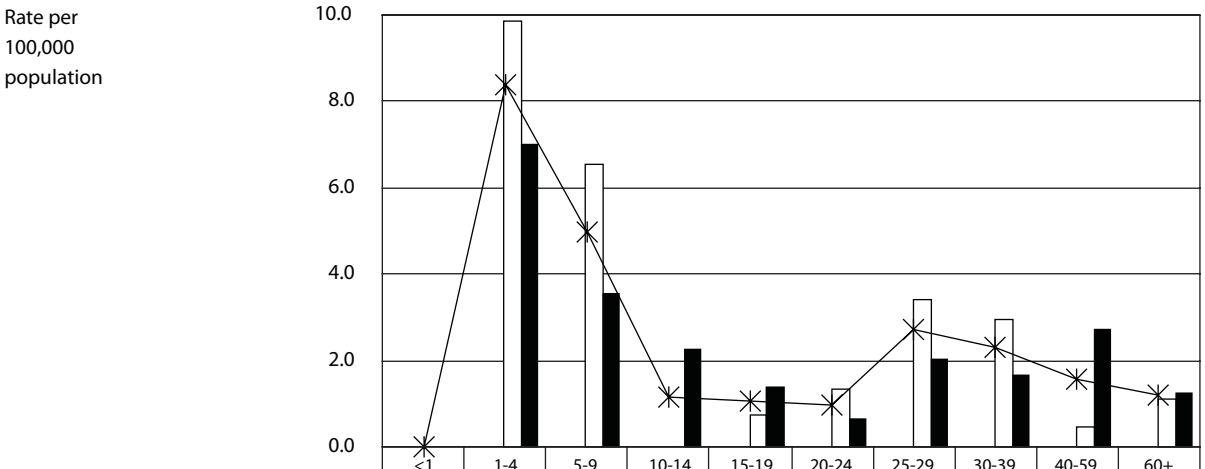
22.2 Cryptosporidiosis Rates by HSDA, 2007



HSDA	Health Service Delivery Area	Cases	Rate
11	East Kootenay	2	2.6
12	Kootenay Boundary	1	1.3
13	Okanagan	4	1.2
14	Thompson Cariboo Shuswap	4	1.8
21	Fraser East	10	3.7
22	Fraser North	8	1.4
23	Fraser South	12	1.8
31	Richmond	2	1.1
32	Vancouver	26	4.1
33	North Shore/Coast Garibaldi	5	1.8
41	South Vancouver Island	6	1.6
42	Central Vancouver Island	4	1.5
43	North Vancouver Island	0	0.0
51	Northwest	0	0.0
52	Northern Interior	3	2.1
53	Northeast	0	0.0

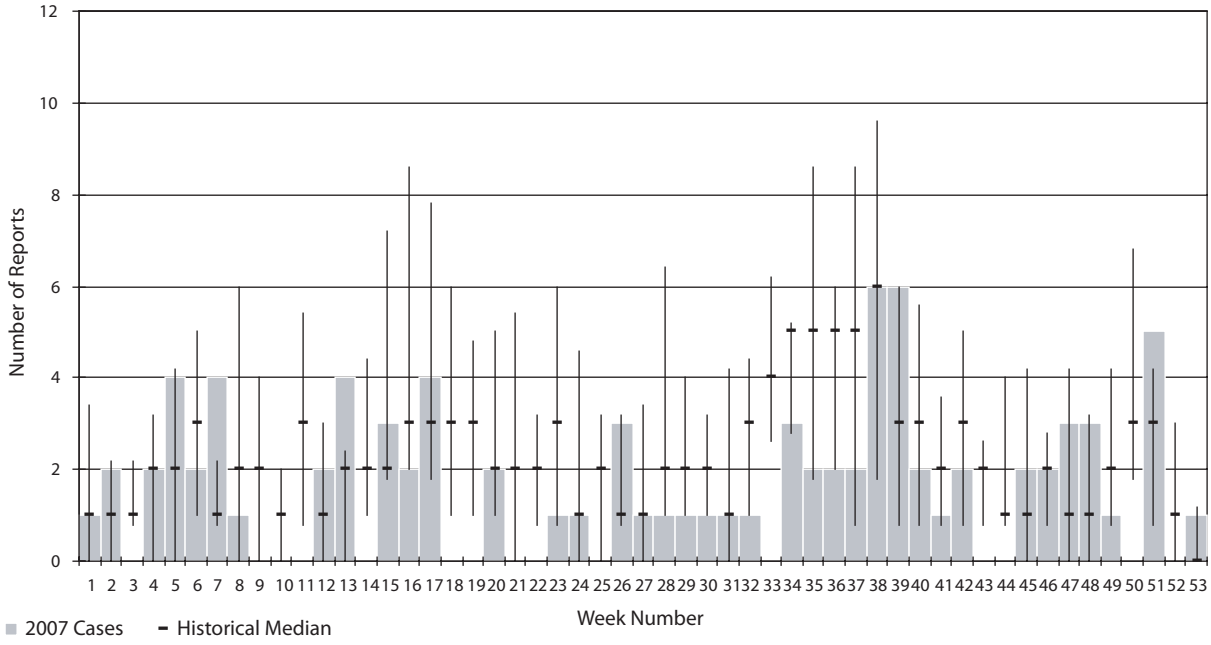
Note: Map classification by Jenks natural breaks method.

22.3 Cryptosporidiosis Rates by Age Group and Sex, 2007



	<1	1-4	5-9	10-14	15-19	20-24	25-29	30-39	40-59	60+
Cryptosporidiosis Reports - Female	0	8	7	0	1	2	5	9	3	5
Cryptosporidiosis Reports - Male	0	6	4	3	2	1	3	5	18	5
Cryptosporidiosis Rate - Female	0.0	9.9	6.6	0.0	0.7	1.3	3.4	2.9	0.4	1.1
Cryptosporidiosis Rate - Male	0.0	7.0	3.5	2.3	1.4	0.6	2.0	1.7	2.7	1.3
Cryptosporidiosis Rate - Total	0.0	8.4	5.0	1.2	1.1	1.0	2.7	2.3	1.6	1.2

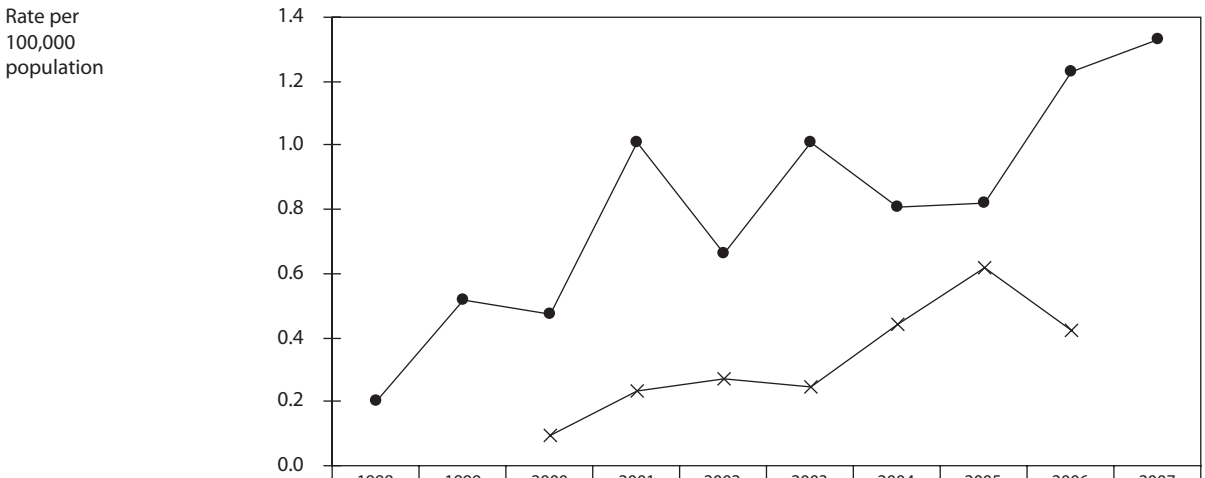
22.4 2007 Cryptosporidiosis Reports Compared to Historical Median and the 10th and 90th Percentiles Around the Median (1998 to 2006)



Cyclosporiasis

An outbreak of cyclosporiasis due to imported organic basil from Mexico was responsible for the increased incidence observed in May, June and July, 2007. Outbreaks of locally-acquired infections occur almost annually in the province (2001, 2003, 2004, 2006, 2007), typically caused by contaminated, imported produce from areas where the disease is endemic. Other infections result from travel to these places. Over the last 10 years, British Columbia has experienced a steady rise in the annual incidence of *Cyclospora* infections.

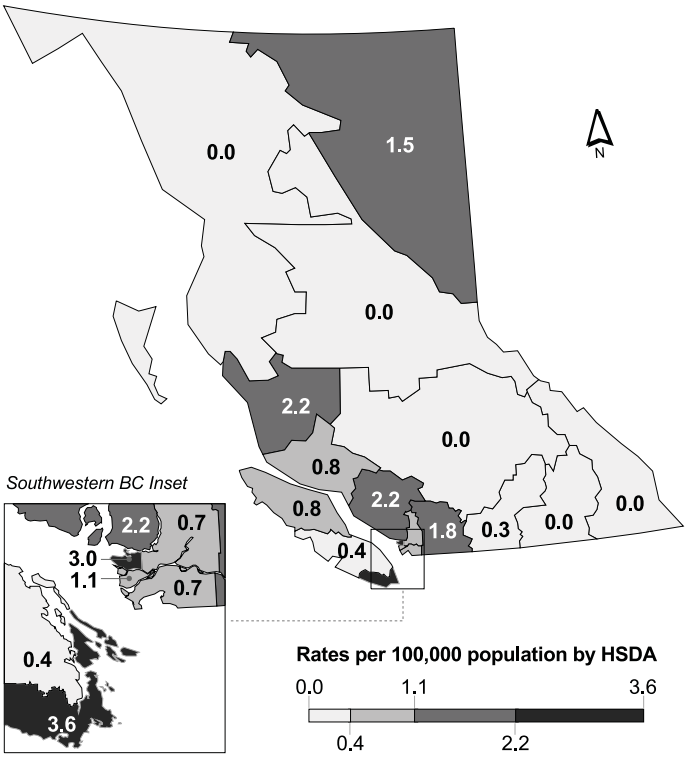
23.1 Cyclosporiasis Rates by Year, 1998–2007



	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
BC Cyclosporiasis Reports	8	21	19	41	27	42	34	35	53	58
BC Cyclosporiasis Rate	0.2	0.5	0.5	1.0	0.7	1.0	0.8	0.8	1.2	1.3
Canadian Cyclosporiasis Rate			0.1	0.2	0.3	0.2	0.4	0.6	0.4	

Note: Cyclosporiasis became nationally notifiable in January 2000

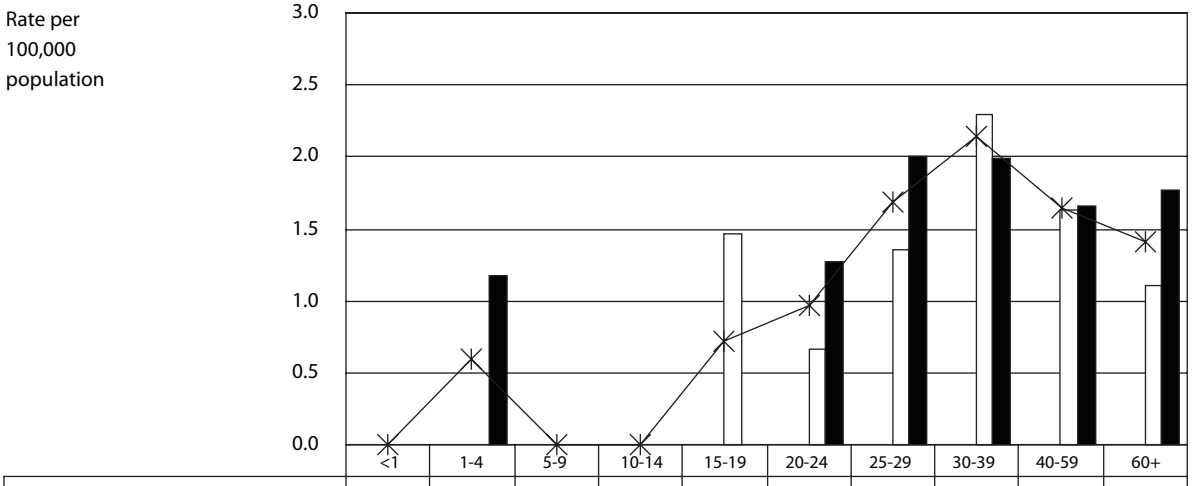
23.2 Cyclosporiasis Rates by HSDA, 2007



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	5	1.8
22	Fraser North	4	0.7
23	Fraser South	5	0.7
31	Richmond	2	1.1
32	Vancouver	19	3.0
33	North Shore/Coast Garibaldi	6	2.2
41	South Vancouver Island	13	3.6
42	Central Vancouver Island	1	0.4
43	North Vancouver Island	1	0.8
51	Northwest	0	0.0
52	Northern Interior	0	0.0
53	Northeast	1	1.5

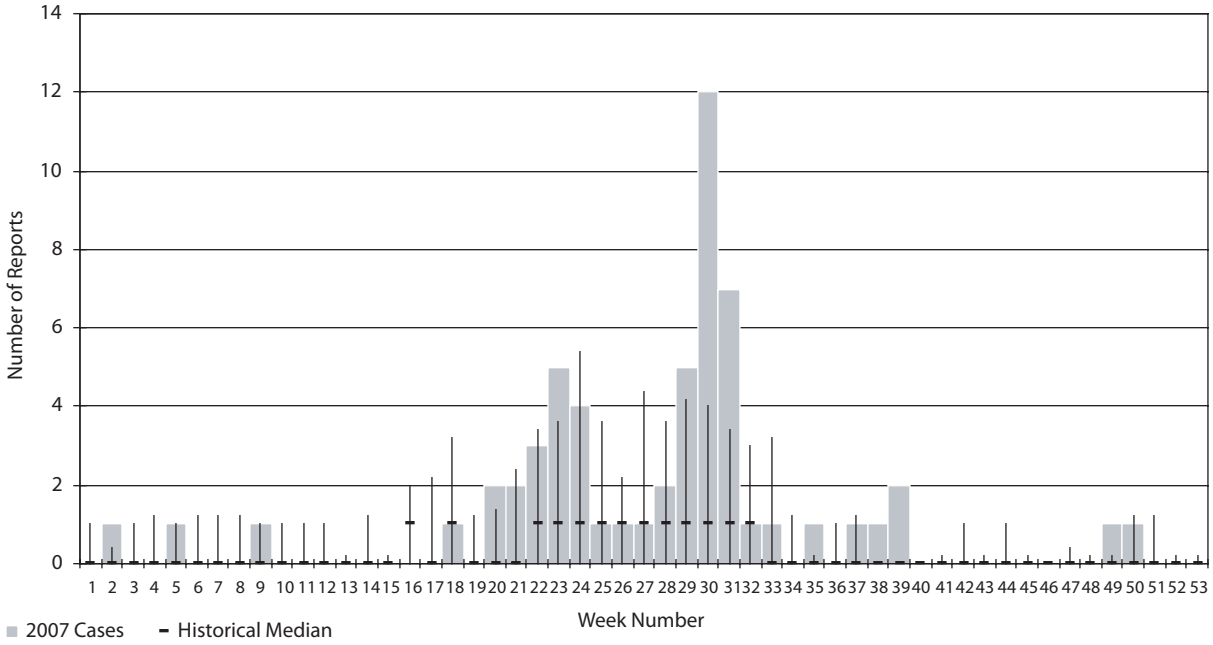
Note: Map classification by Jenks natural breaks method.

23.3 Cyclosporiasis Rates by Age Group and Sex, 2007



	<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	2	1	2	7	11	5
Cyclosporiasis Reports - Male	0	1	0	0	0	2	3	6	11	7
Cyclosporiasis Rate - Female	0.0	0.0	0.0	0.0	1.5	0.7	1.4	2.3	1.6	1.1
Cyclosporiasis Rate - Male	0.0	1.2	0.0	0.0	0.0	1.3	2.0	2.0	1.7	1.8
Cyclosporiasis Rate - Total	0.0	0.6	0.0	0.0	0.7	1.0	1.7	2.1	1.6	1.4

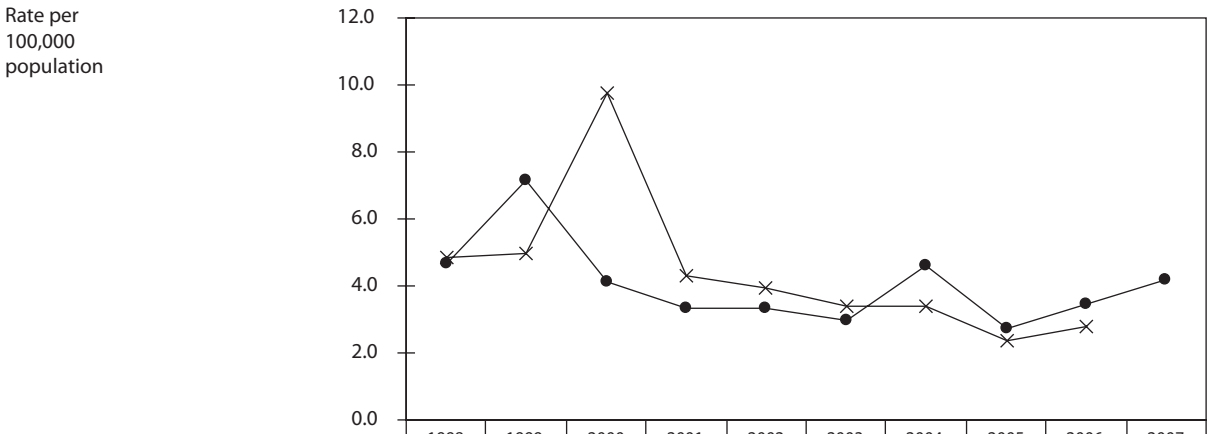
23.4 2007 Cyclosporiasis Reports Compared to Historical Median and the 10th and 90th Percentiles Around the Median (1998 to 2006)



Verotoxigenic *E. coli*

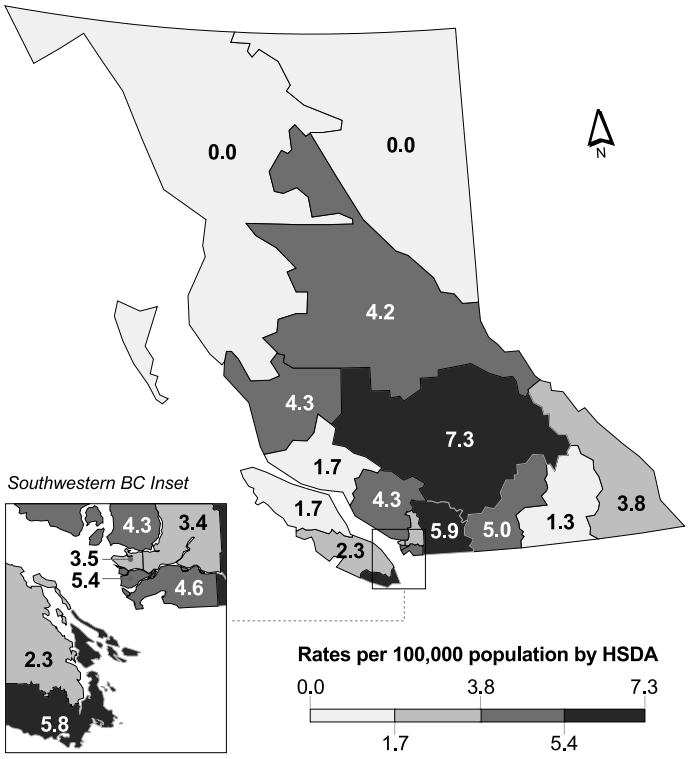
The provincial rate of verotoxigenic *E. coli* infection in BC has increased slightly from 2005 to 2007 (2.7–4.2 infections per 100,000 population). In 2007, incidence was highest in males under age 5 and males 10–19 years of age. *E. coli* exhibited expected seasonality, with peak incidence occurring between June and September. BC cases were involved in two national outbreaks linked to consumption of ground beef and beef sashimi, both of which resulted in large product recalls. Similar to 2006, the highest rates of infection were found in Thompson Cariboo Shuswap, Fraser East and South Vancouver Island, with rates from 5.8 to 7.3 cases per 100,000 population.

