annual surveillance report

HIV and Sexually Transmitted Infections

2009

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

STI HIV
Prevention and Control

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We would like to acknowledge the contributions of our many partners who without their support this report would not have been possible.

- Staff from the Provincial Public Health Microbiology and Reference Laboratory, located at the BCCDC, for collecting and compiling of HIV requisition data.
- Designated public health nurses in the health service delivery areas for data collection as part of follow-up to persons testing positive for HIV.
- Physicians, healthcare providers, and public health staff in BC for taking the time and effort to complete and submit case report forms.
- BC Centre for Excellence in HIV/AIDS for their continued assistance in the reporting of new AIDS cases.
- BC Ministry of Health Services for providing data on pelvic inflammatory disease and ectopic pregnancy.
- Oak Tree Clinic at BC Children's & Women's Hospital for providing summary data on HIV positive pregnant women having live births.
- Surveillance and Risk Assessment Division, Centre for Communicable Diseases and Infection Control, Public Health Agency of Canada for providing the estimates of HIV incidence and prevalence.

1. Introduction

This Annual Surveillance Report describes trends in HIV, AIDS, and sexually transmitted infections up to 2009 for the province of British Columbia.

We would like to point out the following changes from previous reports:

- The current and historic data presented for trends in pelvic inflammatory disease and ectopic pregnancy has changed and tubal infertility trends are no longer reported. These changes were made in order to improve the intrinsic validity of this data, based on recommendations from an evaluation of our surveillance for these conditions in 2009 (section 5).
- We are currently revising our method for identifying both prenatal syphilis and HIV tests and this data is not currently available, but will be included in next year's report (sections 6 and 7).
- The annual numbers of maternal syphilis cases has increased in comparison to the annual numbers in previous reports due to improvements in our ability to identify syphilis infection in pregnancy in surveillance data (section 6).
- A section for stage of HIV infection at the time of diagnosis has been added (acute HIV and advanced HIV disease; section 7).
- We have also included BC estimates of the number of incident and prevalent HIV infections, based on data provided by the Surveillance Risk Assessment Division, Centre for Communicable Diseases and Infection Control at the Public Health Agency of Canada (section 7).

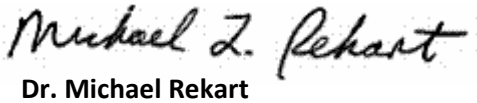
In the coming year, we will be:

- Continuing our current efforts to generate additional BC estimates of HIV incidence and prevalence.
- Partnering in the provincial STOP HIV/AIDS Pilot Project, by conducting new analyses of HIV and STI surveillance and testing data to inform the implementation and evaluation of the project.
- Examining in more detail trends in prenatal testing, maternal and perinatal infections to determine if there are any opportunities for further prevention of these infections.

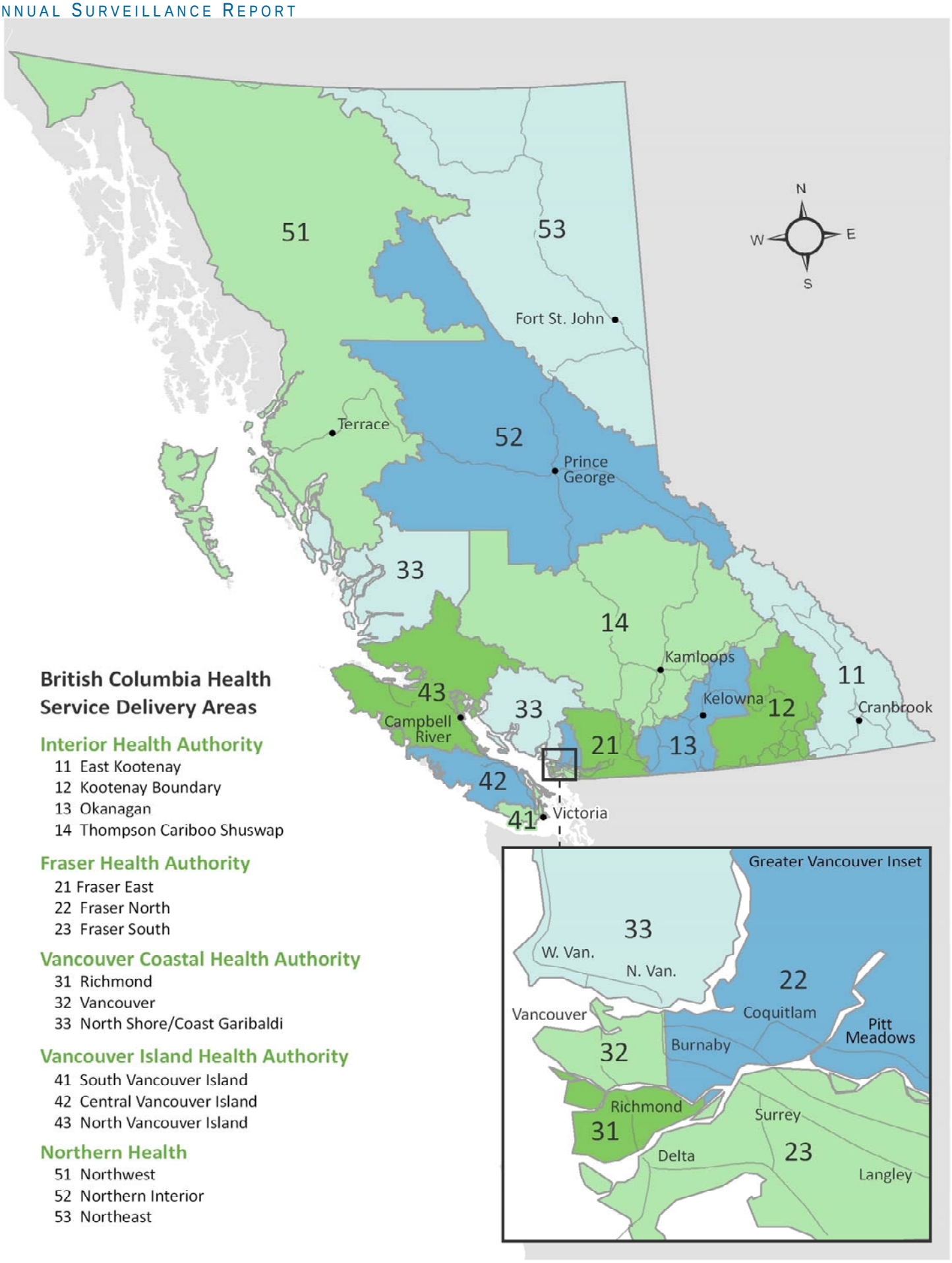
Please do not hesitate to contact us with any questions or comments on this report – feedback is always welcome.

Sincerely,

Dr. Mark Gilbert
Physician Epidemiologist, STI/HIV Prevention and Control



Dr. Michael Rekart
Director, STI/HIV Prevention and Control



British Columbia Health Service Delivery Areas

Interior Health Authority
- 11 East Kootenay
- 12 Kootenay Boundary
- 13 Okanagan
- 14 Thompson Cariboo Shuswap

Fraser Health Authority
- 21 Fraser East
- 22 Fraser North
- 23 Fraser South

Vancouver Coastal Health Authority
- 31 Richmond
- 32 Vancouver
- 33 North Shore/Coast Garibaldi

Vancouver Island Health Authority
- 41 South Vancouver Island
- 42 Central Vancouver Island
- 43 North Vancouver Island

Northern Health
- 51 Northwest
- 52 Northern Interior
- 53 Northeast

2. Overview of Trends

Chlamydia

In 2009, 11,173 cases of genital chlamydia were reported in BC for a rate of 251.1 per 100,000 population. This is an increase from 243.1 per 100,000 population in 2008 (10,650 cases). The majority of cases are female, with the highest rate of infection in females aged 15-19 and 20-24 years. The overall trend in chlamydia infection rates has been steadily increasing since 1998.

Gonorrhea

The rate of genital gonorrhea in BC decreased slightly in 2009 to 29.4 (1,307 cases) from 31.7 per 100,000 population (1,391 cases) in 2008. The majority of cases are male, with the highest rates of infection in males aged 20-24 and 25-29 years, and females aged 15-19 and 20-24 years.

Pelvic Inflammatory Disease (PID) and Ectopic Pregnancy (EP)

Physician billing and hospital discharge rates for PID and EP have decreased over time, with trends in 2008 showing small variation. PID and EP are potential complications of chlamydia and gonorrhea infection in women.

Infectious Syphilis

The provincial rate of infectious syphilis decreased substantially in 2009 to 4.9 (216 cases) from 7.5 per 100,000 population (328 cases) in 2008. The majority of cases continue to be male, however, the rate of infectious syphilis in males decreased in 2009 primarily due to a decrease in infectious syphilis among gay, bisexual and other men who have sex with men (MSM) (143 cases; 66.2%). Infectious syphilis cases in street-involved persons, sex trade workers and their patrons (19 cases; 8.8%) continued a decreasing trend while cases among heterosexual persons without other risk factors (48 cases; 22.2%) remained stable.

HIV

The rate of new positive HIV tests in BC decreased slightly in 2009 to 7.6 (338 cases) from 7.9 per 100,000 population (346 cases) in 2008. In 2009, the greatest number of new positive HIV tests continued to be among MSM, who accounted for 45.6% (154 cases) of 2009 cases. The number of new positive HIV tests among people who use injection drugs increased slightly in 2009 to 64 (18.9%) from 61 (17.6%) new positive HIV tests in 2008 but remained low compared to 2007 and earlier. Aboriginal persons continue to be overrepresented in BC's HIV epidemic, particularly Aboriginal females who comprised 23.9% (17 cases) of all new positive HIV tests among females in 2009.

AIDS

In 2008, the rate of AIDS in BC increased slightly to 2.1 (91 cases) from 1.9 per 100,000 population (84 cases) in 2008.

3. Chlamydia

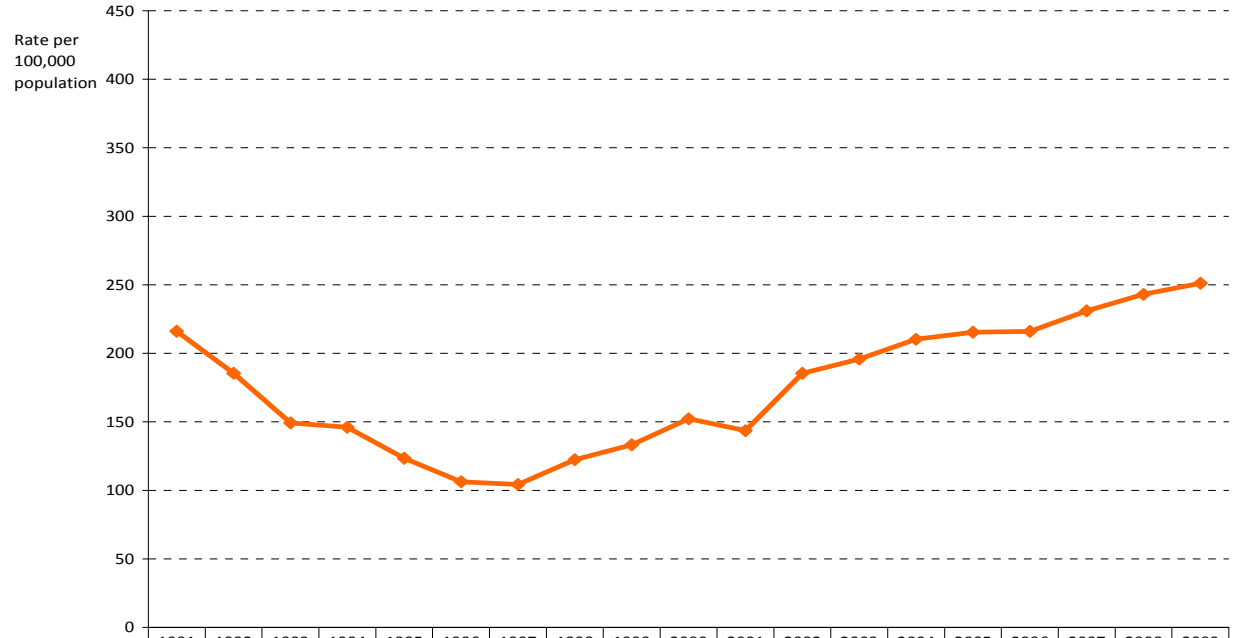
Genital Chlamydia

After a prolonged period of declining rates, the rate of genital chlamydia in BC began to increase in 1998 and has steadily increased since that time. Canadian rates have also increased over this time period and are slightly higher than BC rates for 2008 and 2009. The rate of genital chlamydia for BC increased in 2009 to 251.1 (11,173 cases) from 243.1 per 100,000 population (10,650 cases) in 2008. Stable or increasing genital chlamydia rates were observed in most HSDAs in 2009. The highest rates of genital chlamydia infection in 2009 were in Northern Interior HSDA, Northwest HSDA, Vancouver HSDA, and Thompson Cariboo Shuswap HSDA.

The rates of infection for both females and males continue to steadily increase, and females continue to have approximately twice the rate of infection compared to males. The highest rates of genital chlamydia are among females aged 15-19 and 20-24 years, and males aged 20-24 years. In 2009 the rates of chlamydia infection increased among 15-19 year olds and decreased among 20-24 year olds for both sexes compared to 2008.