24.1 Verotoxigenic *E. coli* Rates by Year, 1998–2007



	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
BC Verotoxigenic E.coli Infection Reports	185	287	166	137	138	123	193	115	150	183
BC Verotoxigenic E.coli Infection Rate	4.6	7.2	4.1	3.4	3.4	3.0	4.6	2.7	3.5	4.2
Canadian Verotoxigenic E.coli Infection Rate	4.8	5.0	9.8	4.3	4.0	3.4	3.4	2.3	2.8	

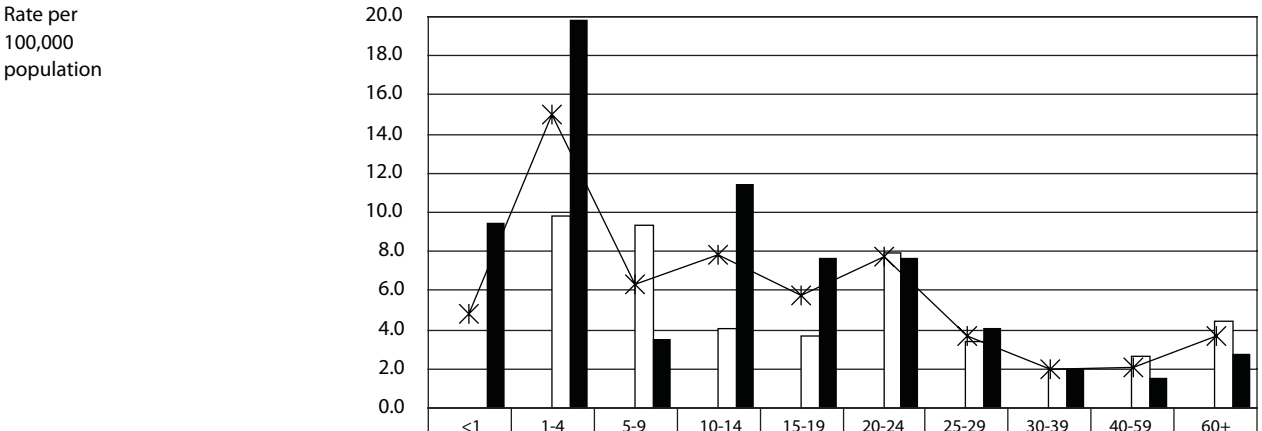
24.2 Verotoxigenic *E. coli* Rates by HSDA, 2007



HSDA	Health Service Delivery Area	Cases	Rate
11	East Kootenay	3	3.8
12	Kootenay Boundary	1	1.3
13	Okanagan	17	5.0
14	Thompson Cariboo Shuswap	16	7.3
21	Fraser East	16	5.9
22	Fraser North	20	3.4
23	Fraser South	31	4.6
31	Richmond	10	5.4
32	Vancouver	22	3.5
33	North Shore/Coast Garibaldi	12	4.3
41	South Vancouver Island	21	5.8
42	Central Vancouver Island	6	2.3
43	North Vancouver Island	2	1.7
51	Northwest	0	0.0
52	Northern Interior	6	4.2
53	Northeast	0	0.0

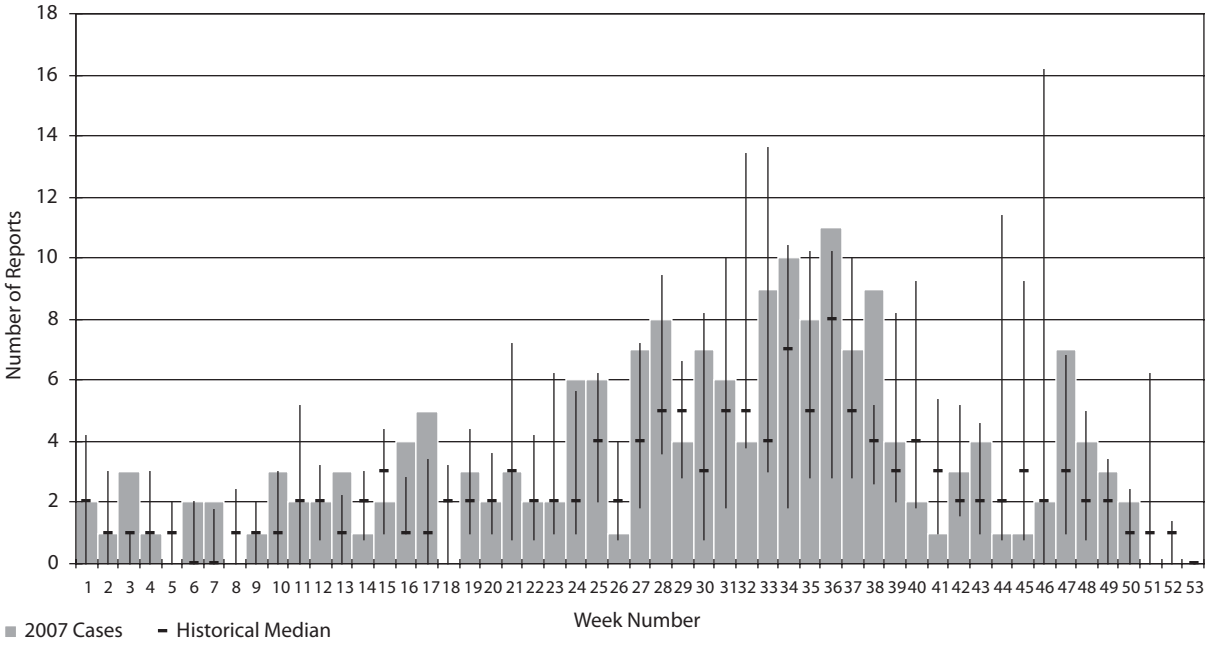
Note: Map classification by Jenks natural breaks method.

24.3 Verotoxigenic *E. coli* Rates by Age Group and Sex, 2007



	<1	1-4	5-9	10-14	15-19	20-24	25-29	30-39	40-59	60+
Verotoxigenic E.coli Infection Reports - Female	0	8	10	5	5	12	5	6	18	20
Verotoxigenic E.coli Infection Reports - Male	2	17	4	15	11	12	6	6	10	11
Verotoxigenic E.coli Infection Rate - Female	0.0	9.9	9.4	4.0	3.7	7.9	3.4	2.0	2.7	4.4
Verotoxigenic E.coli Infection Rate - Male	9.5	19.8	3.5	11.4	7.7	7.6	4.0	2.0	1.5	2.8
Verotoxigenic E.coli Infection Rate - Total	4.8	15.0	6.4	7.8	5.7	7.8	3.7	2.0	2.1	3.6

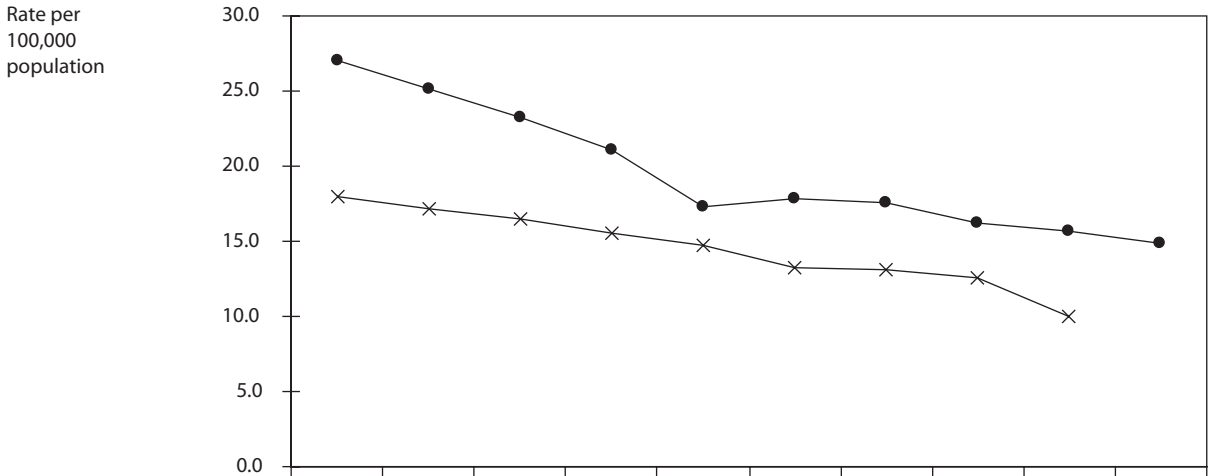
24.4 2007 Verotoxigenic *E. coli* Reports Compared to Historical Median and the 10th and 90th Percentiles Around the Median (1998 to 2006)



Giardiasis

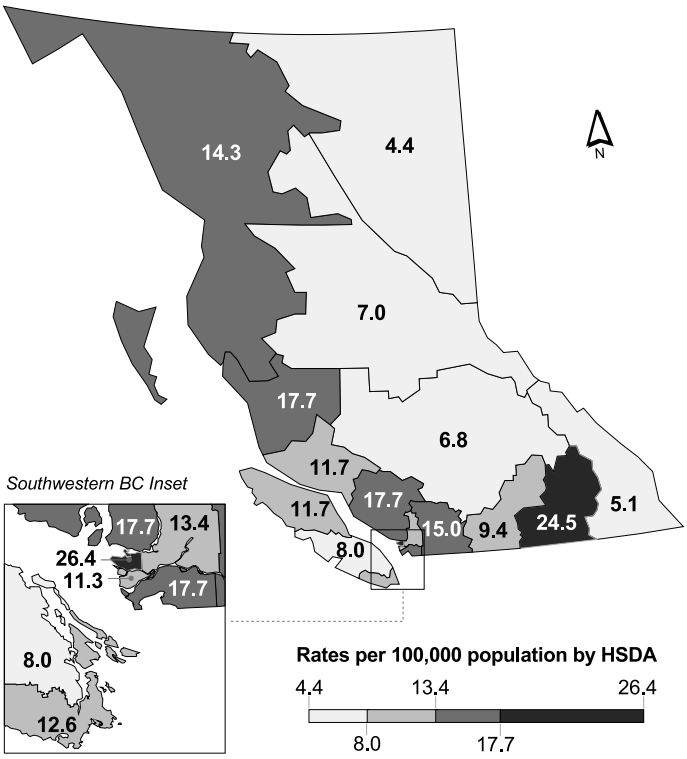
Annual rates of giardiasis in BC continued to decline in 2007 with 649 cases reported. No seasonal peak and no outbreaks were detected. A bi-modal age distribution is apparent for both males and females with rates of infection highest in children aged 1 to 9 and adults aged 20 to 39. As in previous years, rates were higher in males than females in most age groups. Vancouver and Kootenay Boundary experienced the highest rates of infection at 26.4 and 24.5 per 100, 000 population, respectively.

25.1 Giardiasis Rates by Year, 1998–2007



	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
BC Giardiasis Reports	1075	1009	941	860	710	742	739	691	674	649
BC Giardiasis Rate	27.0	25.2	23.3	21.1	17.3	17.9	17.6	16.2	15.6	14.9
Canadian Giardiasis Rate	18.0	17.2	16.5	15.6	14.7	13.3	13.1	12.5	10.0	

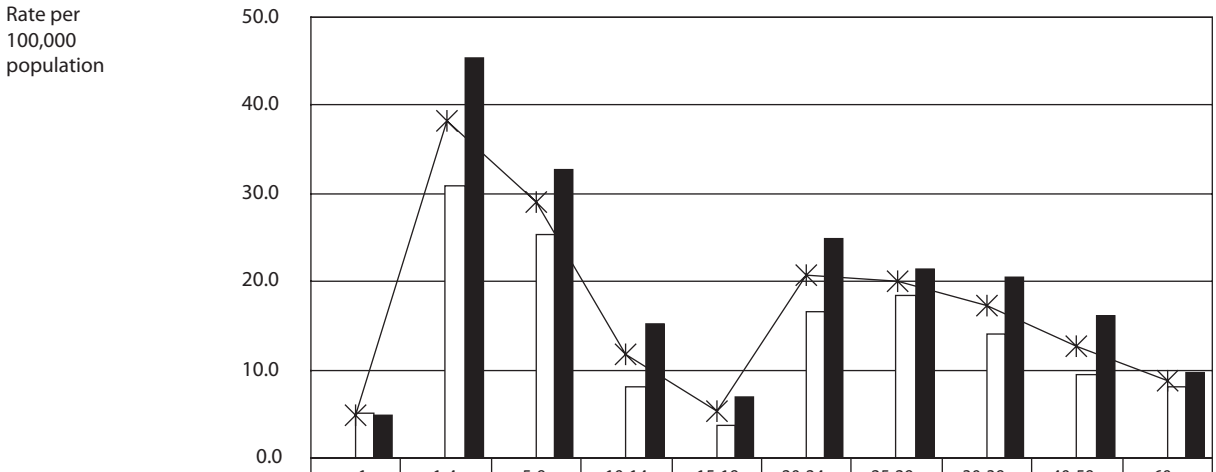
25.2 Giardiasis Rates by HSDA, 2007



HSDA	Health Service Delivery Area	Cases	Rate
11	East Kootenay	4	5.1
12	Kootenay Boundary	19	24.5
13	Okanagan	32	9.4
14	Thompson Cariboo Shuswap	15	6.8
21	Fraser East	41	15.0
22	Fraser North	78	13.4
23	Fraser South	119	17.7
31	Richmond	21	11.3
32	Vancouver	166	26.4
33	North Shore/Coast Garibaldi	49	17.7
41	South Vancouver Island	46	12.6
42	Central Vancouver Island	21	8.0
43	North Vancouver Island	14	11.7
51	Northwest	11	14.3
52	Northern Interior	10	7.0
53	Northeast	3	4.4

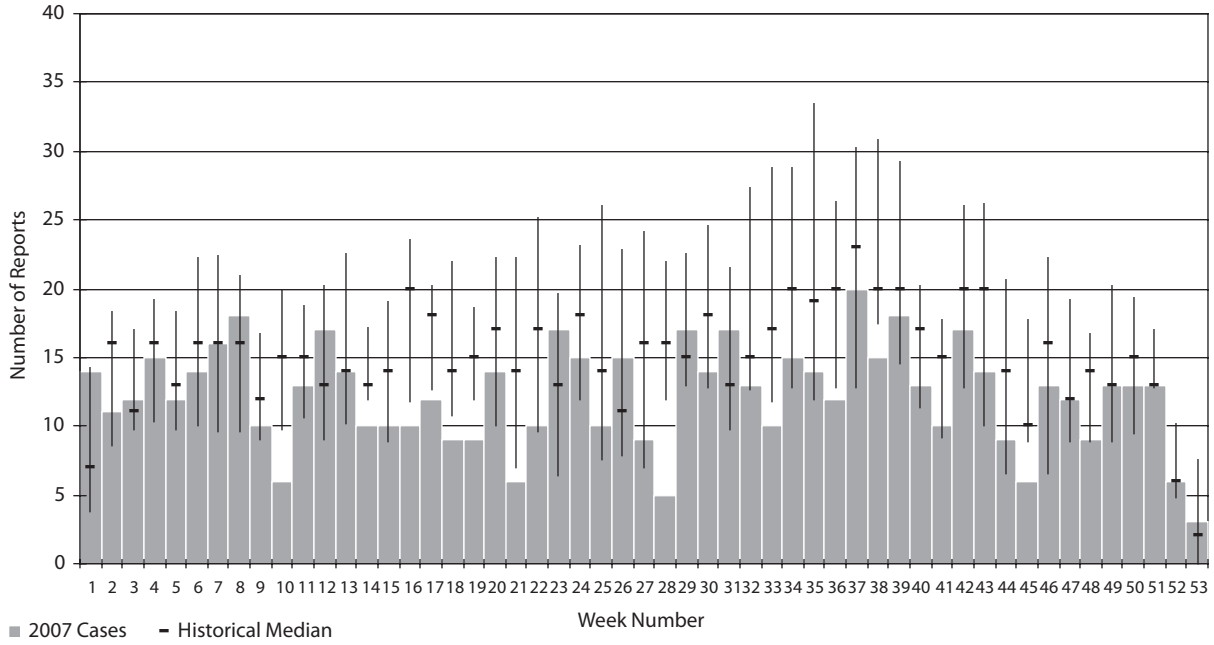
Note: Map classification by Jenks natural breaks method.

25.3 Giardiasis Rates by Age Group and Sex, 2007



	<1	1-4	5-9	10-14	15-19	20-24	25-29	30-39	40-59	60+
Giardiasis Reports - Female	1	25	27	10	5	25	27	43	64	37
Giardiasis Reports - Male	1	39	37	20	10	39	32	62	107	38
Giardiasis Rate - Female	5.0	30.8	25.3	8.1	3.7	16.5	18.4	14.1	9.5	8.1
Giardiasis Rate - Male	4.7	45.5	32.6	15.2	7.0	24.8	21.5	20.6	16.1	9.6
Giardiasis Rate - Total	4.8	38.3	29.1	11.7	5.4	20.7	20.0	17.3	12.8	8.8

25.4 2007 Giardiasis Reports Compared to Historical Median and the 10th and 90th Percentiles Around the Median (1998 to 2006)

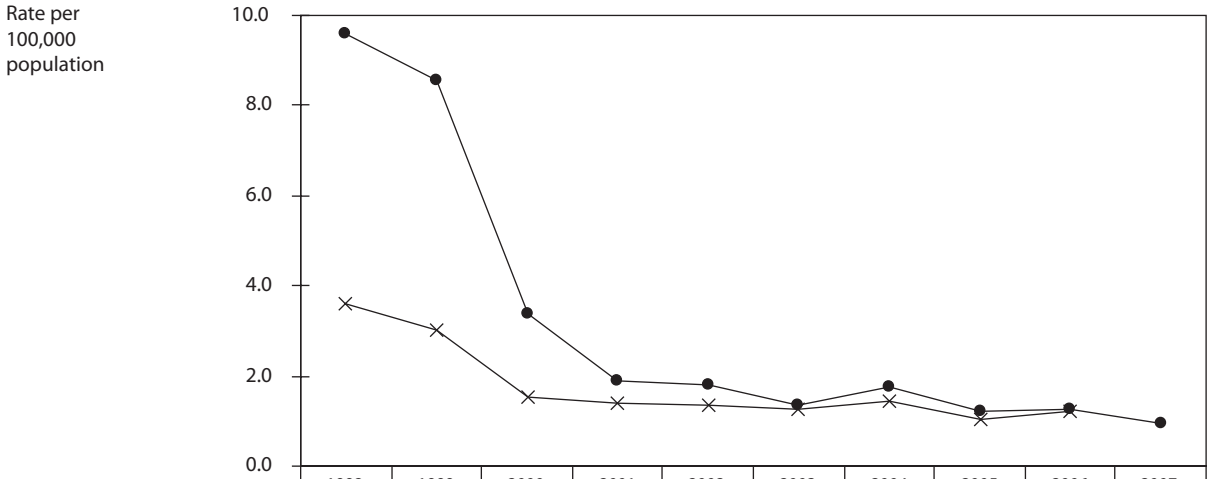


Hepatitis A

The number of cases of heptitis A reported in BC has continued to decline; in 2007 there were 41 cases reported. It must be remembered that the actual number of cases may be more than 5 times that reported. Publicly funded hepatitis A vaccine is available in BC for individuals at high risk of infection, these groups include those that have been identified in previous outbreaks such as men who have sex with men and illicit drug users.

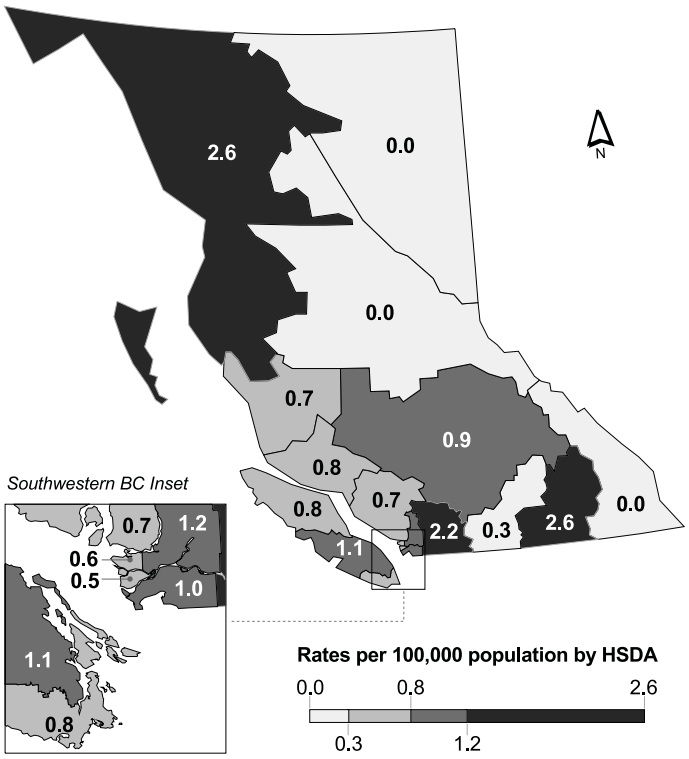
A significant proportion of hepatitis A cases continue to be identified in persons who have travelled to countries where hepatitis A is endemic, but were not immunized prior to travel. Almost half of hepatitis A cases were identified in the Fraser Health Authority (20 cases). The two health service delivery areas with the highest rates only had 2 cases each so these rates are unstable. Overall there are similar numbers of cases in males and females. No cases were reported in persons under 5 years of age, but young children may have asymptomatic infection and not be identified.

26.1 Hepatitis A Rates by Year, 1998–2007



	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
BC Hepatitis A Reports	382	344	136	78	75	57	74	51	55	41
BC Hepatitis A Rate	9.6	8.6	3.4	1.9	1.8	1.4	1.8	1.2	1.3	0.9
Canadian Hepatitis A Rate	3.6	3.0	1.5	1.4	1.3	1.2	1.4	1.1	1.2	

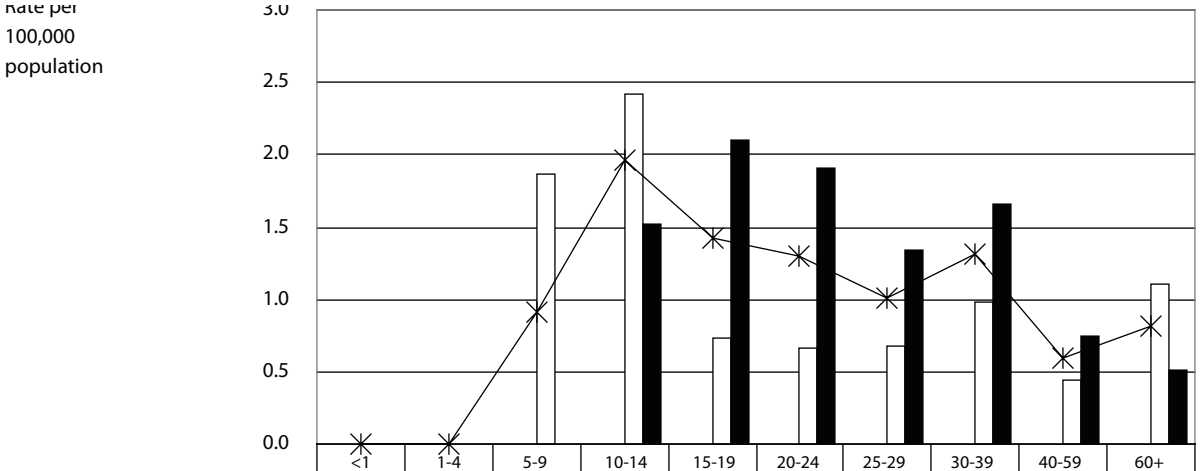
26.2 Hepatitis A Rates by HSDA, 2007



HSDA	Health Service Delivery Area	Cases	Rate
11	East Kootenay	0	0.0
12	Kootenay Boundary	2	2.6
13	Okanagan	1	0.3
14	Thompson Cariboo Shuswap	2	0.9
21	Fraser East	6	2.2
22	Fraser North	7	1.2
23	Fraser South	7	1.0
31	Richmond	1	0.5
32	Vancouver	4	0.6
33	North Shore/Coast Garibaldi	2	0.7
41	South Vancouver Island	3	0.8
42	Central Vancouver Island	3	1.1
43	North Vancouver Island	1	0.8
51	Northwest	2	2.6
52	Northern Interior	0	0.0
53	Northeast	0	0.0

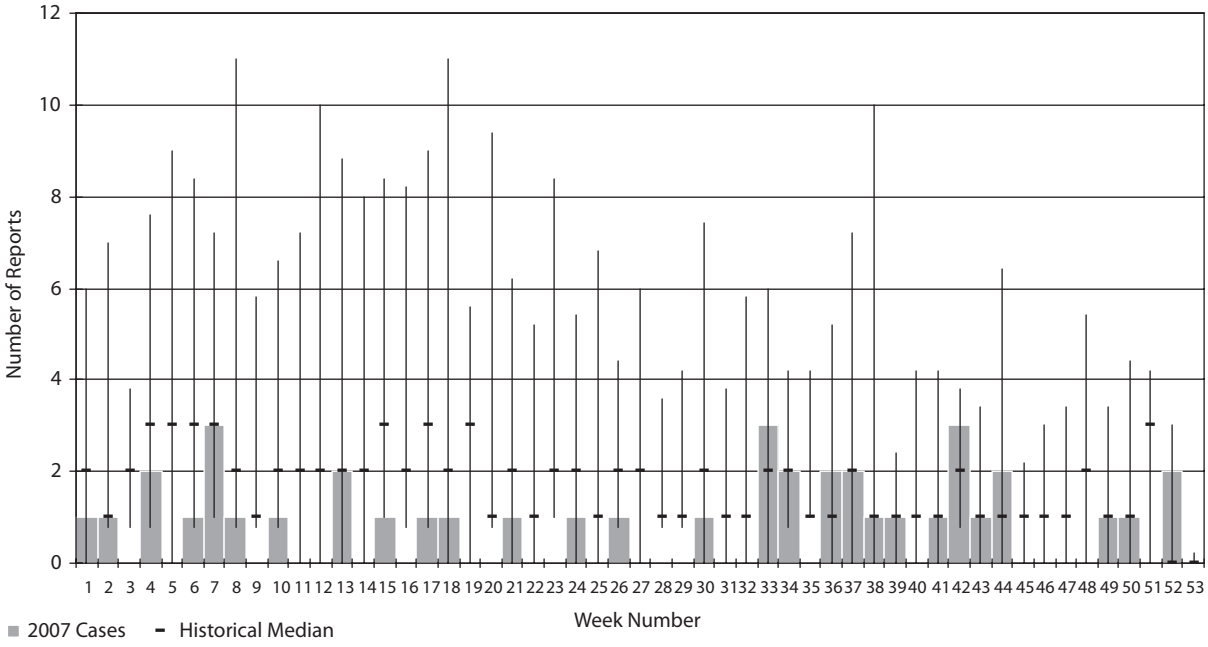
Note: Map classification by Jenks natural breaks method.

26.3 Hepatitis A Rates by Age Group and Sex, 2007



	<1	1-4	5-9	10-14	15-19	20-24	25-29	30-39	40-59	60+
Hepatitis A Reports - Female	0	0	2	3	1	1	1	3	3	5
Hepatitis A Reports - Male	0	0	0	2	3	3	2	5	5	2
Hepatitis A Rate - Female	0.0	0.0	1.9	2.4	0.7	0.7	0.7	1.0	0.4	1.1
Hepatitis A Rate - Male	0.0	0.0	0.0	1.5	2.1	1.9	1.3	1.7	0.8	0.5
Hepatitis A Rate - Total	0.0	0.0	0.9	2.0	1.4	1.3	1.0	1.3	0.6	0.8

26.4 2007 Hepatitis A Reports Compared to Historical Median and the 10th and 90th Percentiles Around the Median (1998 to 2006)

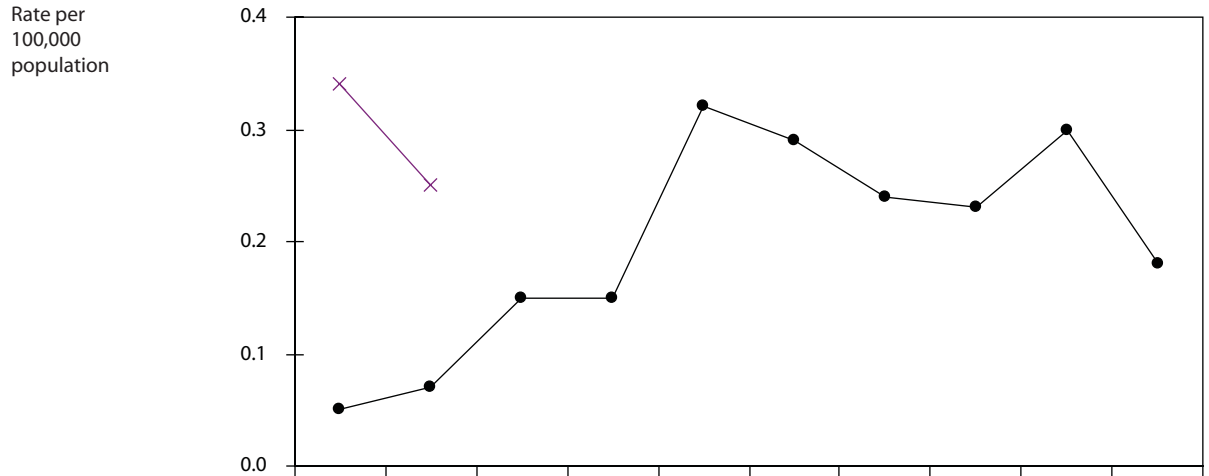


Listeriosis

Eight cases of invasive listeriosis were reported in 2007. The rate of 0.18 per 100,000 has been relatively stable in the last few years but higher than in the late 1990s. The reasons for this recent increase in rates, also observed in other developed countries, are not clear.

All cases were considered sporadic and unrelated. Two cases were reported in pregnant women. There was no regional or temporal clustering.

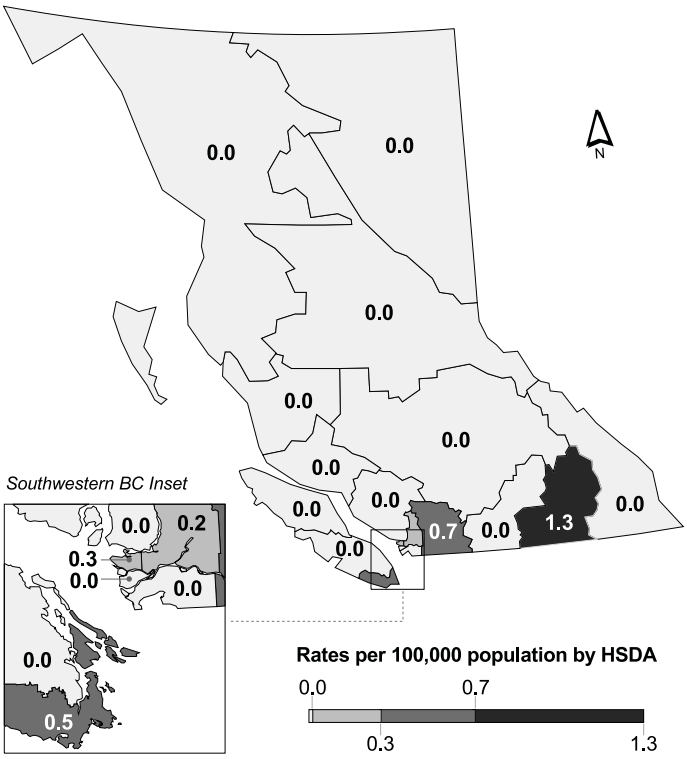
27.1 Listeriosis Rates by Year, 1998–2007



	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
BC Listeriosis Reports	2	3	6	6	13	12	10	10	13	8
BC Listeriosis Rate	0.05	0.07	0.15	0.15	0.32	0.29	0.24	0.23	0.30	0.18
Canadian Listeriosis Rate	0.34	0.25								

Note: Listeroisis was removed from national surveillance in January 2000

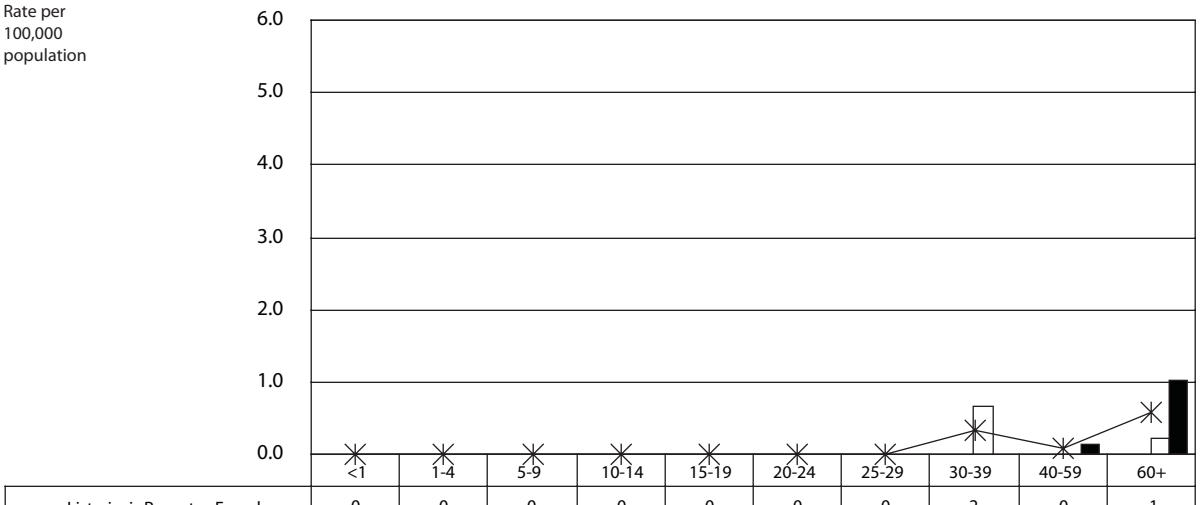
27.2 Listeriosis Rates by HSDA, 2007



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	2	0.7
22	Fraser North	1	0.2
23	Fraser South	0	0.0
31	Richmond	0	0.0
32	Vancouver	2	0.3
33	North Shore/Coast Garibaldi	0	0.0
41	South Vancouver Island	2	0.5
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

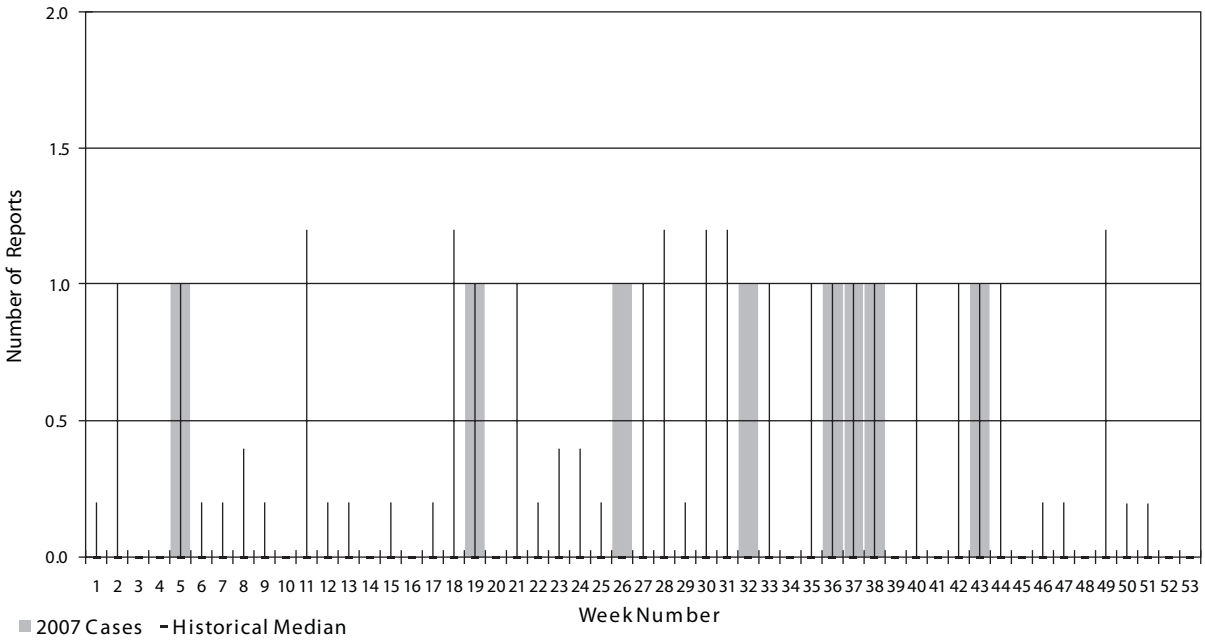
Note: Map classification by Jenks natural breaks method.

27.3 Listeriosis Rates by Age Group and Sex, 2007



	<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	2	0	1
Listeriosis Reports - Male	0	0	0	0	0	0	0	0	1	4
Listeriosis Rate - Female	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.2
Listeriosis Rate - Male	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.0
Listeriosis Rate - Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.1	0.6

27.4 2007 Listeriosis Reports Compared to Historical Median and the 10th and 90th Percentiles Around the Median (1998 to 2006)



Salmonellosis, Typhoid Fever and Paratyphoid Fever*

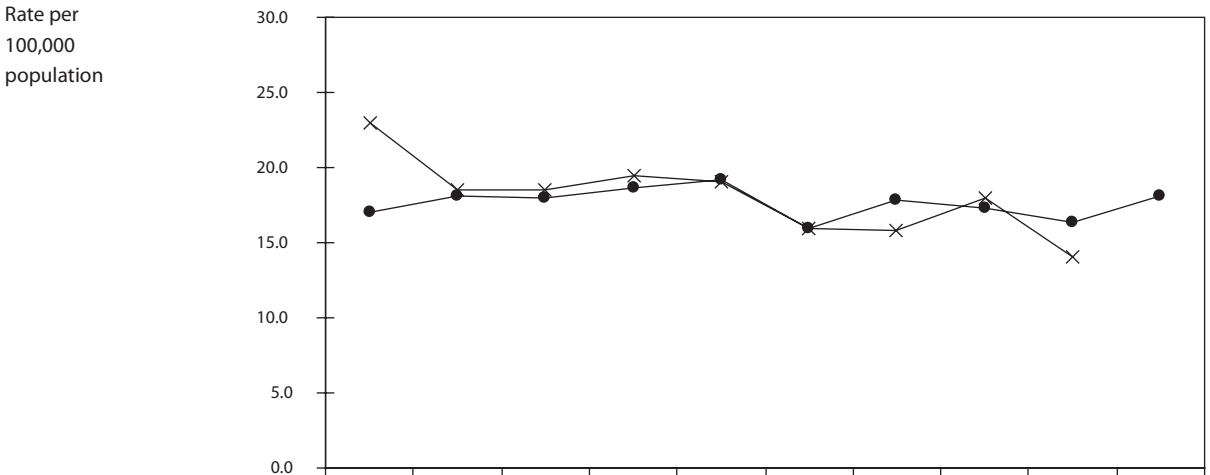
Provincial rates of salmonellosis have remained extremely stable over the last 10 years. In 2007, 790 cases were reported for a rate of 18.1 per 100,000 population, making *Salmonella* infection the second most commonly reported enteric disease in BC. Rates were highest in children under 5 years of age and among residents of Fraser South, Fraser East, Northeast and Richmond (22.0 to 24.8 cases per 100,000 population). One infant death was reported in 2007 caused by septicemia due to *S*. Enteritidis infection.

Typhoid fever rates in British Columbia have increased since 2000. Twenty-three cases were reported in 2007 for a rate of 0.5 cases per 100,000. Paratyphoid fever incidence normalized to 0.5 cases per 100,000 population in 2007 from a high of 1.2 cases per 100,000 population in 2006. Cases of Typhoid and Paratyphoid Fever are acquired during travel to endemic countries and are clustered in the first quarter of the year, a temporal reflection of the travel patterns of BC residents. Most cases were reported from Fraser Health Authority and were associated with travel to India.

Since at least 2004, *S*. Enteritidis, *S*. Typhimurium and *S*. Heidelberg have remained the top 3 *Salmonella* serotypes detected in the province. A large outbreak of 145 cases of a new strain of *S*. Enteritidis occurred in 2007. As a result, *S*. Enteritidis caused 36% of all *Salmonella* infections in 2007 compared with 20% in 2006. Investigation of this strain emergence in other North American jurisdictions suggests chicken as the likeliest source; investigations in BC are on-going. The relative proportion of *S*. Paratyphi A, *S*. Hadar and *S*. Newport decreased from 2004–2007. *S*. 4,5,12:i:- was newly reported in the top 10 serotypes in 2007.

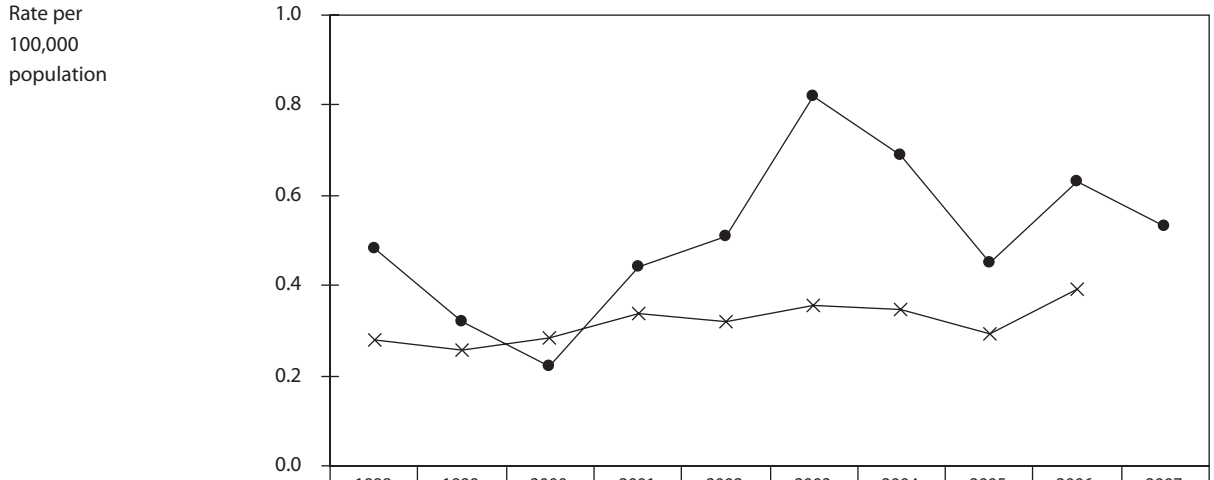
*All cases of *Salmonella* infection reported through iPHIS, including *S*. Typhi and *S*. Paratyphi, have been included in the overall numbers and rates by year, the rates by age and sex, the geographical distribution of cases and the cases reported by week. *S*. Typhi (Typhoid fever) and *S*. Paratyphi (Paratyphoid fever) cases and rates by year have also been presented separately.