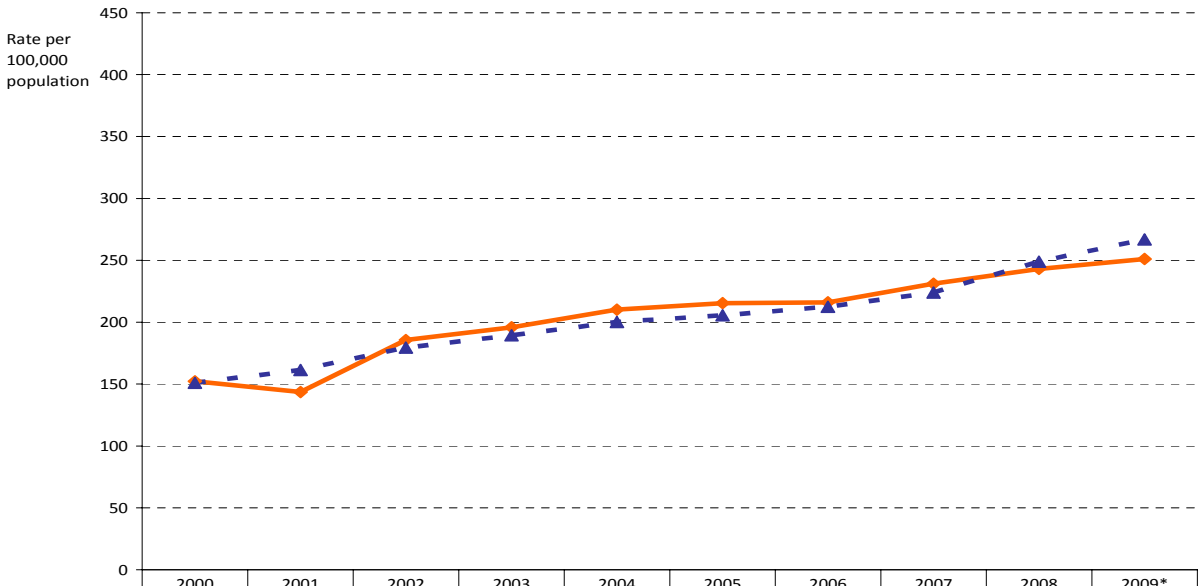
Many genital chlamydia infections are asymptomatic and thus diagnosed infections reflect only a fraction of the total population burden. The greater number of infections detected in females is in part due to greater testing in females as part of routine screening at the time of visits for other reasons (e.g. pap testing or contraception counselling).

3.1 Genital chlamydia case reports and rates in BC by historical trend, 1991 to 2009



	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
BC Reports	7,294	6,434	5,321	5,366	4,660	4,116	4,116	4,877	5,342	6,148	5,855	7,603	8,072	8,733	9,039	9,166	9,957	10,650	11,173
BC Rate	216.2	185.5	149.1	146.0	123.4	106.2	104.2	122.4	133.2	152.2	143.6	185.5	195.8	210.2	215.4	216.0	231.0	243.1	251.1

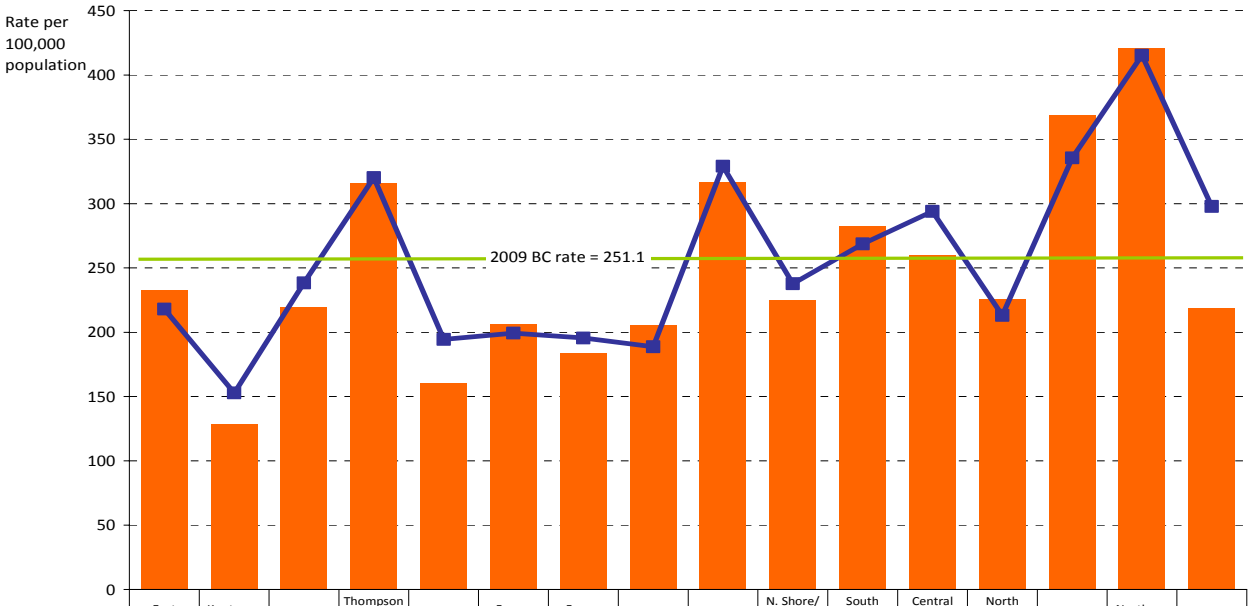
3.2 Genital chlamydia case reports and rates in BC, 2000 to 2009



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009*
BC Reports	6,148	5,855	7,603	8,072	8,733	9,039	9,166	9,957	10,650	11,173
BC Rate	152.2	143.6	185.5	195.8	210.2	215.4	216.0	231.0	243.1	251.1
Canadian Rate	150.9	161.4	179.4	189.4	200.2	205.6	212.4	224.0	248.9	266.9

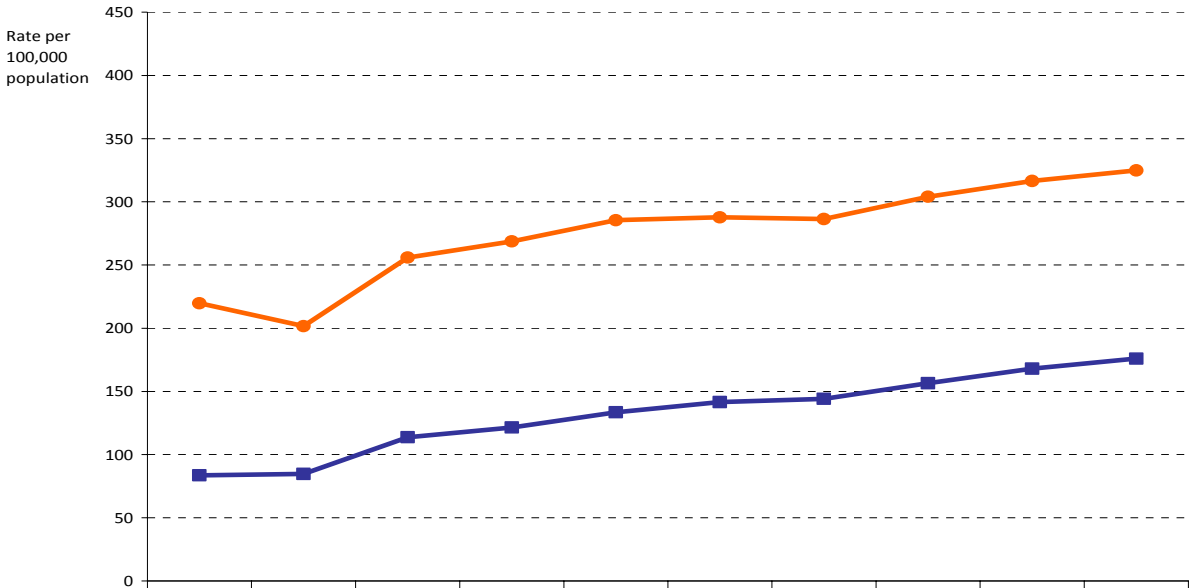
*2009 Canadian rate is projected and is subject to change (Public Health Agency of Canada, 2010).
Canadian rate does not distinguish between genital and extra-genital chlamydia case reports.