28.1 Salmonellosis Rates by Year, 1998–2007



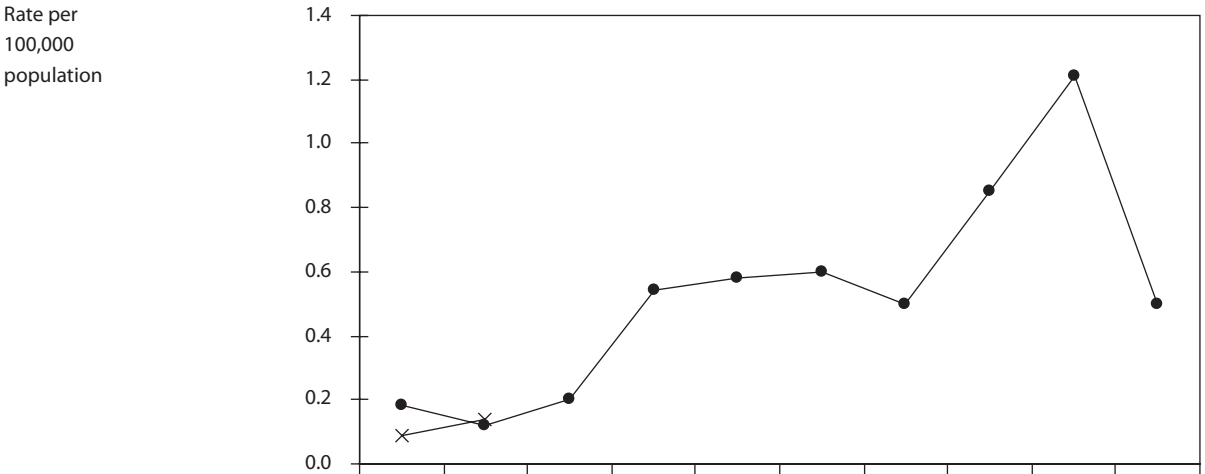
	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
BC Salmonellosis Reports	679	725	727	763	789	660	749	739	705	790
BC Salmonellosis Rate	17.1	18.1	18.0	18.7	19.2	15.9	17.8	17.4	16.4	18.1
Canadian Salmonellosis Rate	23.0	18.6	18.5	19.5	19.0	16.0	15.9	18.0	14.1	

28.2 Typhoid Fever Rates by Year, 1998–2007



	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
BC Typhoid Fever Reports	19	13	9	18	21	34	29	19	27	23
BC Typhoid Fever Rate	0.48	0.32	0.22	0.44	0.51	0.82	0.69	0.45	0.63	0.53
Canadian Typhoid Fever Rate	0.28	0.26	0.29	0.34	0.32	0.36	0.35	0.29	0.39	

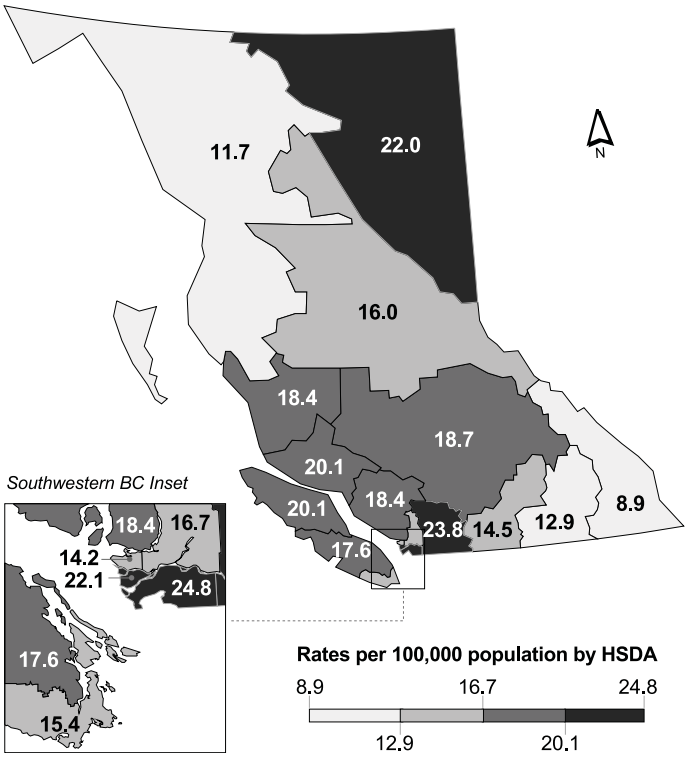
28.3 Paratyphoid Fever Rates by Year, 1998–2007



	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
BC Paratyphoid Fever Reports	7	5	8	22	24	25	21	36	52	22
BC Paratyphoid Fever Rate	0.18	0.12	0.20	0.54	0.58	0.60	0.50	0.85	1.21	0.50
Canadian Paratyphoid Fever Rate	0.09	0.14								

Note: Paratyphoid Fever was removed from national surveillance in January 2000

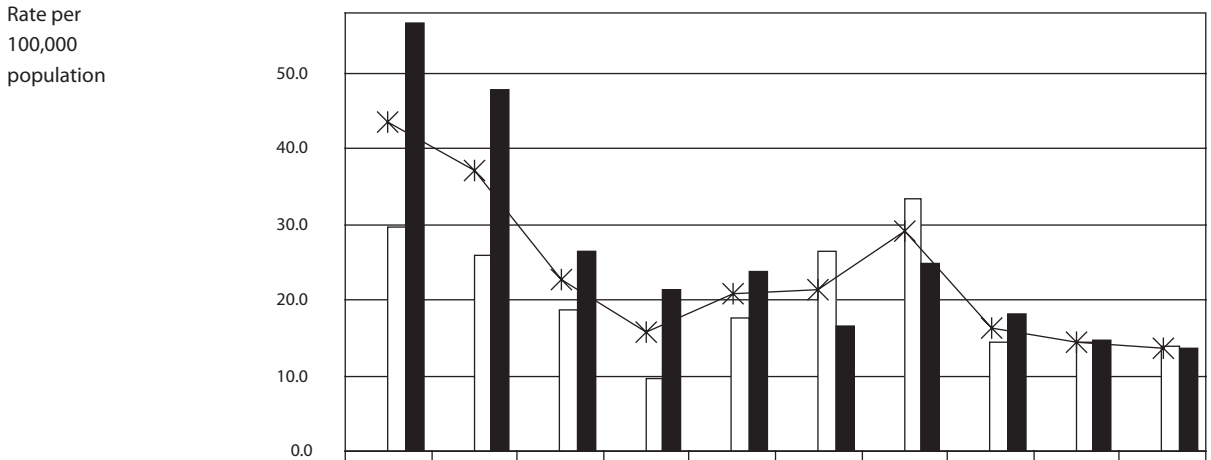
28.4 Salmonellosis Rates by HSDA, 2007



HSDA	Health Service Delivery Area	Cases	Rate
11	East Kootenay	7	8.9
12	Kootenay Boundary	10	12.9
13	Okanagan	49	14.5
14	Thompson Cariboo Shuswap	41	18.7
21	Fraser East	65	23.8
22	Fraser North	97	16.7
23	Fraser South	167	24.8
31	Richmond	41	22.1
32	Vancouver	89	14.2
33	North Shore/Coast Garibaldi	51	18.4
41	South Vancouver Island	56	15.4
42	Central Vancouver Island	46	17.6
43	North Vancouver Island	24	20.1
51	Northwest	9	11.7
52	Northern Interior	23	16.0
53	Northeast	15	22.0

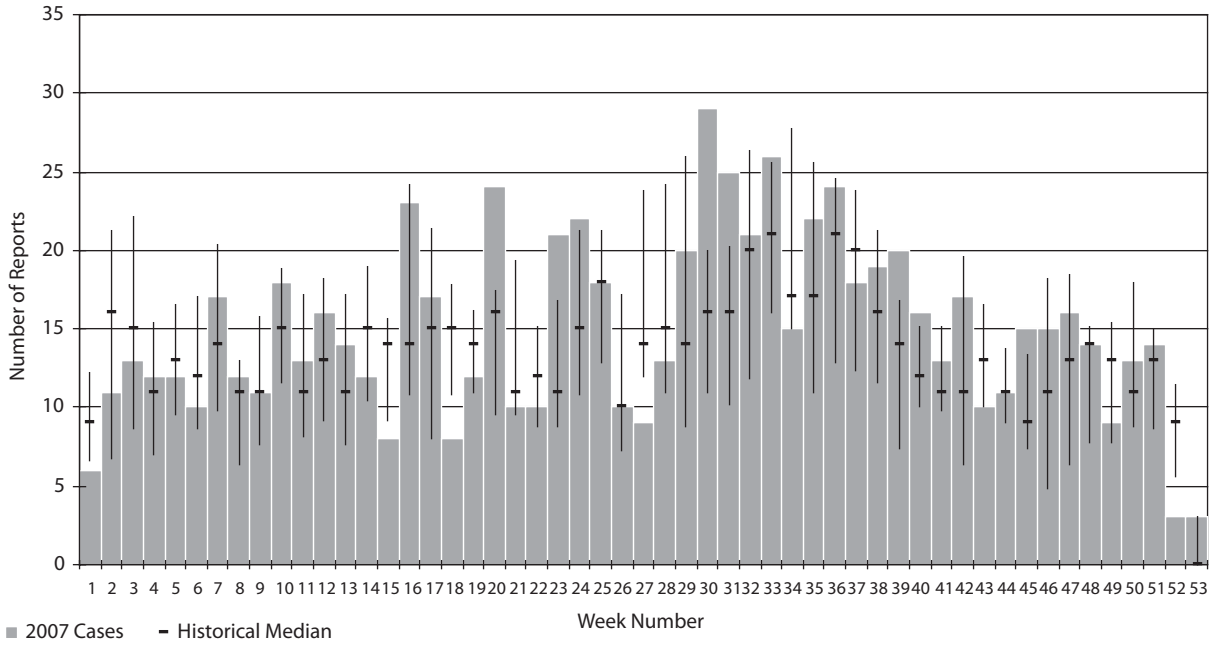
Note: Map classification by Jenks natural breaks method.

28.5 Salmonellosis Rates by Age Group and Sex, 2007



	<1	1-4	5-9	10-14	15-19	20-24	25-29	30-39	40-59	60+
Salmonellosis Reports - Female	6	21	20	12	24	40	49	44	97	63
Salmonellosis Reports - Male	12	41	30	28	34	26	37	55	97	54
Salmonellosis Rate - Female	29.8	25.9	18.8	9.7	17.6	26.5	33.4	14.4	14.4	13.9
Salmonellosis Rate - Male	56.8	47.8	26.5	21.3	23.7	16.5	24.8	18.2	14.6	13.6
Salmonellosis Rate - Total	43.6	37.1	22.7	15.7	20.8	21.4	29.1	16.3	14.5	13.8

28.6 2007 Salmonellosis Reports Compared to Historical Median and the 10th and 90th Percentiles Around the Median (1998 to 2006)



28.7 *Salmonella* serotype distribution, 2007

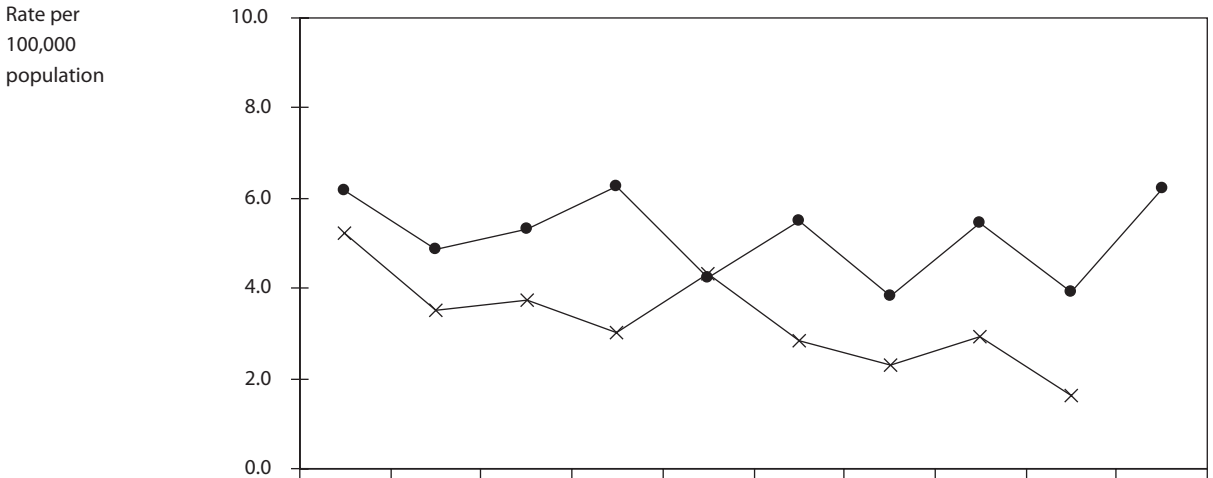
Rank	Serotype	#	%
1	Enteritidis	300	35.8 %
2	Typhimurium	88	10.5 %
3	Heidelberg	40	4.8 %
4	Salmonella ssp I 4,5,12:i:-	35	4.2 %
5	Typhi	33	3.9 %
6	Paratyphi A	25	3.0 %
7	Saintpaul	22	2.6 %
8	Stanley	21	2.5 %
9	Newport	17	2.0 %
10	Hadar	14	1.7 %
	Others	244	29.1 %
	Total	839	100.0 %

Note: Serotype distribution is based on BCCDC Laboratory Services Data. Numbers may vary from those reported in iPHIS

Shigellosis

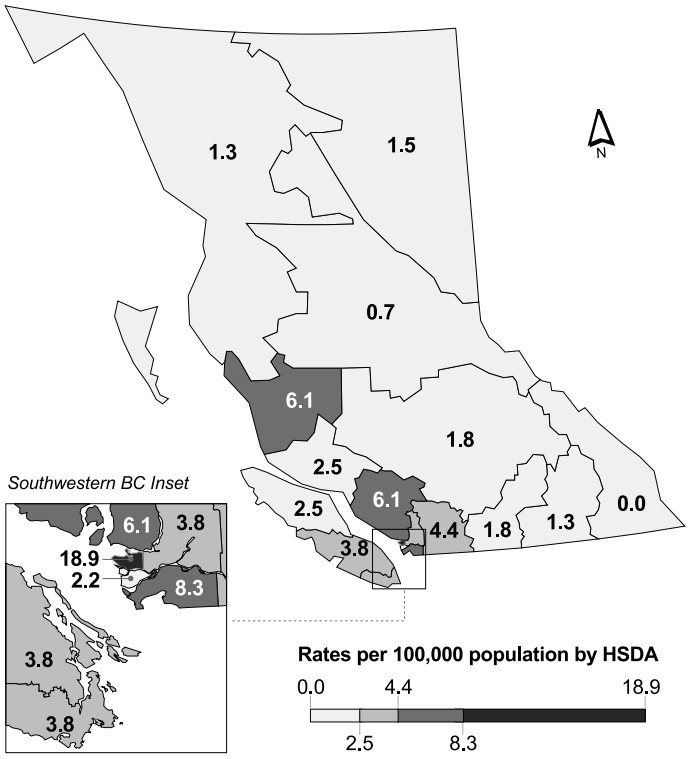
Annual shigellosis incidence in the province has fluctuated between a rate of 4–6 cases per 100,000 population over the last ten years. In 2007, 271 cases were reported. A large outbreak of *S. sonnei* infection occurred among the homeless populations in Vancouver and Surrey from October onwards. This explains the high rates in Vancouver HSDA and in adult males as well as the more than expected number of cases reported from weeks 41 to 53. *S. sonnei* remains the most common species and accounted for two-thirds of the isolates in 2007.

29.1 Shigellosis Rates by Year, 1998–2007



	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
BC Shigellosis Reports	246	195	214	255	175	229	161	233	170	271
BC Shigellosis Rate	6.2	4.9	5.3	6.3	4.3	5.5	3.8	5.5	3.9	6.2
Canadian Shigellosis Rate	5.2	3.5	3.8	3.0	4.3	2.8	2.3	2.9	1.6	

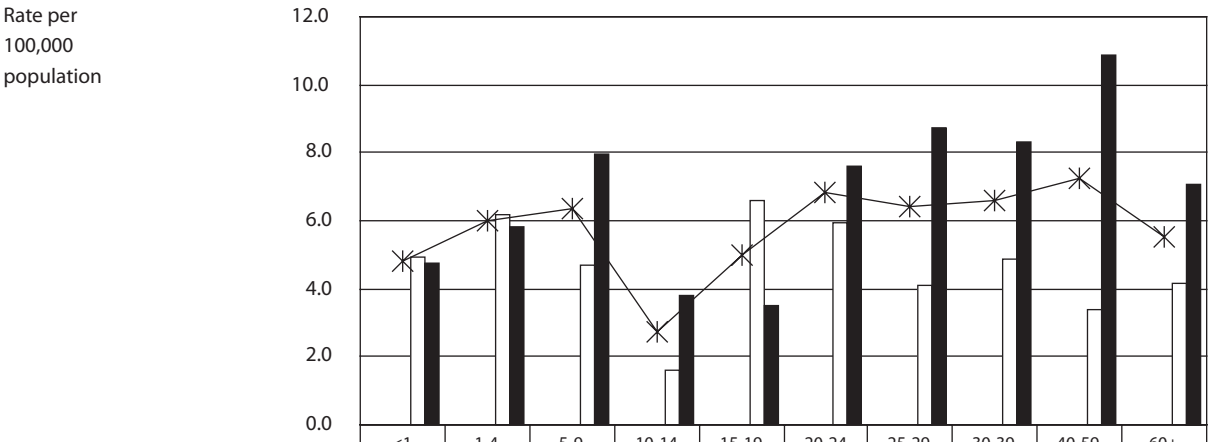
29.2 Shigellosis Rates by HSDA, 2007



HSDA	Health Service Delivery Area	Cases	Rate
11	East Kootenay	0	0.0
12	Kootenay Boundary	1	1.3
13	Okanagan	6	1.8
14	Thompson Cariboo Shuswap	4	1.8
21	Fraser East	12	4.4
22	Fraser North	22	3.8
23	Fraser South	56	8.3
31	Richmond	4	2.2
32	Vancouver	119	18.9
33	North Shore/Coast Garibaldi	17	6.1
41	South Vancouver Island	14	3.8
42	Central Vancouver Island	10	3.8
43	North Vancouver Island	3	2.5
51	Northwest	1	1.3
52	Northern Interior	1	0.7
53	Northeast	1	1.5

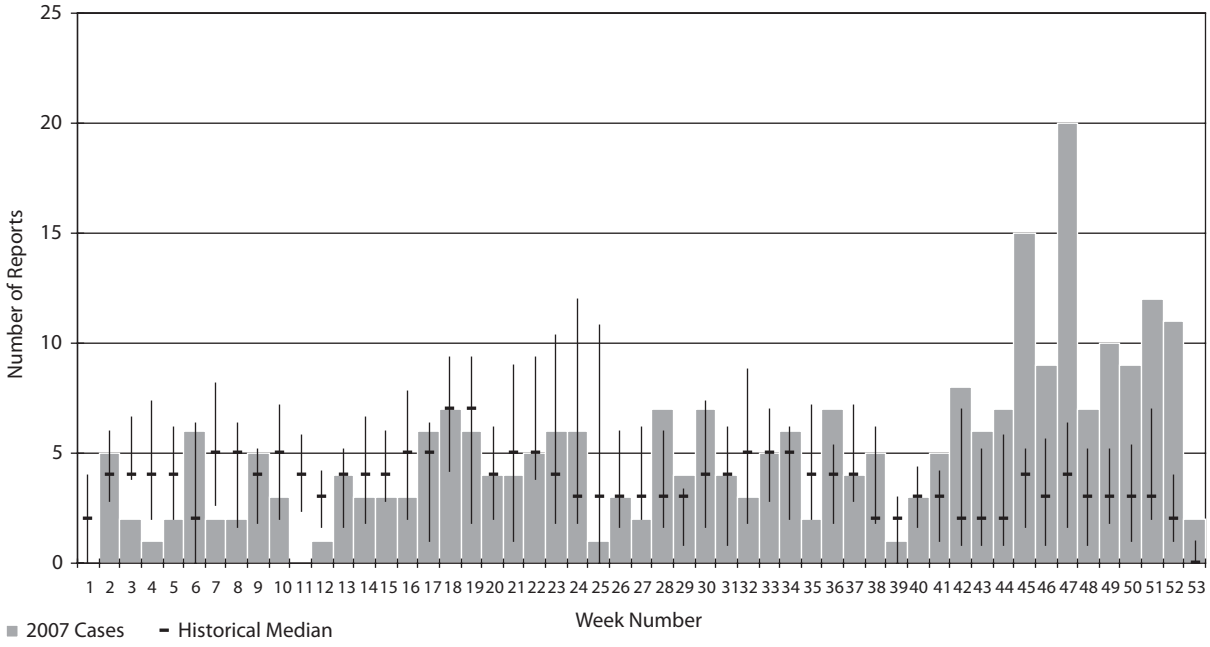
Note: Map classification by Jenks natural breaks method.

29.3 Shigellosis Rates by Age Group and Sex, 2007



	<1	1-4	5-9	10-14	15-19	20-24	25-29	30-39	40-59	60+
Shigellosis Reports - Female	1	5	5	2	9	9	6	15	23	19
Shigellosis Reports - Male	1	5	9	5	5	12	13	25	72	28
Shigellosis Reports - Transgender	0	0	0	0	0	0	0	0	2	0
Shigellosis Rate - Female	5.0	6.2	4.7	1.6	6.6	6.0	4.1	4.9	3.4	4.2
Shigellosis Rate - Male	4.7	5.8	7.9	3.8	3.5	7.6	8.7	8.3	10.9	7.1
Shigellosis Rate - Total	4.8	6.0	6.4	2.7	5.0	6.8	6.4	6.6	7.2	5.5

29.4 2007 Shigellosis Reports Compared to Historical Median and the 10th and 90th Percentiles Around the Median (1998 to 2006)



29.5 *Shigella* species distribution, 2007

Rank	Species	Number of Cases	Proportion
1	sonnei	129	65.5%
2	flexneri	46	23.4%
3	dysenteriae	4	2.0%
4	Other/unknown	18	9.1%
	Total	197	100.0%

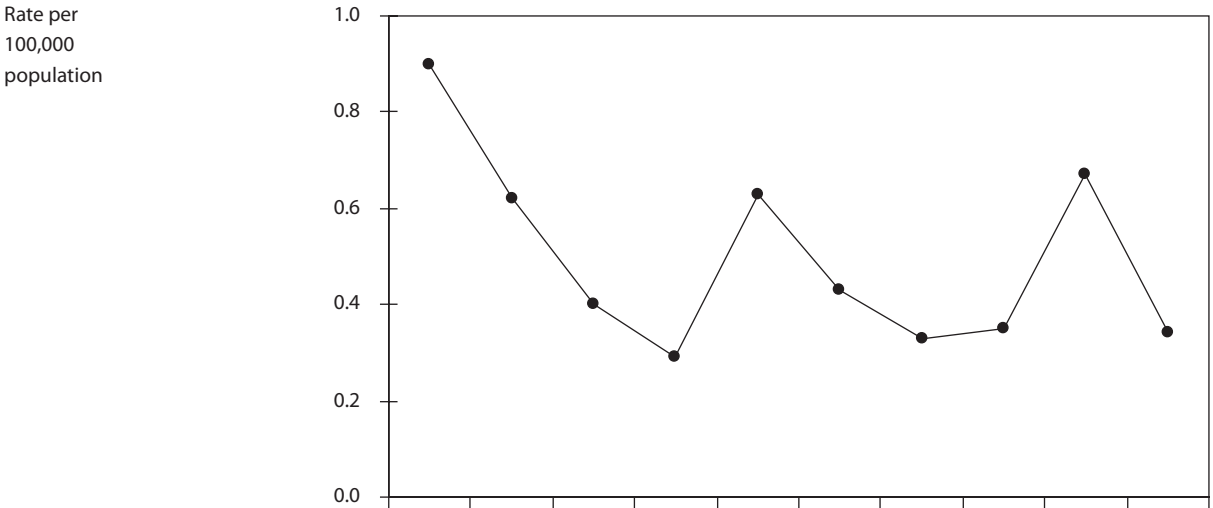
Note: Species distribution is based on BCCDC Laoratory Services data. Numbers may vary from those reported in iPHIS.

Vibrio parahaemolyticus

Fifteen cases of *V. parahaemolyticus* infection were reported in 2007 for a rate of 0.3 per 100,000. Cases were reported mostly from coastal regions with the highest number of cases reported from Vancouver. All cases were reported in adults and 80% in males.

The majority of cases were reported from weeks 28 to 41, which is consistent with the annual summer peak. *V. parahaemolyticus* infections in BC are mostly associated with consumption of raw or undercooked shellfish during the summer months.

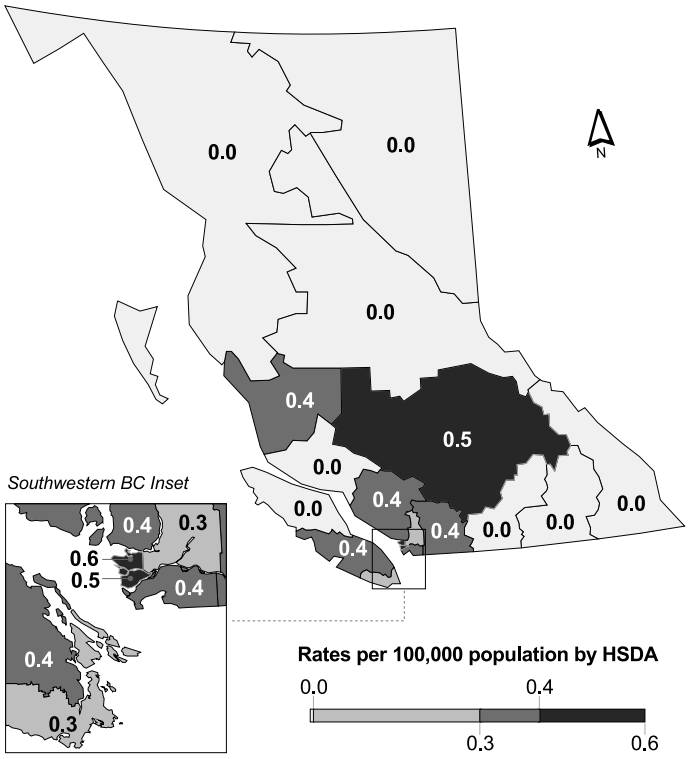
30.1 *Vibrio parahaemolyticus* Rates by Year, 1998–2007



	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
BC Vibrio parahaemolyticus Reports	36	25	16	12	26	18	14	15	29	15
BC Vibrio parahaemolyticus Rate	0.9	0.6	0.4	0.3	0.6	0.4	0.3	0.4	0.7	0.3

Note: Vibrio parahaemolyticus is not notifiable nationally

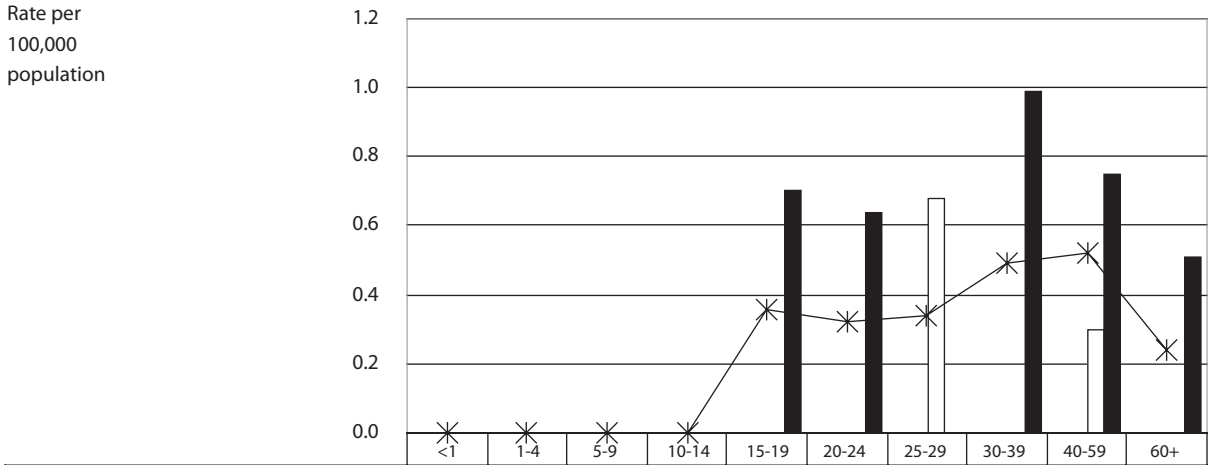
30.2 *Vibrio parahaemolyticus* Rates by HSDA, 2007



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	1	0.5
21	Fraser East	1	0.4
22	Fraser North	2	0.3
23	Fraser South	3	0.4
31	Richmond	1	0.5
32	Vancouver	4	0.6
33	North Shore/Coast Garibaldi	1	0.4
41	South Vancouver Island	1	0.3
42	Central Vancouver Island	1	0.4
43	North Vancouver Island	0	0.0
51	Northwest	0	0.0
52	Northern Interior	0	0.0
53	Northeast	0	0.0

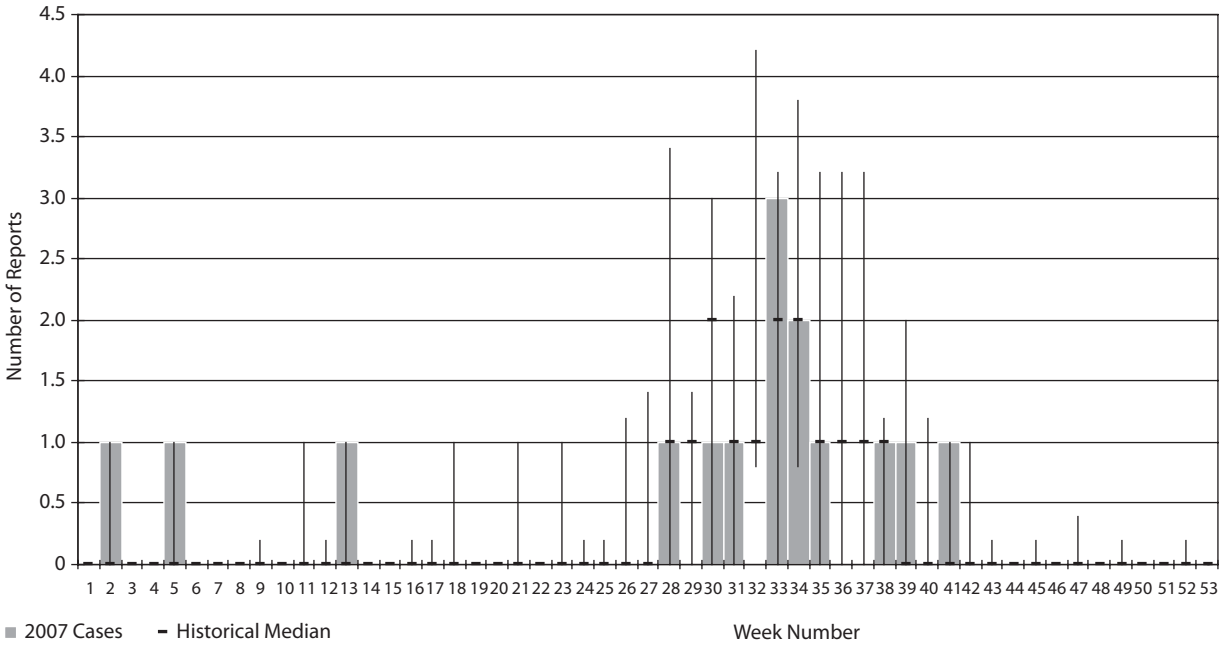
Note: Map classification by Jenks natural breaks method.

30.3 *Vibrio parahaemolyticus* Rates by Age Group and Sex, 2007



	<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	0	1	0	2	0
Vibrio parahaemolyticus Reports - Male	0	0	0	0	1	1	0	3	5	2
Vibrio parahaemolyticus Rate - Female	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.3	0.0
Vibrio parahaemolyticus Rate - Male	0.0	0.0	0.0	0.0	0.7	0.6	0.0	1.0	0.8	0.5
Vibrio parahaemolyticus Rate - Total	0.0	0.0	0.0	0.0	0.4	0.3	0.3	0.5	0.5	0.2

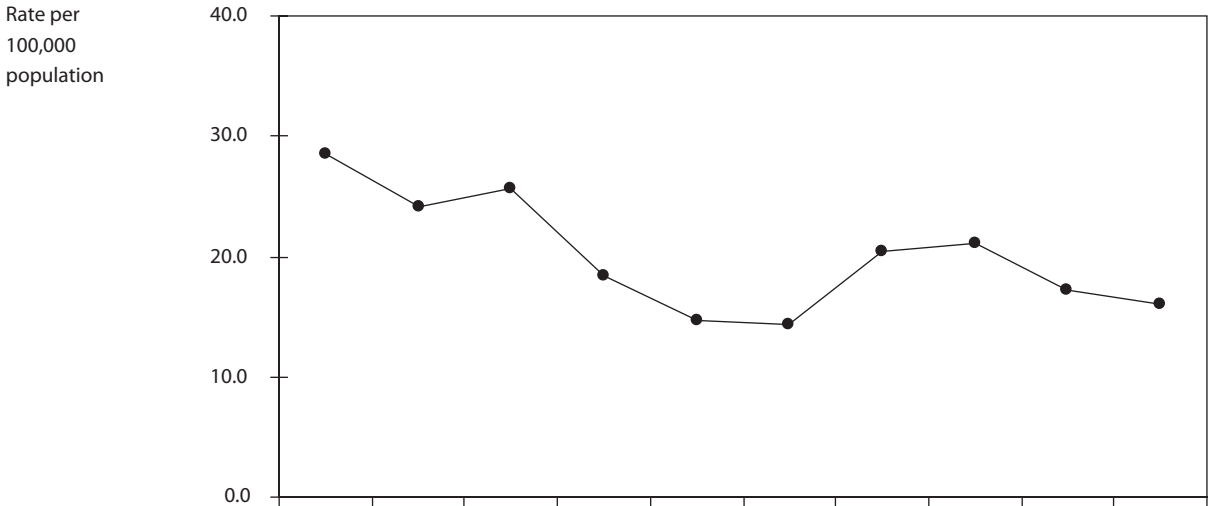
30.4 2007 *Vibrio parahaemolyticus* Reports Compared to Historical Median and the 10th and 90th Percentiles Around the Median (1998 to 2006)



Yersiniosis

There were 703 cases of yersiniosis in 2007, making it the third most frequently reported enteric disease in BC behind campylobacteriosis and salmonellosis. The typical mid-summer seasonal peak was not evident in 2007 with cases occurring throughout the year; no outbreaks were reported. Incidence was highest in children aged one to four. Like previous years, there was significant geographic variation in rates. This is likely related to differences in isolation techniques used at clinical laboratories; cold enrichment, which promotes the growth of *Yersinia* is used by some laboratories servicing the lower mainland and Vancouver Island. The highest rates of infection were reported in residents of North Shore/Coast Garibaldi at 47.3 per 100,000 followed by Richmond, Vancouver, and South Vancouver Island.

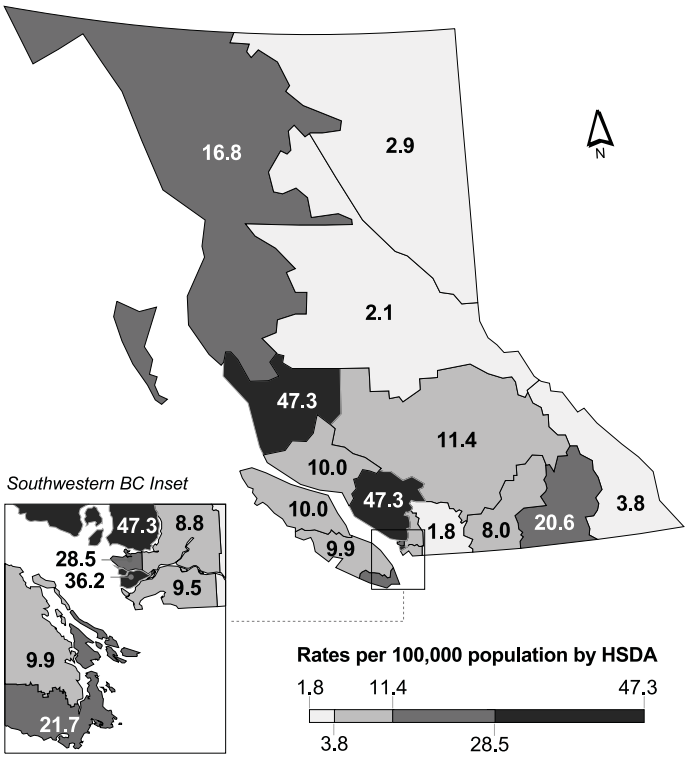
31.1 Yersiniosis Rates by Year, 1998–2007



	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
BC Yersiniosis Reports	1138	970	1036	750	605	598	861	899	740	703
BC Yersiniosis Rate	28.6	24.2	25.7	18.4	14.7	14.4	20.5	21.1	17.2	16.1

Note: Yersiniosis is not notifiable nationally

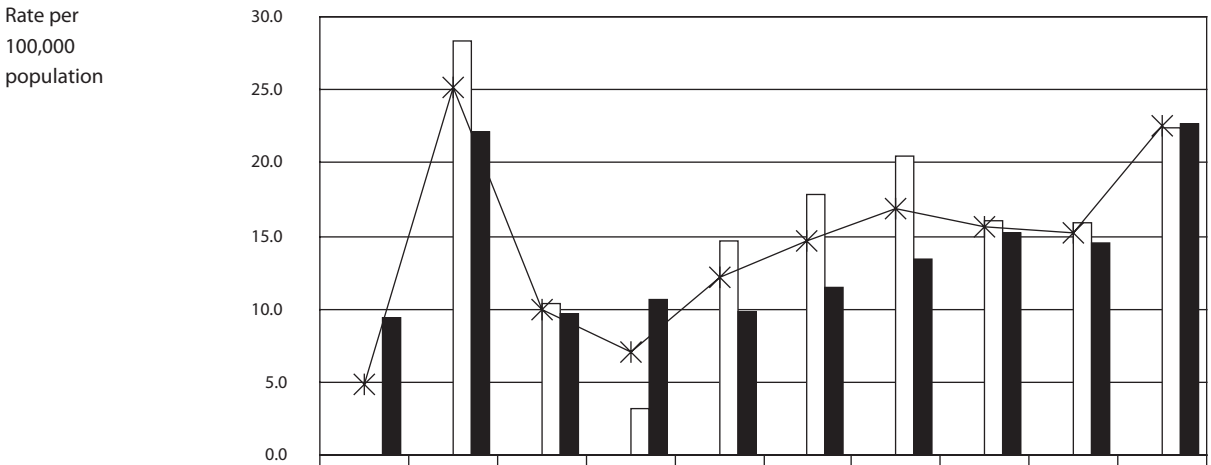
31.2 Yersiniosis Rates by HSDA, 2007



HSDA	Health Service Delivery Area	Cases	Rate
11	East Kootenay	3	3.8
12	Kootenay Boundary	16	20.6
13	Okanagan	27	8.0
14	Thompson Cariboo Shuswap	25	11.4
21	Fraser East	5	1.8
22	Fraser North	51	8.8
23	Fraser South	64	9.5
31	Richmond	67	36.2
32	Vancouver	179	28.5
33	North Shore/Coast Garibaldi	131	47.3
41	South Vancouver Island	79	21.7
42	Central Vancouver Island	26	9.9
43	North Vancouver Island	12	10.0
51	Northwest	13	16.8
52	Northern Interior	3	2.1
53	Northeast	2	2.9

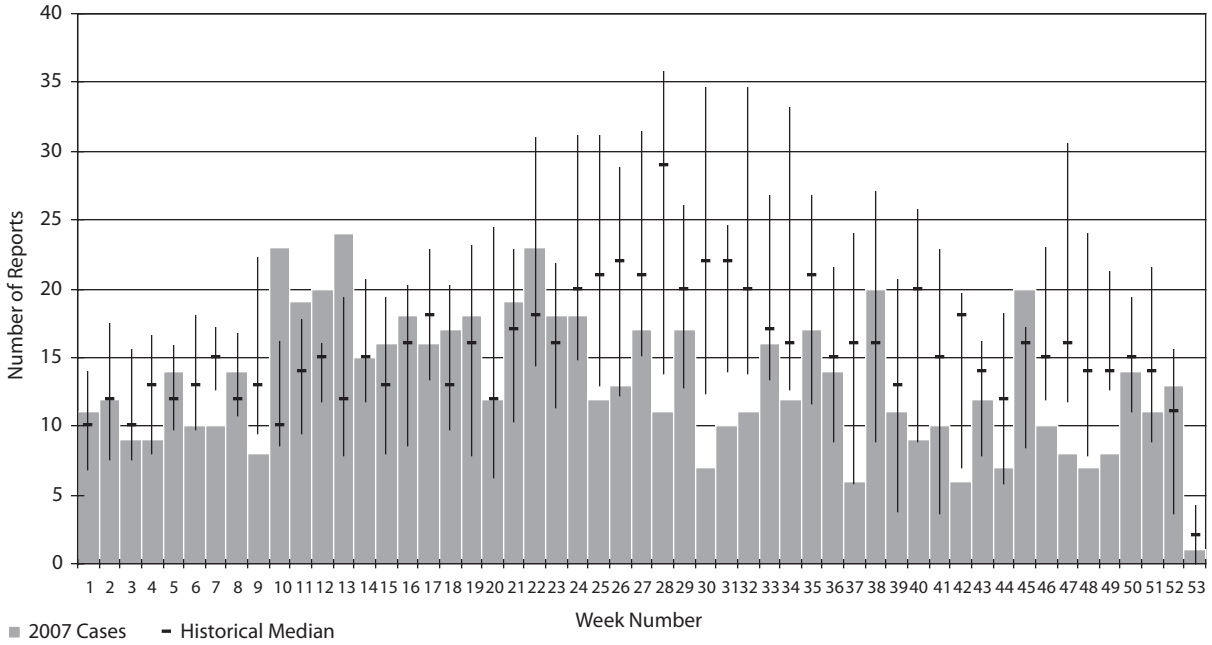
Note: Map classification by Jenks natural breaks method.