3.3 Genital chlamydia case reports and rates in BC by health service delivery area, 2008 & 2009



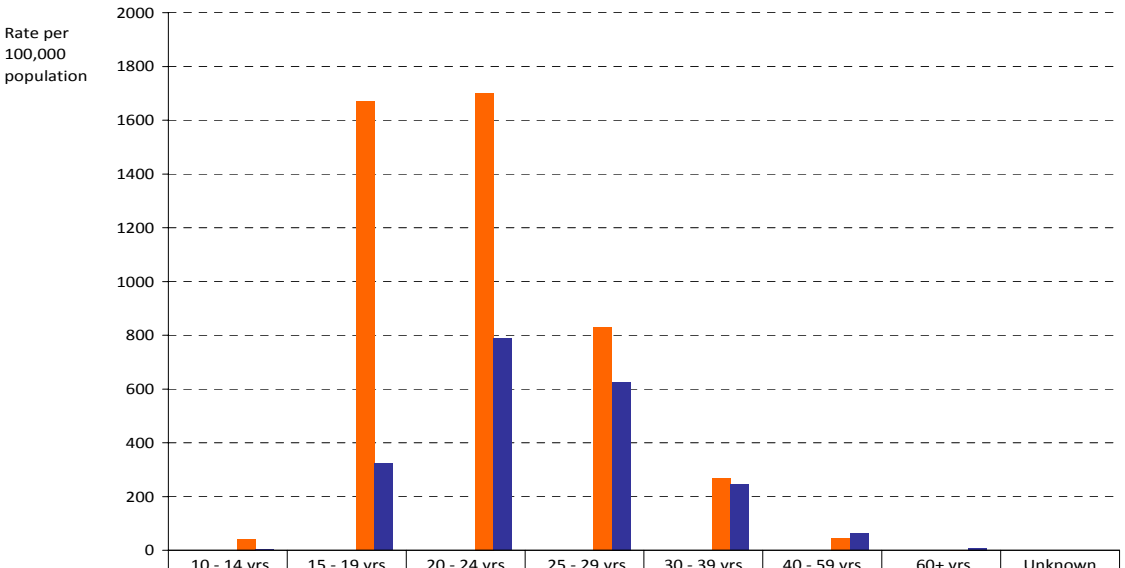
	East Kootenay	Kootenay Boundary	Okanagan	Thompson Cariboo Shuswap	Fraser East	Fraser North	Fraser South	Richmond	Vancouver	N. Shore/ Coast Garibaldi	South Vancouver Island	Central Vancouver Island	North Vancouver Island	Northwest	Northern Interior	Northeast
Reports 2009	173	120	834	710	547	1,191	1,359	363	2,109	658	989	772	256	251	591	201
Rate 2008	232.7	128.8	219.9	315.8	160.5	206.8	183.9	205.8	316.7	224.6	282.4	260.0	225.6	368.6	421.1	218.7
Rate 2009	218.0	152.8	238.3	320.1	194.4	199.3	195.5	188.7	329.1	237.7	268.7	294.0	213.1	335.5	415.3	297.8

3.4 Genital chlamydia case reports and rates in BC by sex, 2000 to 2009



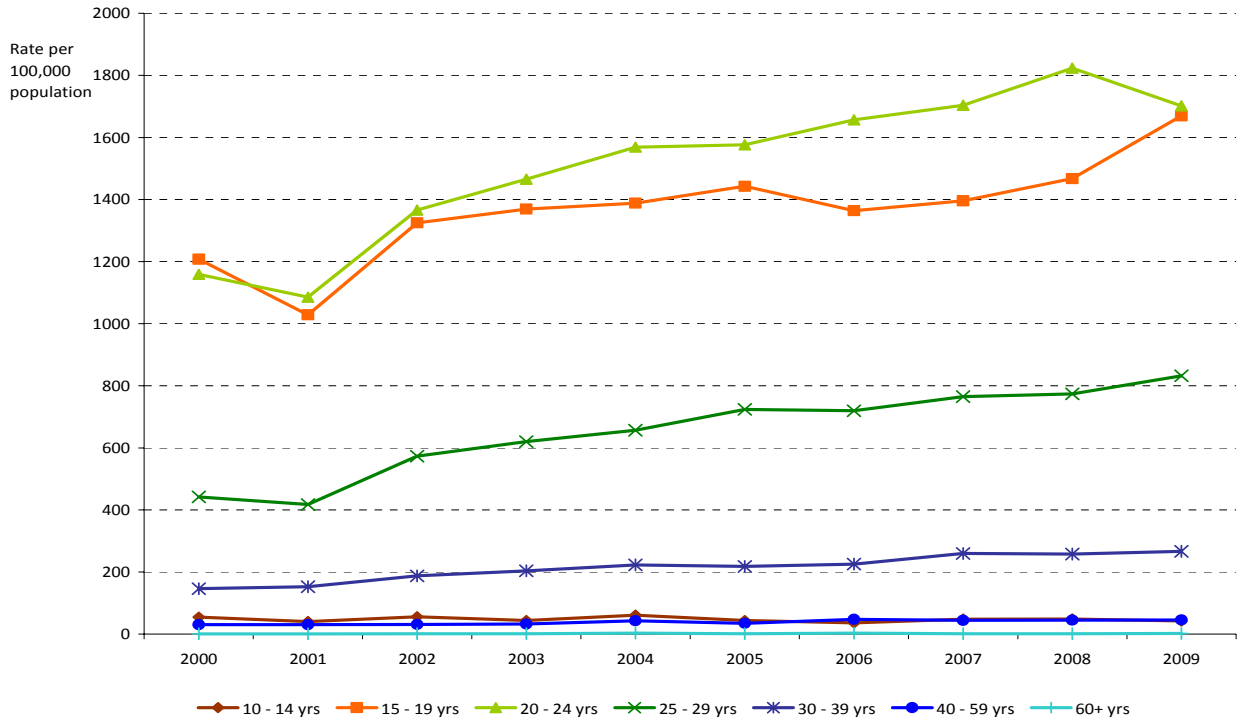
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Reports - Female	4,468	4,142	5,289	5,587	5,984	6,093	6,130	6,610	6,991	7,287
Reports - Male	1,676	1,713	2,313	2,483	2,748	2,945	3,030	3,343	3,652	3,880
Rate - Female	219.7	201.7	256.0	268.7	285.4	287.8	286.3	304.0	316.5	324.9
Rate - Male	83.6	84.7	113.8	121.5	133.5	141.6	144.1	156.5	168.1	175.9

3.5 Genital chlamydia case reports and rates in BC by age group and sex, 2009



	10 - 14 yrs	15 - 19 yrs	20 - 24 yrs	25 - 29 yrs	30 - 39 yrs	40 - 59 yrs	60+ yrs	Unknown
Reports - Female	51	2,283	2,546	1,285	793	311	9	9
Reports - Male	4	471	1,263	967	715	418	40	2
Reports - Transgender/Unknown	0	0	3	2	1	0	0	0
Rate - Female	42.5	1,669.4	1,701.5	832.1	266.8	45.5	1.8	
Rate - Male	3.1	322.8	787.6	626.1	244.4	62.5	9.3	