31.3 Yersiniosis Rates by Age Group and Sex, 2007



	<1	1-4	5-9	10-14	15-19	20-24	25-29	30-39	40-59	60+
Yersiniosis Reports - Female	0	23	11	4	20	27	30	49	107	102
Yersiniosis Reports - Male	2	19	11	14	14	18	20	46	96	90
Yersiniosis Rate - Female	0.0	28.3	10.3	3.2	14.7	17.9	20.5	16.0	15.9	22.4
Yersiniosis Rate - Male	9.5	22.2	9.7	10.6	9.8	11.4	13.4	15.3	14.5	22.7
Yersiniosis Rate - Total	4.8	25.2	10.0	7.0	12.2	14.6	16.9	15.6	15.2	22.6

31.4 2007 Yersiniosis Reports Compared to Historical Median and the 10th and 90th Percentiles Around the Median (1998 to 2006)



vectorborne and other zoonotic diseases

Hantavirus Pulmonary Syndrome

Lyme Disease

Malaria

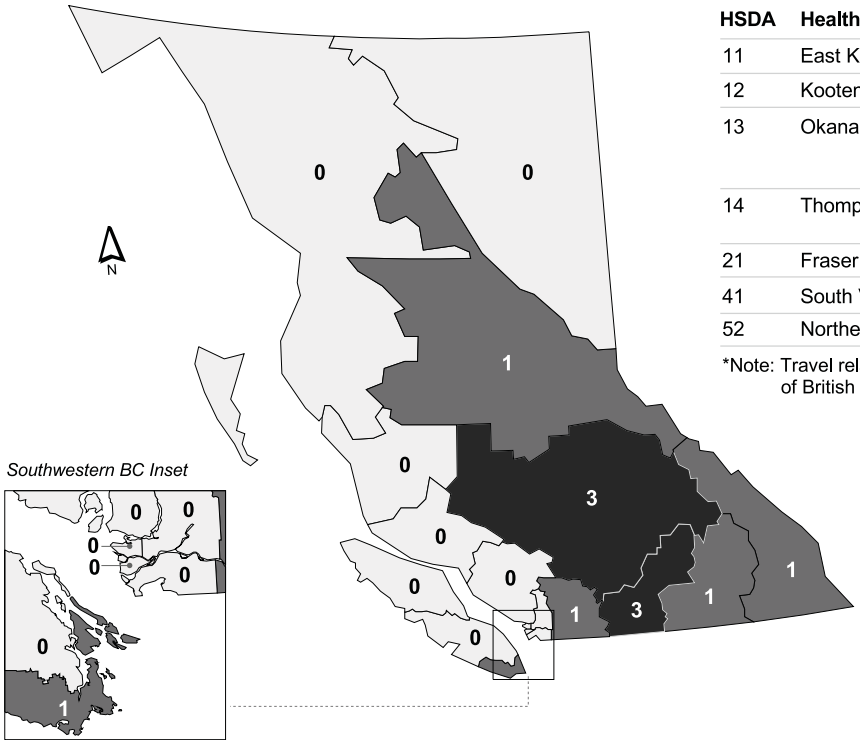
Rabies, exposure incidents

West Nile Virus

Hantavirus pulmonary syndrome

One non-fatal case of hantavirus pulmonary syndrome was reported in 2007 in an adult from the East Kootenay HSDA. Eleven cases of HPS have been reported in BC since 1994 of which 10 were locally-acquired. Eight (72.7%) cases have been reported from the Interior Health Authority. All cases have been related to contact with rodent excreta through recreational, peri-domestic, occupational or farming activities. Six cases (54.4%) have died.

32.1 Hantavirus plumonary syndrome, cumulative number of cases by HSDA, 1994–2007



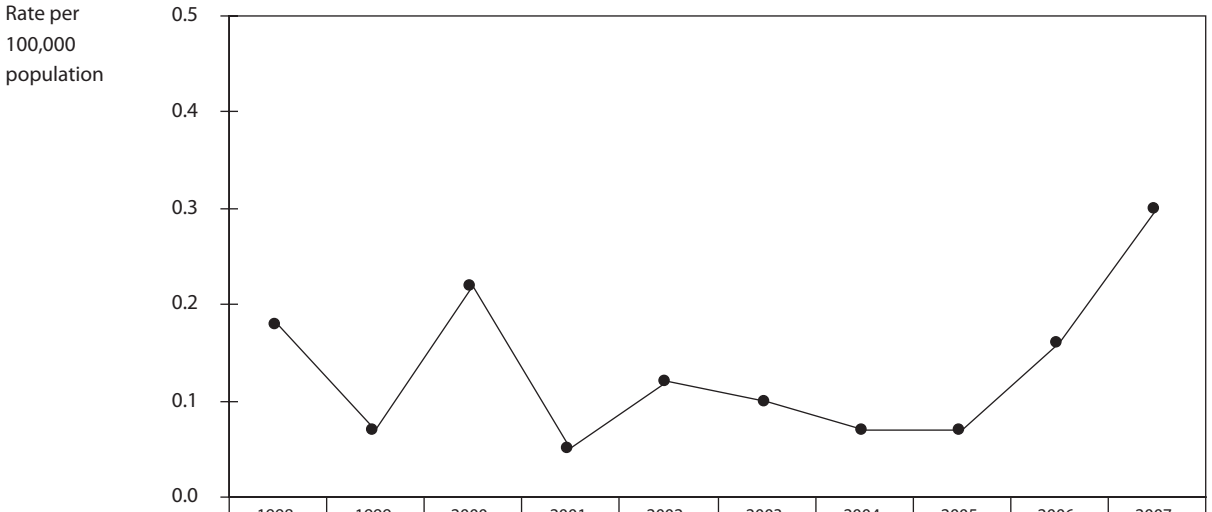
HSDA	Health Service Delivery Area	Cases	Year
11	East Kootenay	1	2007
12	Kootenay Boundary	1	2005
13	Okanagan	1	1994
		1	2002
		1	2006
14	Thompson Cariboo Shuswap	2	1994
		1	1995
21	Fraser East	1	1994
41	South Vancouver Island	1	1996
52	Northern Interior	*1	2006

*Note: Travel related case with exposure occurring outside of British Columbia.

Lyme Disease

BC continues to have a low endemic rate of Lyme Disease. There were 13 confirmed cases of Lyme Disease reported in BC in 2007. The majority of cases were in young males and just under half were contracted through travel to highly endemic areas in Eastern Canada and the USA or Europe.

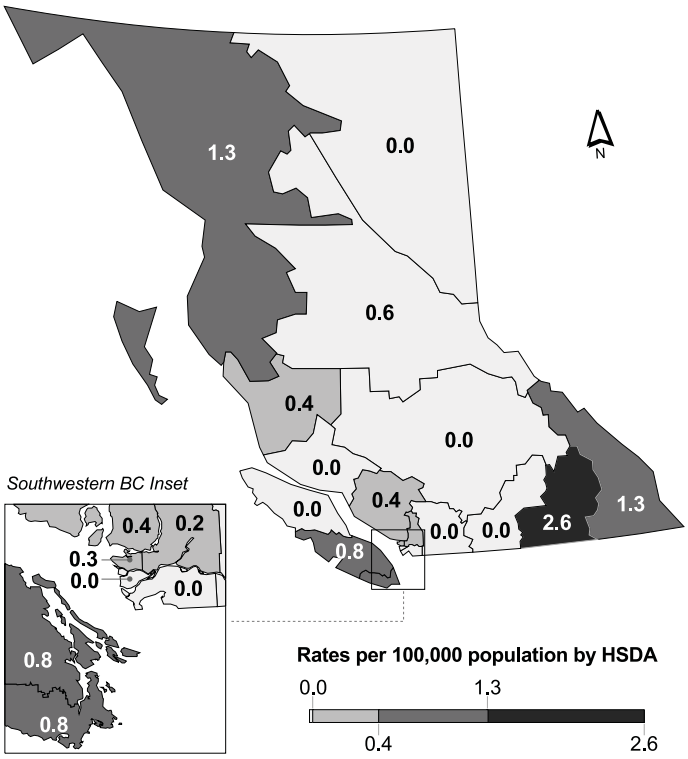
33.1 Lyme Disease Rates by Year, 1998–2007



	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
BC Lyme Reports	7	3	9	2	5	4	3	3	7	13
BC Lyme Rate	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.3

Note: Lyme Disease is not notifiable nationally

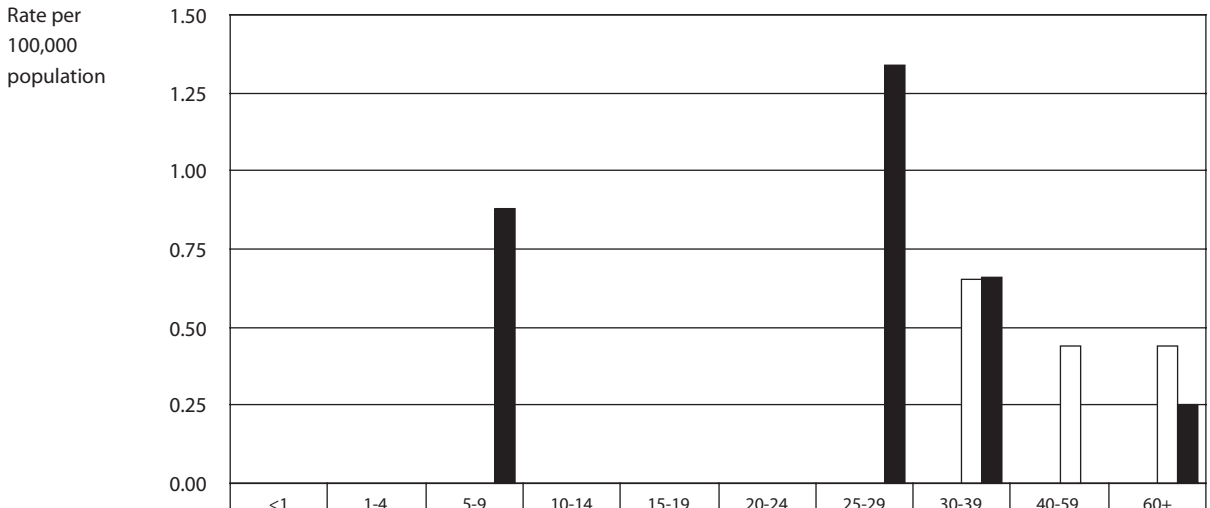
33.2 Lyme Disease Rates by HSDA, 2007



HSDA	Health Service Delivery Area	Cases	Rate
11	East Kootenay	1	1.3
12	Kootenay Boundary	2	2.6
13	Okanagan	0	0.0
14	Thompson Cariboo Shuswap	0	0.0
21	Fraser East	0	0.0
22	Fraser North	1	0.2
23	Fraser South	0	0.0
31	Richmond	0	0.0
32	Vancouver	2	0.3
33	North Shore/Coast Garibaldi	1	0.4
41	South Vancouver Island	3	0.8
42	Central Vancouver Island	2	0.8
43	North Vancouver Island	0	0.0
51	Northwest	1	1.3
52	Northern Interior	0	0.0
53	Northeast	0	0.0

Note: Map classification by Jenks natural breaks method.

33.3 Lyme Disease Rates by Age Group and Sex, 2007

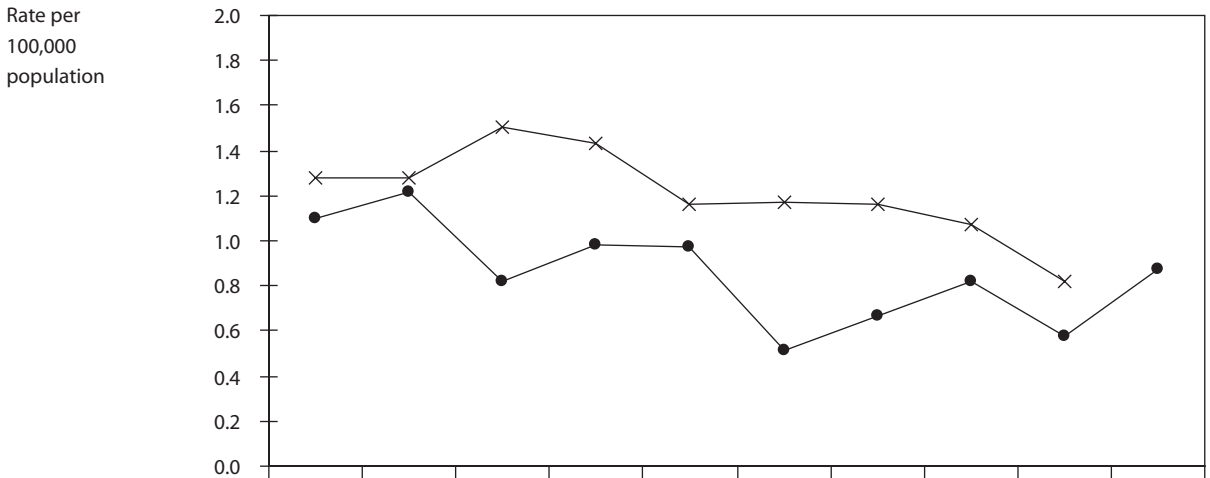


	<1	1-4	5-9	10-14	15-19	20-24	25-29	30-39	40-59	60+
Lyme Reports - Female	0	0	0	0	0	0	0	2	3	2
Lyme Reports - Male	0	0	1	0	0	0	2	2	0	1
☐ Lyme Rate - Female	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.4	0.4
■ Lyme Rate - Male	0.0	0.0	0.9	0.0	0.0	0.0	1.3	0.7	0.0	0.3

Malaria

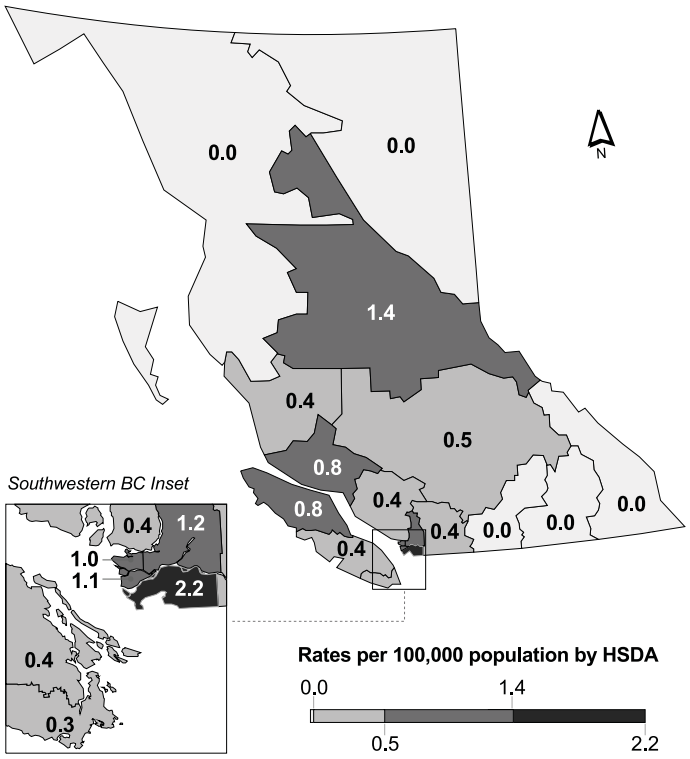
Malaria is not endemically transmitted in BC. The rate increased slightly from 0.6 to 0.9 cases per 100,000 population between 2006 and 2007 representing 38 reported cases in 2007. Cases are distributed throughout the age and sex strata. Fraser Health Authority regularly records somewhat higher rates than the rest of the province. This is explained by a small burden of illness among FHA residents who return to the Indian subcontinent and other parts of Asia for holidays.

34.1 Malaria Rates by Year, 1998–2007



	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
BC Malaria Reports	44	49	33	40	40	21	28	35	25	38
BC Malaria Rate	1.10	1.22	0.82	0.98	0.97	0.51	0.67	0.82	0.58	0.87
Canadian Malaria Rate	1.28	1.28	1.50	1.43	1.16	1.17	1.16	1.08	0.82	

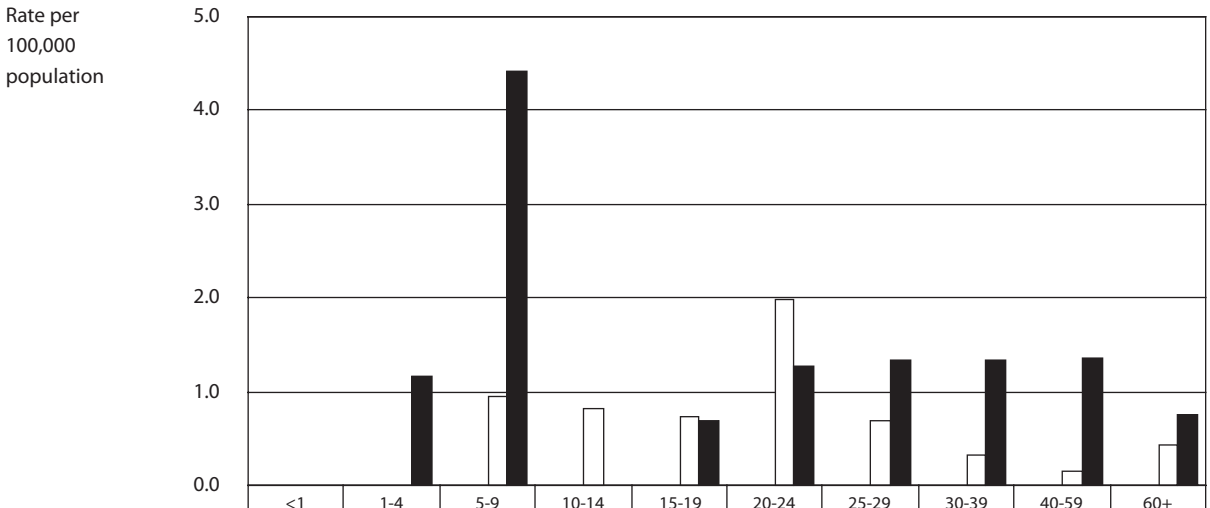
34.2 Malaria Rates by HSDA, 2007



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	1	0.5
21	Fraser East	1	0.4
22	Fraser North	7	1.2
23	Fraser South	15	2.2
31	Richmond	2	1.1
32	Vancouver	6	1.0
33	North Shore/Coast Garibaldi	1	0.4
41	South Vancouver Island	1	0.3
42	Central Vancouver Island	1	0.4
43	North Vancouver Island	1	0.8
51	Northwest	0	0.0
52	Northern Interior	2	1.4
53	Northeast	0	0.0

Note: Map classification by Jenks natural breaks method.

34.3 Malaria Rates by Age Group and Sex, 2007



	<1	1-4	5-9	10-14	15-19	20-24	25-29	30-39	40-59	60+
Malaria Reports - Female	0	0	1	1	1	3	1	1	1	2
Malaria Reports - Male	0	1	5	0	1	2	2	4	9	3
□ Malaria Rate - Female	0.0	0.0	0.9	0.8	0.7	2.0	0.7	0.3	0.2	0.4
■ Malaria Rate - Male	0.0	1.2	4.4	0.0	0.7	1.3	1.3	1.3	1.4	0.8

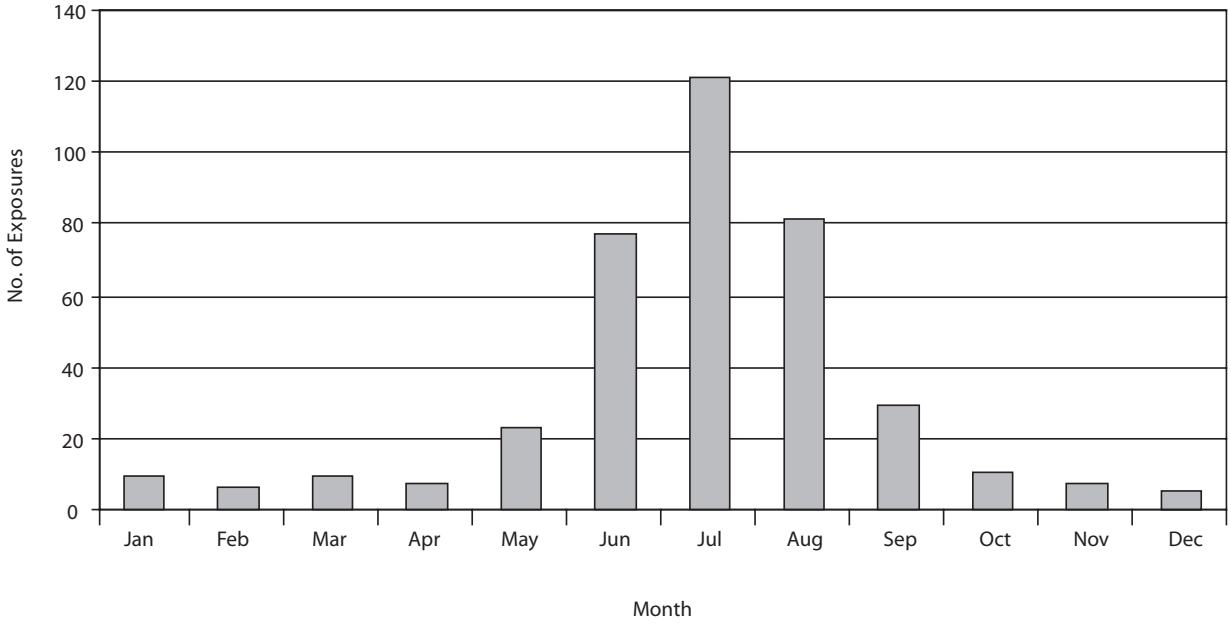
Rabies

The term "exposure incident" denotes a report of a possible rabies exposure with one report representing an individual case who was reported to a BC Health Authority for the purpose of rabies investigation. The types of exposure incidents reported vary by Health Authority. For these exposures, rabies post exposure prophylaxis (RPEP) may or may not have been given. From 2006 to 2007, the rate of reported rabies exposures increased from 7.6 to 8.8 per 100,000 (Table 35.1). Interior Health Authority continues to report the highest number of rabies exposures and rates per 100,000 (Figure 35.3). The Thompson Cariboo Shuswap Health Service Delivery Area of Interior Health reported a rate of 27.3 per 100,000, followed by Kootenay Boundary (16.8) and Okanagan (14.2). Most rabies exposures continue to occur over the summer months with 75% involving bats (Figure 35.6). Of the bats submitted for testing, the proportion positive remained approximately 6% for both 2006 and 2007 (CFIA 2008). Higher rates of exposures continue to be seen in children under 14 years of age (Figure 35.4), and are likely related to childhood behaviors of approaching and touching/handling bats and other wildlife, as well as the provincial guideline to offer RPEP when a bat is present in a room and the person cannot provide a history that excludes any possible bite, scratch or mucous membrane exposure (e.g., child in a room with a bat present). Higher rates were again reported for females (Figure 35.5). The type of exposure most often reported was a bat found in the same room or nearby and the possibility of contact not being able to be ruled out.

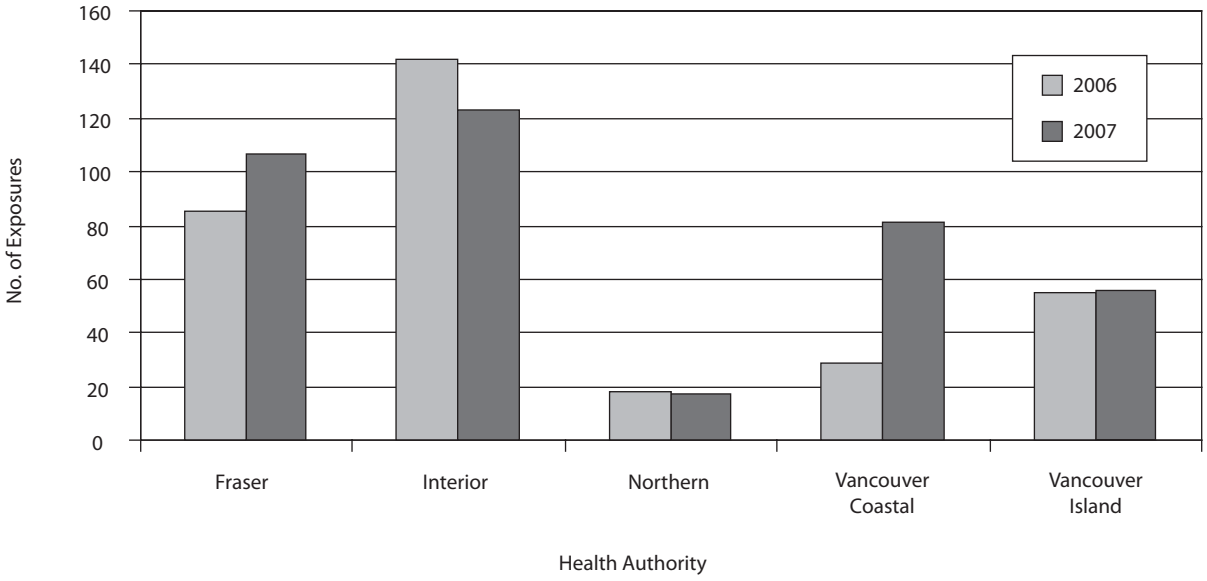
35.1 Rabies Exposure Incidents Reported to BC Health Authorities, 2006–2007

Year	# Exposure	Rate per 100,000
2006	329	7.6
2007	384	8.8
TOTAL	713	8.2

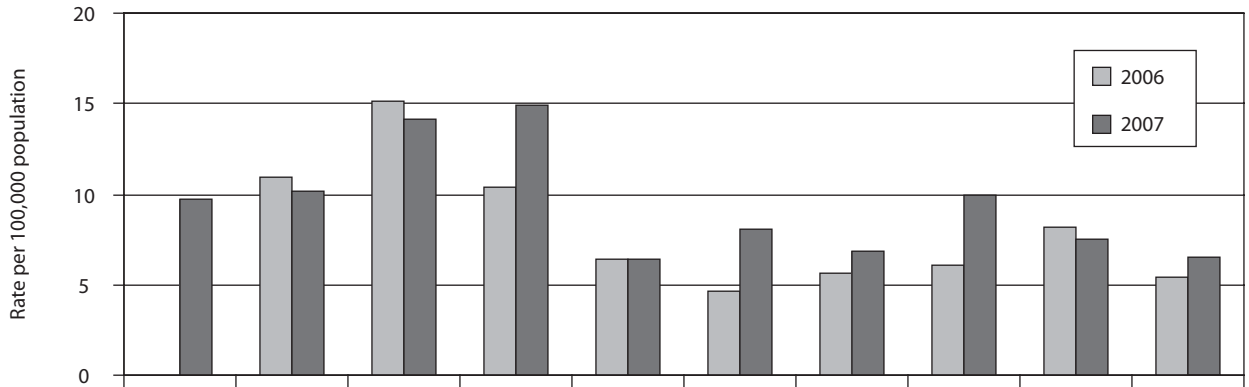
35.2 Rabies Exposure Incidents by Month, 2007



35.3 Rabies Exposure Incident by Health Authority of Residence, 2006–2007

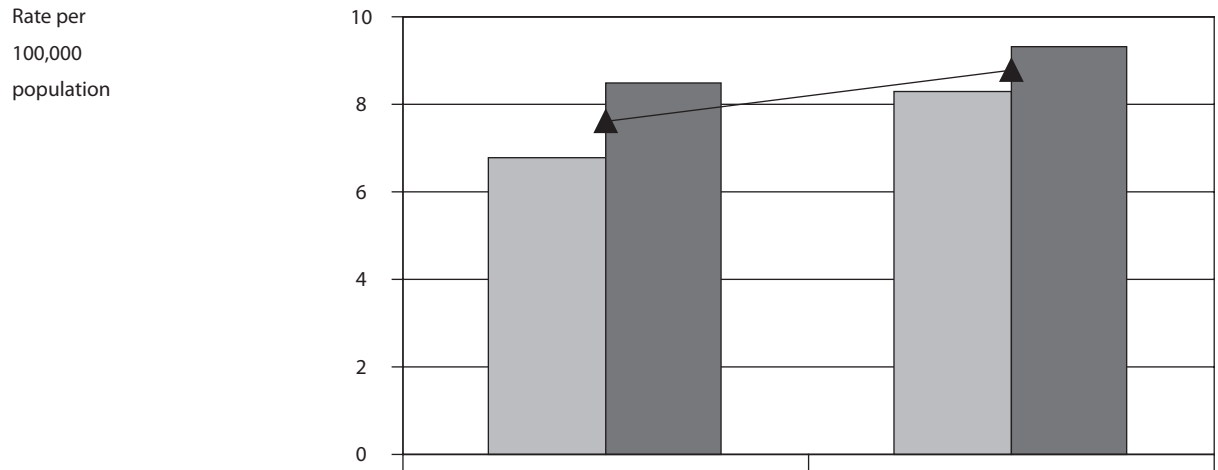


35.4 Rabies Exposure Incident Rates by Age Group, 2006–2007



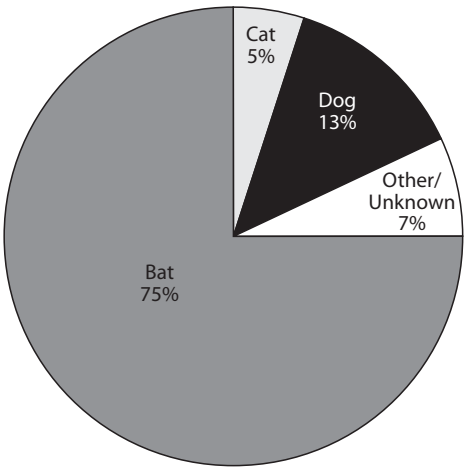
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30-39	40-59	60+
2006	0	10.9	15.1	10.4	6.4	4.6	5.6	6.1	8.2	5.4
2007	9.7	10.2	14.1	14.9	6.4	8.1	6.8	10	7.5	6.5

35.5 Rabies Exposure Incident Rates by Sex, 2006–2007

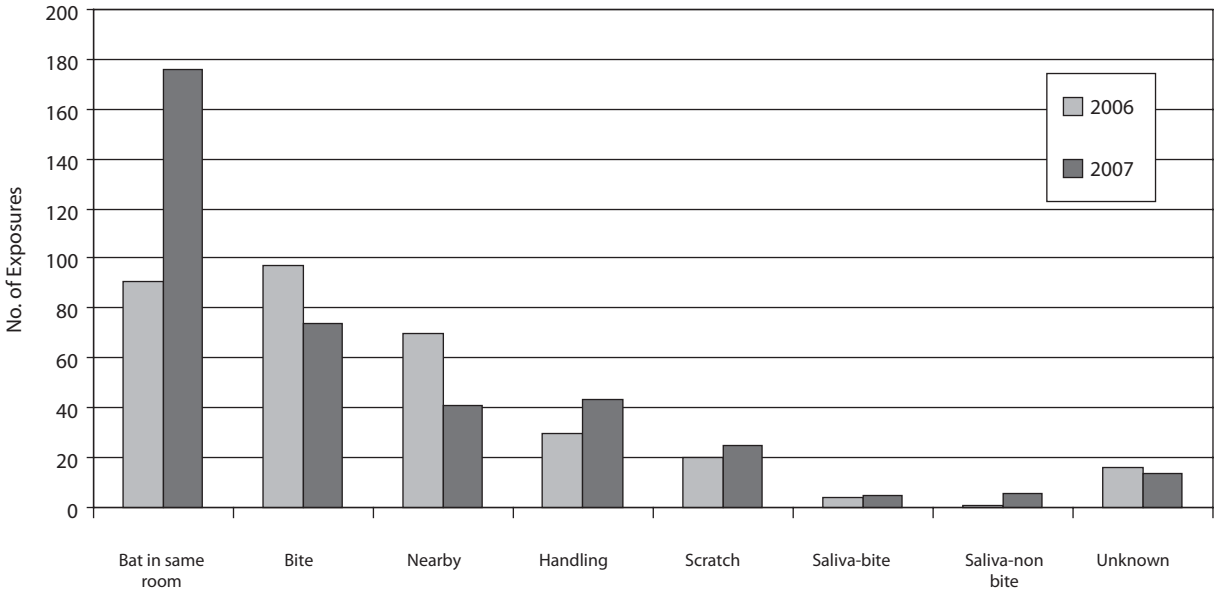


	2006	2007
Male Rate	6.8	8.3
Female Rate	8.5	9.3
BC Rate	7.6	8.8

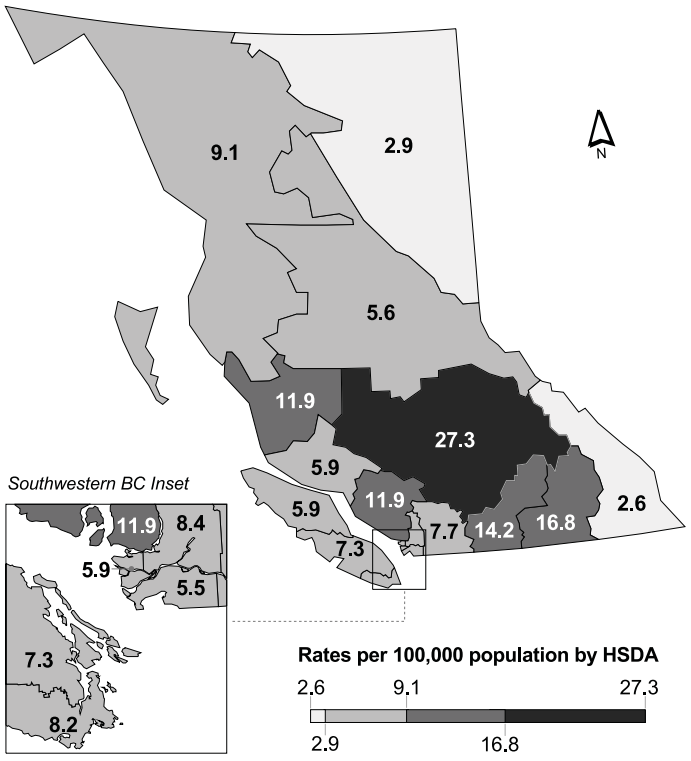
35.6 Rabies Exposure Incidents by Percentage of Animal Species Involved, 2007



35.7 Rabies Exposure Incidents by Type of Exposure and Year, 2006–2007



35.8 Rabies Exposure Rates by HSDA, 2007



HSDA	Health Service Delivery Area	Exps.	Rate
11	East Kootenay	2	2.6
12	Kootenay Boundary	13	16.8
13	Okanagan	48	14.2
14	Thompson Cariboo Shuswap	60	27.3
21	Fraser East	21	7.7
22	Fraser North	49	8.4
23	Fraser South	37	5.5
31/32	Richmond/Vancouver	48	5.9
33	North Shore/Coast Garibaldi	33	11.9
41	South Vancouver Island	30	8.2
42	Central Vancouver Island	19	7.3
43	North Vancouver Island	7	5.9
51	Northwest	7	9.1
52	Northern Interior	8	5.6
53	Northeast	2	2.9

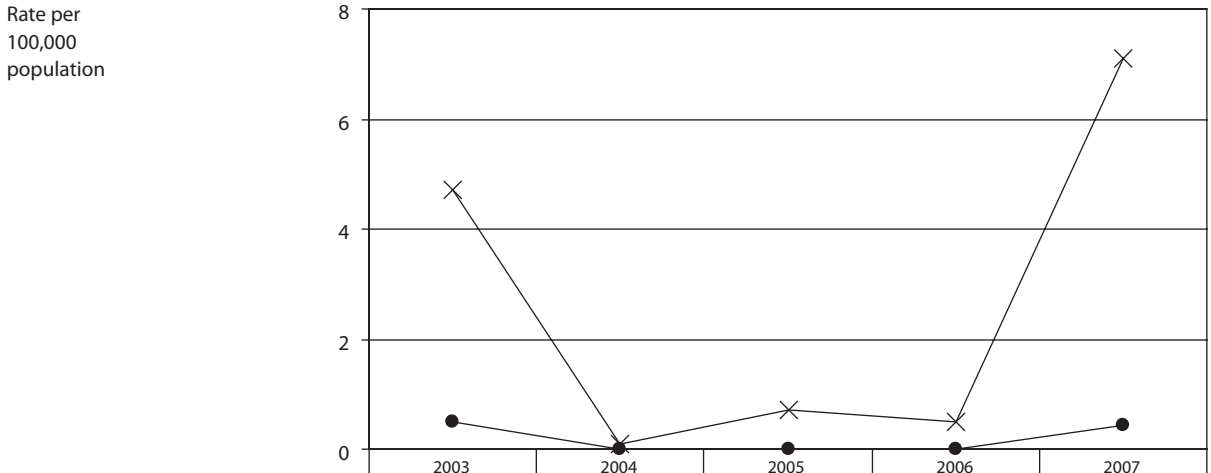
Note: Map classification by Jenks natural breaks method.

West Nile Virus

There were 19 cases of WNv reported in BC residents in 2007; all cases contracted their illness through travel primarily to Manitoba and Saskatchewan. No endemic WNv activity was detected in BC in 2007; however, activity in the rest of Canada was higher than has been experienced in recent years with 2353 cases reported overall. The majority of cases were in Saskatchewan (1404), Manitoba (572) and Alberta (318) with Ontario having a relatively mild year and reporting only 11 cases.

In the US, WNv activity in 2007 was moderate, with 3623 human cases and 124 deaths reported. The states with the highest numbers of cases included Colorado, North and South Dakota and California. While BC remained free of local viral activity in 2007, the increased activity in border states and provinces indicates the continued westward and northward spread of virus activity.

36.1 West Nile Virus Infection Rates by Year, 2003–2007



	2003	2004	2005	2006	2007
BC West Nile Virus Infection Reports	20	0	0	0	19
BC West Nile Virus Infection Rate	0.5	0	0	0	0.4
Canadian West Nile Virus Rate	4.7	0.1	0.7	0.5	7.1

Cryptococcus gattii

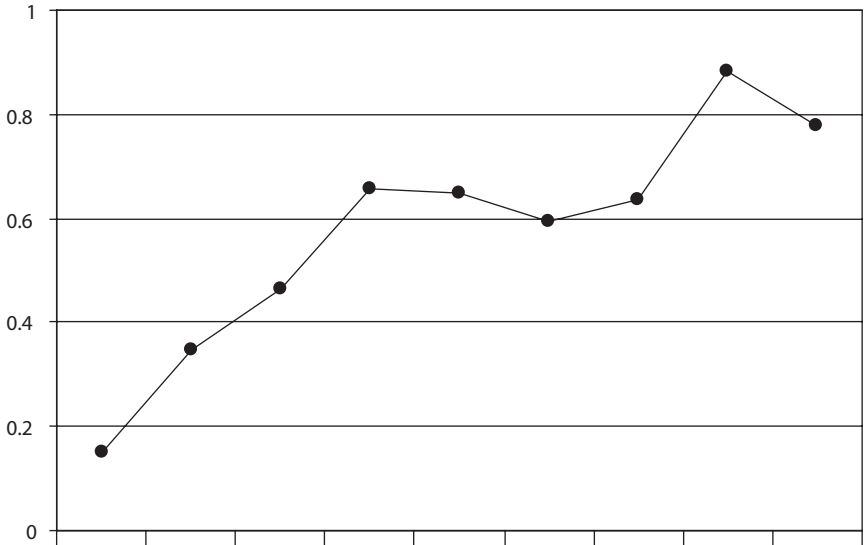
environmental fungi

Cryptococcus gattii

The numbers presented in this section are based on information generated through enhanced surveillance for *C. gattii* infection. Numbers may be different from those found in past annual reports due to adjustments made after receiving further information.

In 2007, 34 cases of *C. gattii* infection were reported for a provincial rate of 0.8 per 100,000. The rate of *C. gattii* infection increased in the last two years after being stable from 2002 to 2005. Part of this increase may be due to the expansion of fungal range to the Lower Mainland as supported by an increasing number of cases occurring in Vancouver and Fraser South residents. In 2007, the majority of cases occurred in adults over 40 years of age, although one pediatric case was reported.