3.6 Female genital chlamydia rates in BC by age group, 2000 to 2009

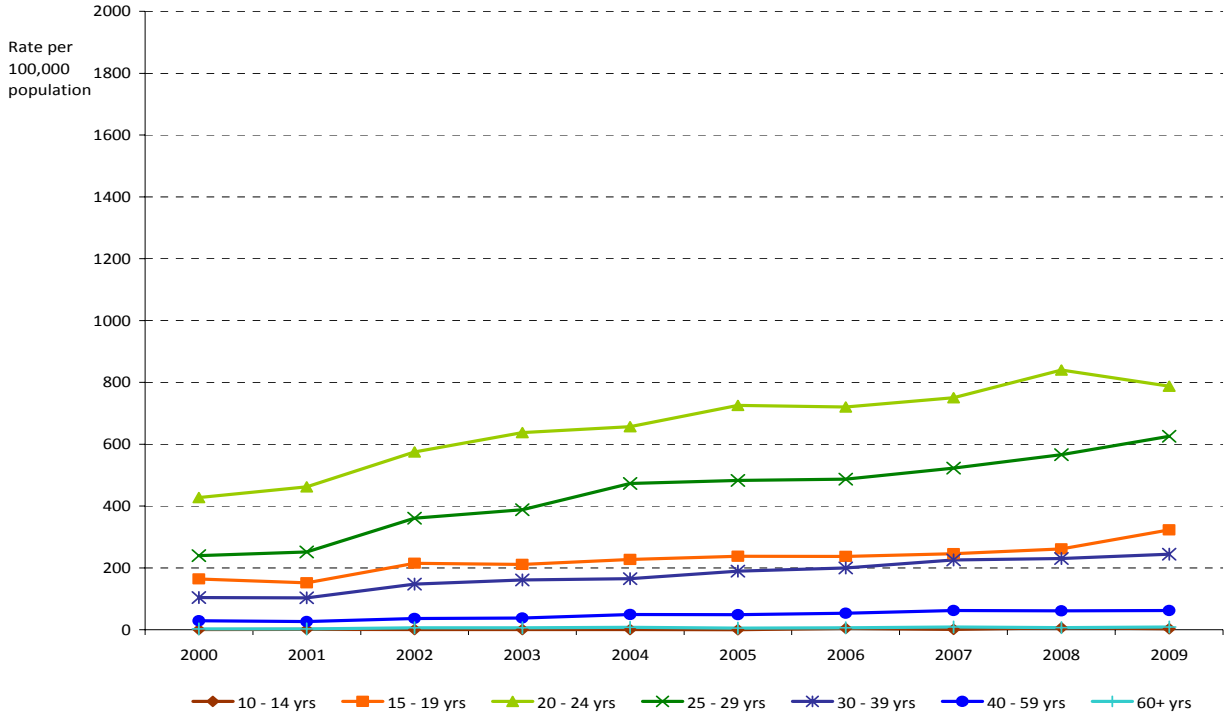


3.A Female genital chlamydia case reports and rates in BC by age group, 2000 to 2009

		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
10 - 14 yrs	Cases	70	52	71	56	77	55	45	60	59	51
	Rate	54.7	40.6	55.5	43.8	60.5	43.5	35.9	48.4	48.5	42.5
15 - 19 yrs	Cases	1,605	1,390	1,788	1,827	1,842	1,927	1,845	1,920	2,033	2,283
	Rate	1,207.6	1,028.8	1,324.7	1,369.0	1,388.1	1,443.0	1,364.3	1,395.7	1,467.2	1,669.4
20 - 24 yrs	Cases	1,500	1,427	1,839	2,019	2,214	2,249	2,244	2,457	2,665	2,546
	Rate	1,159.0	1,085.5	1,365.8	1,465.8	1,568.9	1,576.4	1,656.9	1,703.6	1,823.1	1,701.5
25 - 29 yrs	Cases	606	559	757	811	866	973	994	1,095	1,151	1,285
	Rate	442.2	417.2	573.3	620.3	656.5	723.9	719.2	764.9	774.1	832.1
30 - 39 yrs	Cases	478	494	591	626	666	641	656	761	761	793
	Rate	146.6	152.9	187.2	204.0	223.1	218.1	225.3	259.8	257.9	266.8
40 - 59 yrs	Cases	175	181	188	202	274	229	317	297	304	311
	Rate	30.4	30.6	30.9	32.4	42.9	35.1	47.8	44.4	45.0	45.5
60+ yrs	Cases	3	3	5	6	12	5	13	6	7	9
	Rate	0.8	0.8	1.3	1.5	2.9	1.2	3.0	1.3	1.5	1.8
Total*	Cases	4,468	4,142	5,289	5,587	5,984	6,093	6,130	6,610	6,991	7,287
	Rate	219.7	201.7	256.0	268.7	285.4	287.8	286.3	304.0	316.5	324.9

Rate per 100,000 population
*Includes cases under age 10 yrs and unknown/missing age

3.7 Male genital chlamydia rates in BC by age group, 2000 to 2009



3.B Male genital chlamydia case reports and rates in BC by age group, 2000 to 2009

		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
10 - 14 yrs	Cases	1	2	1	1	1	0	6	2	8	4
	Rate	0.7	1.5	0.7	0.7	0.7	0.0	4.5	1.5	6.2	3.1
15 - 19 yrs	Cases	234	220	310	302	326	344	349	366	389	471
	Rate	164.4	151.4	215.0	211.2	227.1	237.3	237.2	246.1	261.3	322.8
20 - 24 yrs	Cases	573	631	799	908	951	1,070	1,067	1,138	1,311	1,263
	Rate	427.6	462.0	575.2	637.4	656.7	725.5	720.1	750.8	840.0	787.6
25 - 29 yrs	Cases	331	341	479	509	623	645	665	741	838	967
	Rate	239.2	252.0	361.0	388.4	473.3	482.9	487.4	522.9	566.4	626.1
30 - 39 yrs	Cases	339	331	463	490	489	550	574	652	671	715
	Rate	104.1	103.1	147.8	161.3	165.3	189.1	199.5	225.8	230.8	244.4
40 - 59 yrs	Cases	166	155	221	234	311	311	344	406	405	418
	Rate	29.1	26.4	36.8	38.1	49.7	48.7	53.1	62.1	61.3	62.5
60+ yrs	Cases	9	8	21	21	28	18	24	35	28	40
	Rate	2.8	2.5	6.3	6.1	7.9	4.9	6.3	8.8	6.8	9.3
Total*	Cases	1,676	1,713	2,313	2,483	2,748	2,945	3,030	3,343	3,652	3,880
	Rate	83.6	84.7	113.8	121.5	133.5	141.6	144.1	156.5	168.1	175.9

Rate per 100,000 population
*Includes cases under age 10 yrs and unknown/missing age

Extra-genital Chlamydia

A small number of extra-genital chlamydia infections are detected each year in BC, with 23 cases identified in 2009 (16 female, 7 male). The 163 extra-genital infections between 2000 and 2009 were identified in specimens from the following sites: eye (116 cases, 71.2%), throat (20 cases, 12.3%), lung (4 cases, 2.4%), and other sites (23 cases, 14.1%).

3.C Extra-genital chlamydia case reports in BC by sex and site/culture, 2000 to 2009

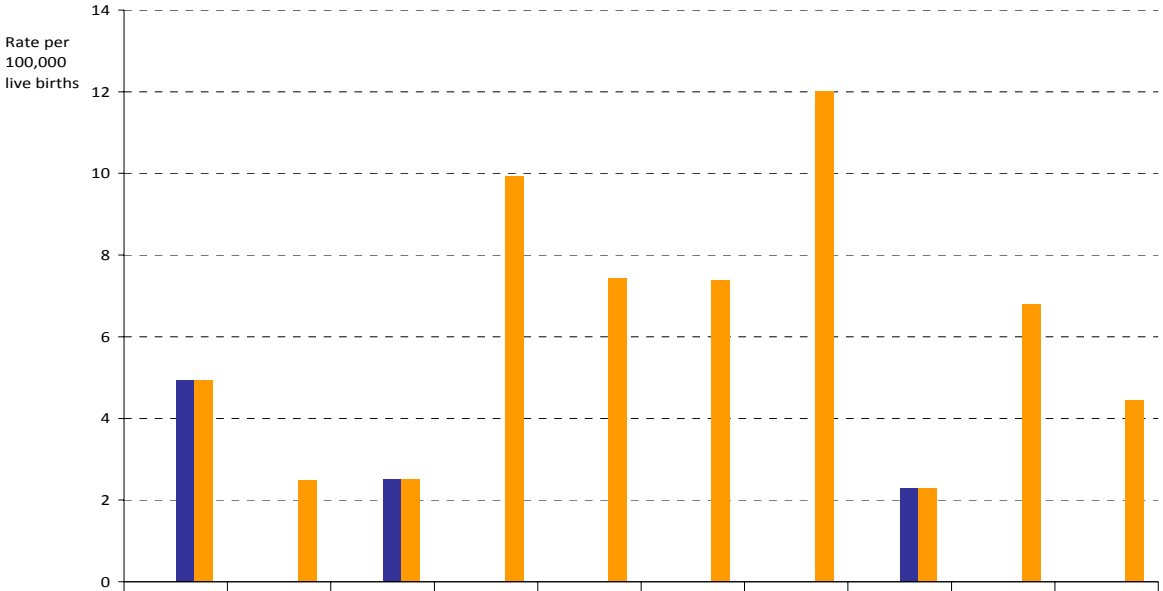
		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Female	Throat	0	0	0	0	0	0	1	2	0	0
	Eye	7	8	6	6	5	9	6	3	3	6
	Lung	2	0	0	0	0	0	0	0	0	0
	Other	0	0	0	0	0	0	0	1	7	10
	Female total	9	8	6	6	5	9	7	6	10	16
Male	Throat	0	0	0	0	0	4	4	1	6	2
	Eye	4	2	8	3	12	5	8	5	5	5
	Lung	0	0	1	0	0	0	0	1	0	0
	Other	0	0	0	0	0	0	0	1	4	0
	Male total	4	2	9	3	12	9	12	8	15	7
Total	Throat	0	0	0	0	0	4	5	3	6	2
	Eye	11	10	14	9	17	14	14	8	8	11
	Lung	2	0	1	0	0	0	0	1	0	0
	Other	0	0	0	0	0	0	0	2	11	10
	Total	13	10	15	9	17	18	19	14	25	23

Perinatally-acquired Chlamydia

In 2009, two cases of perinatally-acquired chlamydia infection were observed (for a rate of 4.5 per 100,000 live births), which is within the range of expected cases (range 1 to 5 cases per year between 2000 and 2009). Historically, the majority of cases have chlamydia detected in conjunctival specimens, 86.2% (25/29) of cases between 2000 and 2009, with 13.8% (4/29) of cases having chlamydia detected in specimens from the respiratory tract.

Very few jurisdictions have published rates of perinatally-acquired chlamydia infections, and historic trend data for BC is not available. However, it is likely that the current standard of screening and treatment of chlamydia infection in pregnant women in BC and the prophylaxis of newborns to prevent opthalmia neonatorum has resulted in an overall lower rate of perinatally-acquired chlamydia.

3.8 Perinatally-acquired chlamydia case reports and rates in BC by site/culture, 2000 to 2009



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Reports - Respiratory	2	0	1	0	0	0	0	1	0	0
Reports - Conjunctival	2	1	1	4	3	3	5	1	3	2
Rate - Respiratory	4.9	0.0	2.5	0.0	0.0	0.0	0.0	2.3	0.0	0.0
Rate - Conjunctival	4.9	2.5	2.5	9.9	7.4	7.4	12.0	2.3	6.8	4.5

4. Gonorrhea

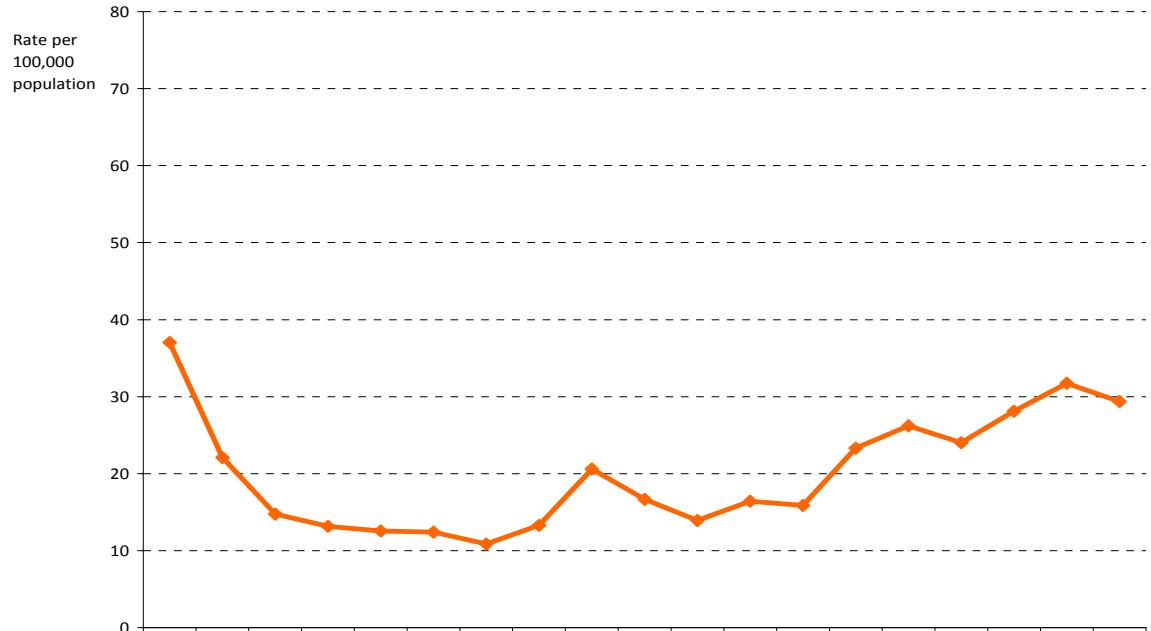
Genital Gonorrhea

The rate of genital gonorrhea in BC began to increase in 1998 and has been generally increasing since that time, in parallel with Canadian rates. The rate of genital gonorrhea in BC decreased slightly in 2009 to 29.4 (1,307 cases) from 31.7 per 100,000 population (1,391 cases) in 2008. Trends in genital gonorrhea rates are variable by HSDA, with decreased genital gonorrhea rates in many HSDA in 2009. The highest rates in 2009 were in Vancouver HSDA, Northern Interior HSDA, and South Vancouver Island HSDA.

Males continue to have a greater rate of infection compared to females. Between 2004 and 2009, the rate of infection among males has been relatively stable while the rate of infection among females has been generally increasing. The highest rates of genital gonorrhea are among females aged 15-19 and 20-24 years, and males aged 20-24 and 25-29 years. Compared to 2008, some age groups have demonstrated a decrease in rates of genital gonorrhea (20-24 and 25-29 year age groups among females, and 25-29 and 30-39 year age groups among males).