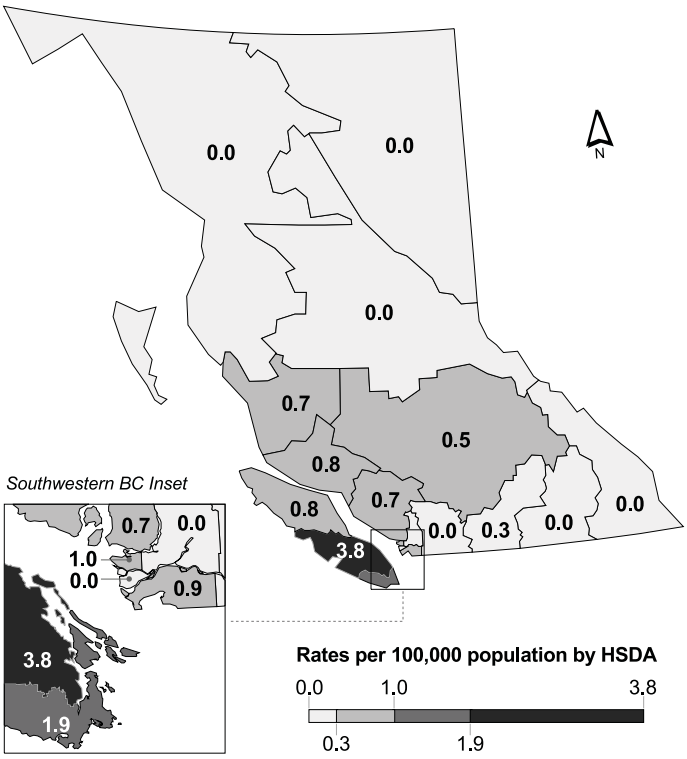
37.1 *Cryptococcus gattii* Infection Rates by Year, 1999–2007



	1999	2000	2001	2002	2003	2004	2005	2006	2007
BC Cryptococcus gattii Reports	6	14	19	27	27	25	27	38	34
BC Cryptococcus gattii Rate	0.1	0.3	0.5	0.7	0.6	0.6	0.6	0.9	0.8

Note: Cryptococcal Infection became notifiable in BC in 2003

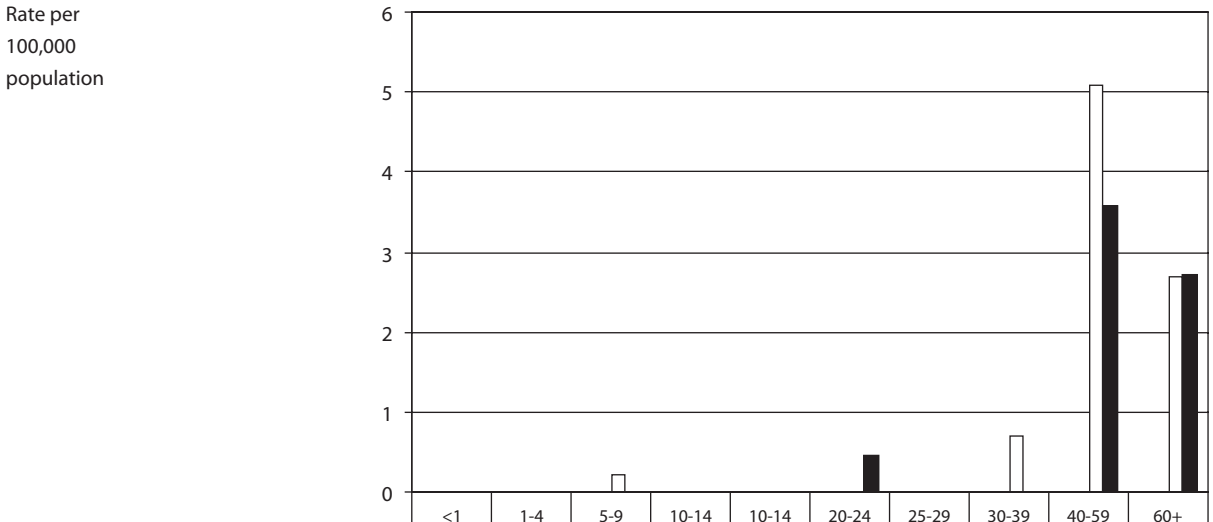
37.2 *Cryptococcus gattii* Infection Rates by HSDA, 2007



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	1	0.5
21	Fraser East	0	0.0
22	Fraser North	0	0.0
23	Fraser South	6	0.9
31	Richmond	0	0.0
32	Vancouver	6	1.0
33	North Shore/Coast Garibaldi	2	0.7
41	South Vancouver Island	7	1.9
42	Central Vancouver Island	10	3.8
43	North Vancouver Island	1	0.8
51	Northwest	0	0.0
52	Northern Interior	0	0.0
53	Northeast	0	0.0

Note: Map classification by Jenks natural breaks method.

37.3 *Cryptococcus gattii* Infection Rates by Age Group and Sex, 2007



	<1	1-4	5-9	10-14	10-14	20-24	25-29	30-39	40-59	60+
Crytococcus gattii Reports - Female	0	0	1	0	0	0	0	1	8	4
Crytococcus gattii Reports - Male	0	0	0	0	0	1	0	0	11	8
□ Cryptococcus gattii Rate - Female	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.7	5.1	2.7
■ Cryptococcus gattii Rate - Male	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	3.6	2.7

Reportable Communicable Diseases in BC, April 2008

Schedule A: Reportable by all sources, including Laboratories

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

Creutzfeldt-Jacob Disease
Cryptococcal Infections
Cryptosporidiosis
Cyclospora Infection
Diffuse Lamellar Keratitis (DLK)
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
H5 and H7 strains of the Influenza virus
Haemophilus influenzae Disease,
- All Invasive, by Type

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

Human Immunodeficiency Virus
Invasive Group A Streptococcal Disease
Invasive Streptococcus Pneumoniae Infection
Leprosy
Lyme Disease
Measles
Meningitis: All causes
- (i) Bacterial: Hemophilus
  Pneumococcal
  Other
- (ii) Viral

Meningococcal Disease: All Invasive,
- Including Primary Meningococcal Pneumonia and

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

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
Creutzfeldt-Jacob Disease
Cryptococcus neoformans
Herpes Genitalis
Human Immunodeficiency Virus
Influenza virus, including the H5 and H7 strains
Legionellosis
Leptospirosis
Listeriosis
Malaria
Q Fever
Rickettsial Diseases
Severe Acute Respiratory Syndrome
Smallpox
Tularemia
West Nile Virus Infection

As per Health Act, Communicable Disease Regulation B.C. Reg. 4/83 O.C. 6/83 includes amendments up to B.C. Reg.70/2008, April 10, 2008 (http://www.qp.gov.bc.ca/statreg/reg/h/health/4_83.htm)

2007 BC Selected Reportable Disease CASE REPORTS by Health Service Delivery Area

	BC TOTAL	INTERIOR					FRASER			
	Provincial Total	East Kootenay	Kootenay Boundary	Okanagan	Thompson Cariboo	**Interior Total**	Fraser East	Fraser North	Fraser South	**Fraser Total**
2007 Population (PEOPLE 32 Estimate)	4 364 565	78 228	77 581	338 791	219 549	714 149	272 929	580 174	672 227	1 525 330
AIDS (2006)*	83	2	1	3	1	7	0	11	4	15
Amebiasis	330	1	0	6	1	8	17	44	57	118
Botulism	1	0	0	0	0	0	0	1	0	1
Campylobacteriosis	1640	14	20	87	76	197	104	222	240	566
Chlamydia (genital)	9961	159	103	701	602	1565	427	1136	1134	2697
Cryptosporidiosis	87	2	1	4	4	11	10	8	12	30
Cyclosporiasis	58	0	0	1	0	1	5	4	5	14
E coli, Verotoxigenic	183	3	1	17	16	37	16	20	31	67
Giardiasis	649	4	19	32	15	70	41	78	119	238
Gonorrhea	1262	4	8	47	57	116	35	141	137	313
Hepatitus A	41	0	2	1	2	5	6	7	7	20
Hepatitus B: Acute	35	1	0	1	0	2	2	2	8	12
Hepatitus C	2893	45	51	192	126	414	328	352	364	1044
Haemophilus influenzae b, invasive	4	0	0	0	0	0	0	0	1	1
HIV	392	0	3	9	6	18	15	37	30	82
Malaria	38	0	0	0	1	1	1	7	15	23
Measles	2	0	0	0	0	0	0	1	0	1
Meningococcal Disease, invasive	30	0	1	1	2	5	2	6	6	14
Mumps	23	2	1	0	0	3	2	4	3	9
Paratyphoid Fever	22	0	0	0	0	0	1	2	16	19
Pertussis	149	1	0	13	5	19	3	3	16	22
Pneumococcal Disease, invasive	552	2	10	55	21	88	27	74	85	186
Salmonellosis	790	7	10	49	41	107	65	97	167	329
Shigellosis	271	0	1	6	4	11	12	22	56	90
Streptococcal Group A invasive	244	2	7	13	11	32	12	23	30	65
Syphilis (Infectious)	295	0	0	8	2	10	18	26	16	60
Tetanus	4	0	0	0	0	0	1	0	0	1
Tuberculosis	286	0	1	5	3	9	6	48	53	107
Typhoid Fever	23	0	0	0	0	0	3	2	17	22
Vibrio parahaemolyticus	15	0	0	0	1	1	1	2	3	6
Yersiniosis	703	3	16	27	25	71	5	51	64	120
West Nile Virus	16	1	1	1	1	0	0	1	5	0
LESS COMMON DISEASES										
Hantavirus	1	1	0	0	0	1	0	0	0	0
Listeriosis	8	0	1	0	0	1	2	1	0	3
Lyme	13	1	2	0	0	3	0	1	0	1

*AIDS case reports are for 2006. The 2007 AIDS statistics will be available in our next report due to a delay associated with AIDS data collection.
Note:
- There was one case of Brucellosis and Trichinosis reported in 2007.
- No cases reported in 2007 of Anthrax, Diphtheria, Hemorrhagic Viral Fevers, Leprosy, Plague, Poliomyelitis, Rabies, Rubella (German Measles), Severe Acute Respiratory Syndrome, and Smallpox.

	VANCOUVER COASTAL				VANCOUVER ISLAND				NORTHERN			
	Richmond	Vancouver	North Shore Coast/ Garibaldi	**Vancouver Coastal Total**	South Vancouver Island	Central Vancouver Island	North Vancouver Island	**Vancouver Island Total**	Northwest	Northern Interior	Northeast	**Northern Total**
	185 225	628 286	276 893	1 090 404	364 322	261 632	119 644	745 598	77 172	143 739	68 173	289 084
	2	31	1	34	19	5	1	25	0	2	0	2
	7	154	17	178	16	10	0	26	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	95	284	186	565	164	77	33	274	16	20	2	38
	355	1969	573	2897	893	623	257	1773	250	588	152	990
	2	26	5	33	6	4	0	10	0	3	0	3
	2	19	6	27	13	1	1	15	0	0	1	1
	10	22	12	44	21	6	2	29	0	6	0	6
	21	166	49	236	46	21	14	81	11	10	3	24
	21	467	57	545	85	58	24	167	52	60	9	121
	1	4	2	7	3	3	1	7	2	0	0	2
	1	12	1	14	5	1	0	6	0	1	0	1
	59	484	142	685	291	201	81	573	51	99	27	177
	0	2	0	2	1	0	0	1	0	0	0	0
	4	193	13	210	36	10	7	53	5	23	1	29
	2	6	1	9	1	1	1	3	0	2	0	2
	0	1	0	1	0	0	0	0	0	0	0	0
	0	6	2	8	2	0	1	3	1	0	0	1
	0	8	1	9	1	0	0	1	0	1	0	1
	0	3	0	3	0	0	0	0	0	0	0	0
	0	8	13	21	87	0	0	87	0	0	0	0
	12	132	26	170	40	17	18	75	7	24	2	33
	41	89	51	181	56	46	24	126	9	23	15	47
	4	119	17	140	14	10	3	27	1	1	1	3
	5	67	6	78	35	11	6	52	4	10	2	16
	3	183	6	192	7	9	1	17	2	7	7	16
	0	0	0	0	3	0	0	3	0	0	0	0
	18	88	10	116	18	14	1	33	7	10	4	21
	0	1	0	1	0	0	0	0	0	0	0	0
	1	4	1	6	1	1	0	2	0	0	0	0
	67	179	131	377	79	26	12	117	13	3	2	18
	0	0	2	0	1	2	0	0	0	0	1	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	2	0	2	2	0	0	2	0	0	0	0
	0	2	1	3	3	2	0	5	1	0	0	1

2007 BC Selected Reportable Disease CASE RATES by Health Service Delivery Area

	BC TOTAL	INTERIOR					FRASER			
	Provincial Total	East Kootenay	Kootenay Boundary	Okanagan	Thompson Cariboo	**Interior Total**	Fraser East	Fraser North	Fraser South	**Fraser Total**
2007 Population (PEOPLE 32 Estimate)	4 364 565	78 228	77 581	338 791	219 549	714 149	272 929	580 174	672 227	1 525 330
AIDS (2006)*	1.9	2.6	1.3	0.9	0.5	1.0	0.0	1.9	0.6	1.0
Amebiasis	7.6	1.3	0.0	1.8	0.5	1.1	6.2	7.6	8.5	7.7
Botulism	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.1
Campylobacteriosis	37.6	17.9	25.8	25.7	34.6	27.6	38.1	38.3	35.7	37.1
Chlamydia (genital)	228.2	203.3	132.8	206.9	274.2	219.1	156.5	195.8	168.7	176.8
Cryptosporidiosis	2.0	2.6	1.3	1.2	1.8	1.5	3.7	1.4	1.8	2.0
Cyclosporiasis	1.3	0.0	0.0	0.3	0.0	0.1	1.8	0.7	0.7	0.9
E coli, Verotoxigenic	4.2	3.8	1.3	5.0	7.3	5.2	5.9	3.5	4.6	4.4
Giardiasis	14.9	5.1	24.5	9.5	6.8	9.8	15.0	13.4	17.7	15.6
Gonorrhea	29.2	5.1	10.3	13.9	26.0	16.2	12.8	24.3	20.4	20.5
Hepatitus A	0.9	0.0	2.6	0.3	0.9	0.7	2.2	1.2	1.0	1.3
Hepatitus B: Acute	0.8	1.3	0.0	0.3	0.0	0.3	0.7	0.3	1.2	0.8
Hepatitus C	66.3	57.5	65.7	56.7	57.4	58.0	120.2	60.7	54.2	68.4
Haemophilus influenzae b, invasive	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1
HIV	9.1	0.0	3.9	2.7	2.7	2.5	5.5	6.4	4.5	5.4
Malaria	0.9	0.0	0.0	0.0	0.5	0.1	0.4	1.2	2.2	1.5
Measles	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.1
Meningococcal Disease, invasive	0.7	0.0	1.3	0.3	0.9	0.6	0.7	1.0	0.9	0.9
Mumps	0.5	2.6	1.3	0.0	0.0	0.4	0.7	0.7	0.5	0.6
Paratyphoid Fever	0.5	0.0	0.0	0.0	0.0	0.0	0.4	0.3	2.4	1.3
Pertussis	3.4	1.3	0.0	3.8	2.3	2.7	1.1	0.5	2.4	1.4
Pneumococcal Disease, invasive	12.7	2.6	12.9	16.2	9.6	12.3	9.9	12.8	12.6	12.2
Salmonellosis	18.1	9.0	12.9	14.5	18.7	15.0	23.8	16.7	24.8	21.6
Shigellosis	6.2	0.0	1.3	1.8	1.8	1.5	4.4	3.8	8.3	5.9
Streptococcal Group A invasive	5.6	2.6	9.0	3.8	5.0	4.6	4.4	4.0	4.5	4.3
Syphilis (infectious)	6.9	0.0	0.0	2.4	0.9	1.4	6.6	4.5	2.4	3.9
Tetanus	0.1	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.1
Tuberculosis	6.6	0.0	1.3	1.5	1.4	1.3	2.2	8.3	7.9	7.0
Typhoid Fever	0.5	0.0	0.0	0.0	0.0	0.0	1.1	0.3	2.5	1.4
Vibrio parahaemolyticus	0.3	0.0	0.0	0.0	0.5	0.1	0.4	0.3	0.5	0.4
Yersiniosis	16.1	3.8	20.6	8.0	11.4	9.9	1.8	8.8	9.5	7.9
West Nile Virus	0.4	1.3	1.3	0.3	0.5	0.0	0.0	0.2	0.7	0.0
LESS COMMON DISEASES										
Hantavirus	0.0	1.3	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Listeriosis	0.2	0.0	1.3	0.0	0.0	0.1	0.7	0.2	0.0	0.2
Lyme	0.3	1.3	2.6	0.0	0.0	0.4	0.0	0.2	0.0	0.1

*AIDS case reports are for 2006. The 2007 AIDS statistics will be available in our next report due to a delay associated with AIDS data collection.

Note:

- There was one case of Brucellosis and Trichinosis reported in 2007.
- No cases reported in 2007 of Anthrax, Diphtheria, Hemorrhagic Viral Fevers, Leprosy, Plague, Poliomyelitis, Rabies, Rubella (German Measles), Severe Acute Respiratory Syndrome, and Smallpox.

VANCOUVER COASTAL				VANCOUVER ISLAND				NORTHERN				
Richmond	Vancouver	North Shore Coast/ Garibaldi	**Vancouver Coastal Total**	South Vancouver Island	Central Vancouver Island	North Vancouver Island	**Vancouver Island Total**	Northwest	Northern Interior	Northeast	**Northern Total**
185 225	628 286	276 893	1 090 404	364 322	261 632	119 644	745 598	77 172	143 739	68 173	289 084
1.1	5.0	0.4	3.2	5.3	1.9	0.8	3.4	0.0	1.4	0.0	0.7
3.8	24.5	6.1	16.3	4.4	3.8	0.0	3.5	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	0.0	0.0	0.0
51.3	45.2	67.2	51.8	45.0	29.4	27.6	36.8	20.7	13.9	2.9	13.1
191.7	313.4	206.9	265.7	245.1	238.1	214.8	237.8	324.0	409.1	223.0	342.5
1.1	4.1	1.8	3.0	1.7	1.5	0.0	1.3	0.0	2.1	0.0	1.0
1.1	3.0	2.2	2.5	3.6	0.4	0.8	2.0	0.0	0.0	1.5	0.4
5.4	3.5	4.3	4.0	5.8	2.3	1.7	3.9	0.0	4.2	0.0	2.1
11.3	26.4	17.7	21.6	12.6	8.0	11.7	10.9	14.3	7.0	4.4	8.3
11.3	74.3	20.6	50.0	23.3	22.2	20.1	22.4	67.4	41.7	13.2	41.9
0.5	0.6	0.7	0.6	0.8	1.2	0.8	0.9	2.6	0.0	0.0	0.7
0.5	1.9	0.4	1.3	1.4	0.4	0.0	0.8	0.0	0.7	0.0	0.4
31.9	77.0	51.3	62.8	79.9	76.8	67.7	76.9	66.1	68.9	39.6	61.2
0.0	0.3	0.0	0.2	0.3	0.0	0.0	0.1	0.0	0.0	0.0	0.0
2.2	30.7	4.7	19.3	9.9	3.8	5.9	7.1	6.5	16.0	1.5	10.0
1.1	1.0	0.4	0.8	0.3	0.4	0.8	0.4	0.0	1.4	0.0	0.7
0.0	0.2	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	1.0	0.7	0.7	0.6	0.0	0.8	0.4	1.3	0.0	0.0	0.4
0.0	1.3	0.4	0.8	0.3	0.0	0.0	0.1	0.0	0.7	0.0	0.4
0.0	0.5	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	1.3	4.7	1.9	23.9	0.0	0.0	11.7	0.0	0.0	0.0	0.0
6.5	21.0	9.4	15.6	11.0	6.5	15.0	10.1	9.1	16.7	2.9	11.4
22.1	14.2	18.4	16.6	15.4	17.6	20.1	16.9	11.7	16.0	22.0	16.3
2.2	18.9	6.1	12.8	3.8	3.8	2.5	3.6	1.3	0.7	1.5	1.0
2.7	10.7	2.2	7.2	9.6	4.2	5.0	7.0	5.2	7.0	2.9	5.5
1.6	29.1	2.2	17.6	1.9	3.4	0.8	2.3	2.6	4.9	10.3	5.5
0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.4	0.0	0.0	0.0	0.0
9.7	14.0	3.6	10.6	4.9	5.4	0.8	4.4	9.1	7.0	5.9	7.3
0.0	0.2	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.5	0.6	0.4	0.6	0.3	0.4	0.0	0.3	0.0	0.0	0.0	0.0
36.2	28.5	47.3	34.6	21.7	9.9	10.0	15.7	16.9	2.1	2.9	6.2
0.0	0.0	0.7	0.0	0.3	0.8	0.0	0.0	0.0	0	1.5	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	0.3	0.0	0.2	0.6	0.0	0.0	0.3	0.0	0.0	0.0	0.0
0.0	0.3	0.4	0.3	0.8	0.8	0.0	0.7	1.3	0.0	0.0	0.4

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). Starting In 2005, only confirmed cases are described in the main report, in keeping with BC reporting to the Public Health Agency of Canada. For the breakdown of cases by their confirmed or clinical case status for 2005 and previous years, see page 96 of the 2005 annual report. The exception is *Cryptococcus gattii* and *Tetanus* for which clinical cases are included in reporting.

2. Numbers in this report were generated in March 2008 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.

3. Data for influenza, invasive meningococcal disease, invasive group A streptococcal disease, *Cryptococcus gattii* infection, West Nile virus, MRSA and VRE are collected through enhanced surveillance systems. Invasive meningococcal disease, invasive group A streptococcal disease, and *Cryptococcus gattii* infection are reported using episode date. Episode date is the onset date if reported. Other diseases are classified by the reported date which is the date reported to the health authority.

4. 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. AIDS case reports are for 2006. The 2007 AIDS statistics will be available in our next report due to a delay associated with AIDS data collection. The BC total numbers for AIDS, Chlamydia (genital), Gonorrhea, HIV and Syphilis (infectious) include cases of non-BC residents and cases of unknown residency and thus may exceed the sum of cases of the five health authorities.

5. Statistics on tuberculosis are based on the analysis on the data extracted in March 2008. For more updated statistics on tuberculosis please refer to TB Annual Report 2007, at www.bccdc.org.

6. For information on Antimicrobial Resistant Organism (ARO) Surveillance in BC, please refer to Antimicrobial Resistance Trends in the Province of British Columbia. http://www.bccdc.org/content.php?item=34#1

7. 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.

8. 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.

9. Salmonellosis reports include Paratyphoid (*S.* Paratyphi) and Typhoid Fever (*S.* Typhi).

10. 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).

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

12. National rates are provided by the Public Health Agency of Canada–Division of Surveillance and Risk Assessment. 2006 and 2007 numbers are preliminary and are subject to change. 2007 National Rates for certain Communicable Diseases were not ready at the time of the compilation of this report.

13. Population estimates and projections are taken from P.E.O.P.L.E. Projection 32 (Population Extrapolation for Organizational Planning with Less Error). Health Data Warehouse Release Date: Totals: March 2007; Age/Sex: March 2007.

14. 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 2007 in British Columbia, please contact epidserv@bccdc.ca.

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