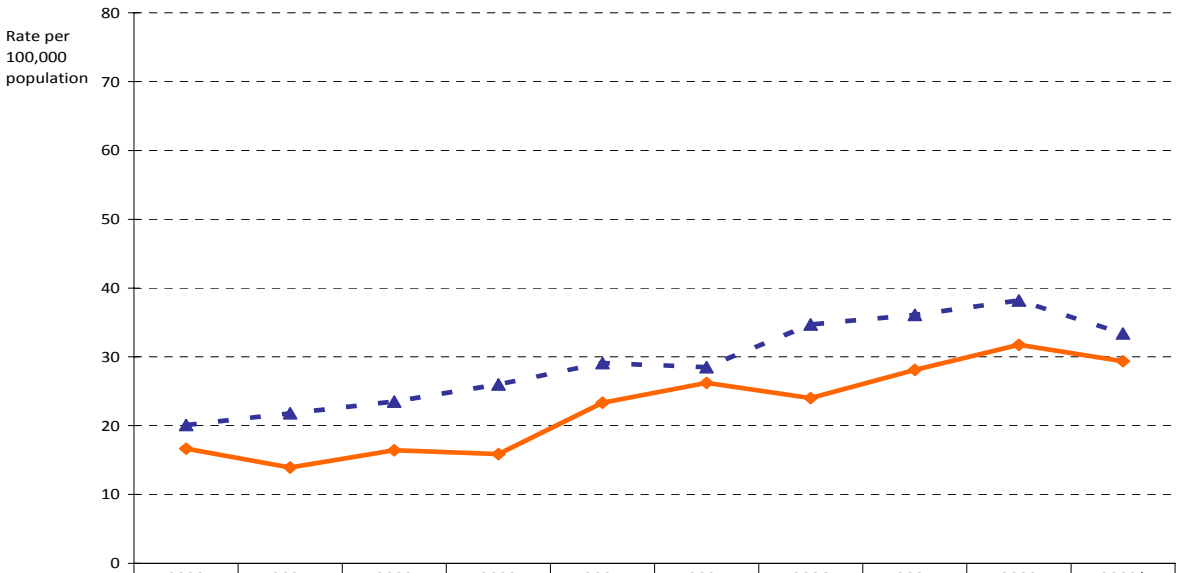
Gonorrhea infections may be asymptomatic or symptoms may be mild. Males are more likely to show signs of gonorrheal infection (e.g. urethral discharge) which may lead to seeking medical attention and may in part explain the greater number of gonorrheal infections among males in BC. Based on reports from other jurisdictions, transmission of gonorrhea among men who have sex with men (MSM) may also contribute to the number of cases observed in males.

4.1 Genital gonorrhea case reports and rates in BC by historical trend, 1991 to 2009



	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
BC Reports	1,250	766	526	484	474	480	429	529	826	673	567	673	654	969	1,100	1,019	1,212	1,391	1,307
BC Rate	37.1	22.1	14.7	13.2	12.5	12.4	10.9	13.3	20.6	16.7	13.9	16.4	15.9	23.3	26.2	24.0	28.1	31.7	29.4

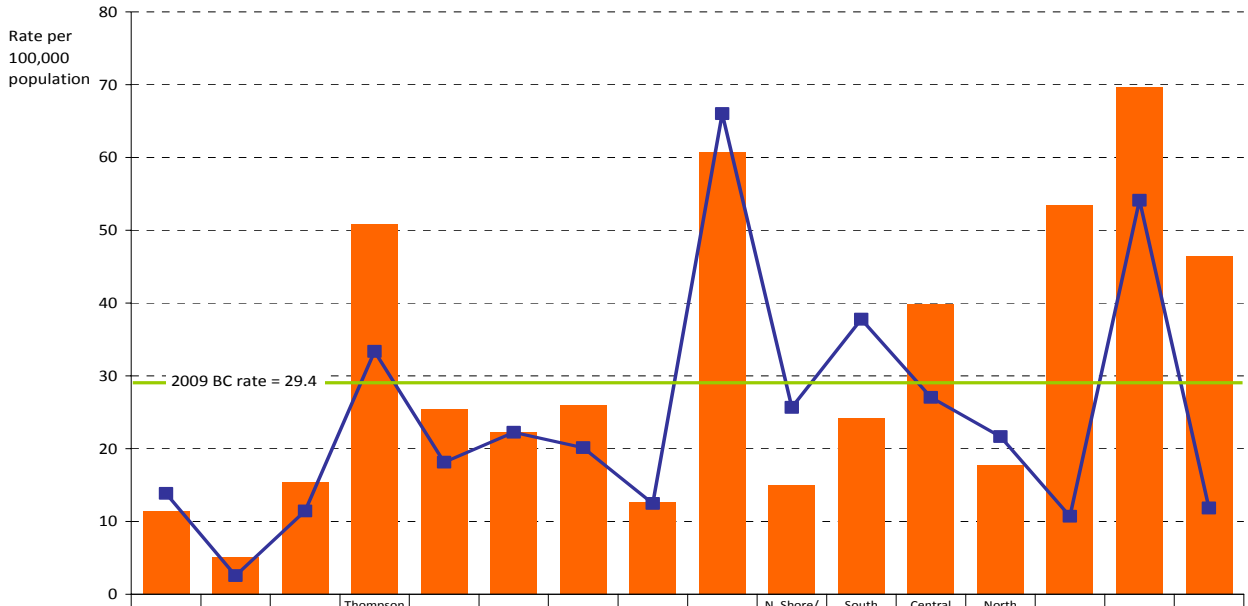
4.2 Genital gonorrhea case reports and rates in BC, 2000 to 2009



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009*
BC Reports	673	567	673	654	969	1,100	1,019	1,212	1,391	1,307
BC Rate	16.7	13.9	16.4	15.9	23.3	26.2	24.0	28.1	31.7	29.4
Canadian Rate	20.1	21.8	23.5	26.0	29.1	28.5	34.7	36.1	38.2	33.4

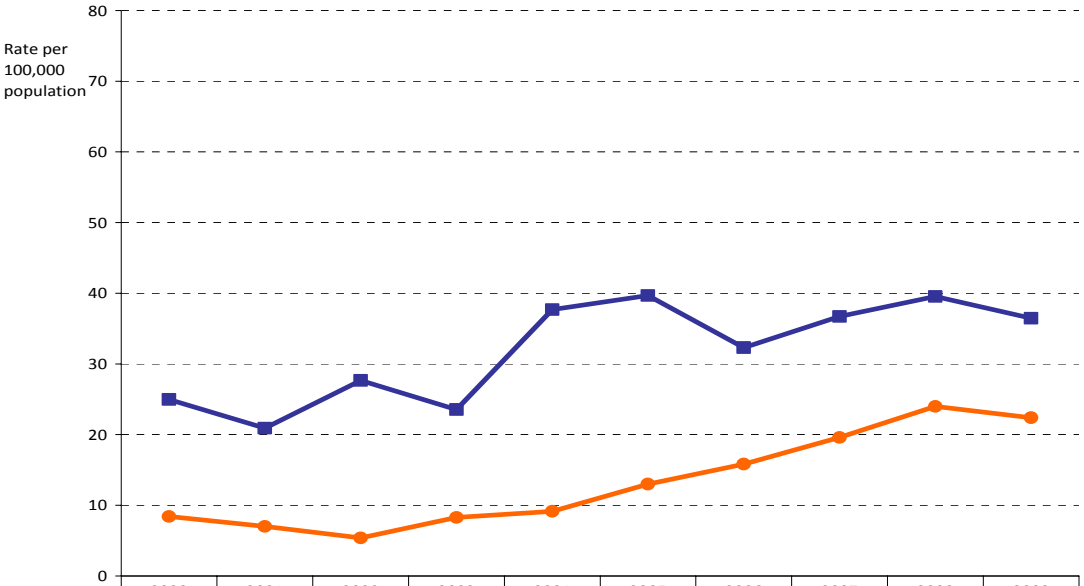
*2009 Canadian rate is projected and is subject to change (Public Health Agency of Canada, 2010).
Canadian rate does not distinguish between genital and extra-genital gonorrhea case reports.

4.3 Genital gonorrhea case reports and rates in BC by health service delivery area, 2008 & 2009



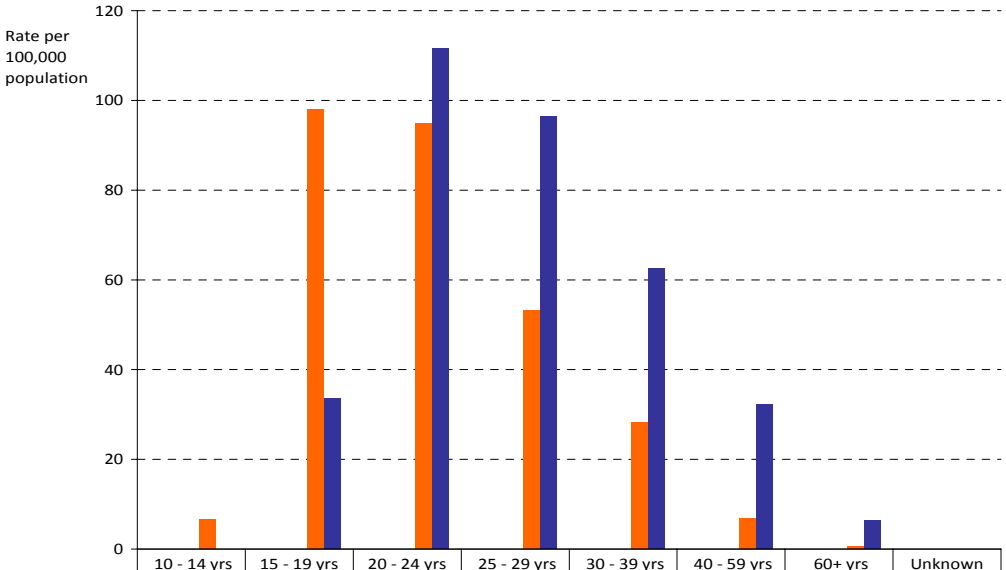
	East Kootenay	Kootenay Boundary	Okanagan	Thompson Cariboo Shuswap	Fraser East	Fraser North	Fraser South	Richmond	Vancouver	N. Shore/ Coast Garibaldi	South Vancouver Island	Central Vancouver Island	North Vancouver Island	Northwest	Northern Interior	Northeast
Reports 2009	11	2	40	74	51	133	140	24	423	71	139	71	26	8	77	8
Rate 2008	11.4	5.1	15.4	50.8	25.4	22.2	26.0	12.7	60.6	15.0	24.2	39.9	17.7	53.4	69.6	46.4
Rate 2009	13.9	2.5	11.4	33.4	18.1	22.3	20.1	12.5	66.0	25.7	37.8	27.0	21.6	10.7	54.1	11.9

4.4 Genital gonorrhea case reports and rates in BC by sex, 2000 to 2009



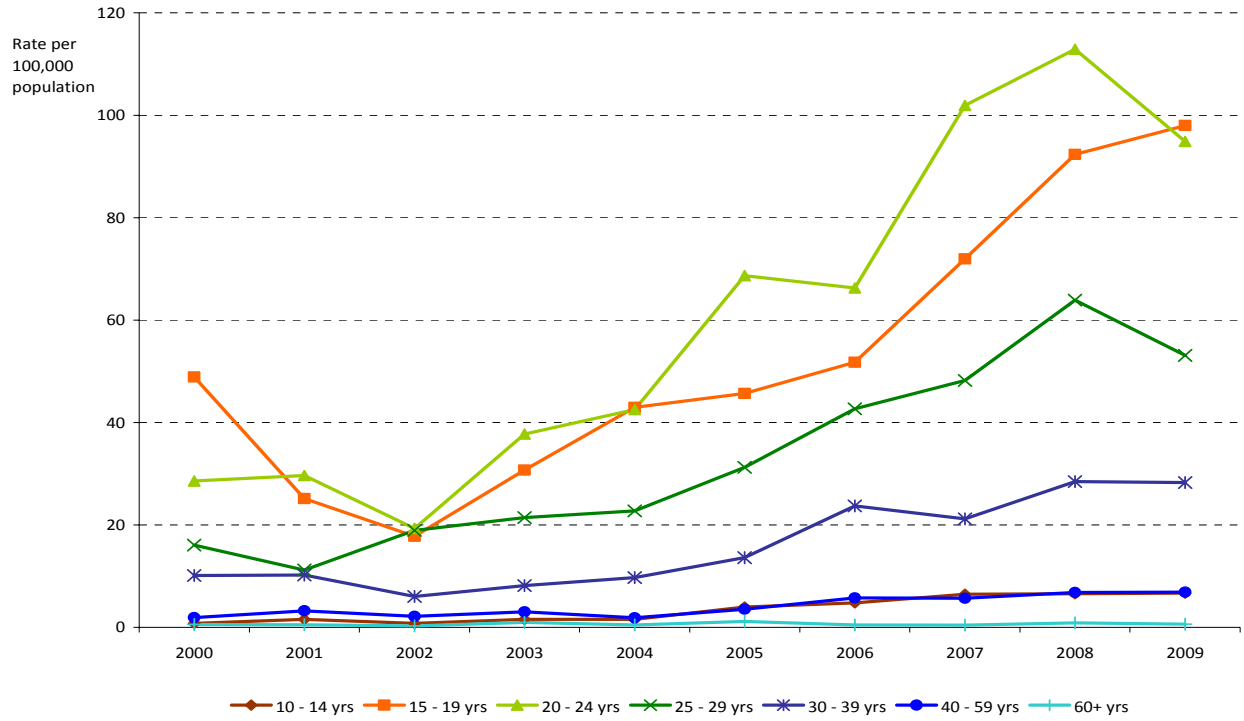
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Reports - Female	171	144	111	172	192	275	339	426	530	502
Reports - Male	501	423	562	481	776	825	679	784	859	804
Rate - Female	8.4	7.0	5.4	8.3	9.2	13.0	15.8	19.6	24.0	22.4
Rate - Male	25.0	20.9	27.7	23.5	37.7	39.7	32.3	36.7	39.5	36.4

4.5 Genital gonorrhea case reports and rates in BC by age group and sex, 2009



	10 - 14 yrs	15 - 19 yrs	20 - 24 yrs	25 - 29 yrs	30 - 39 yrs	40 - 59 yrs	60+ yrs	Unknown
Reports - Female	8	134	142	82	84	47	3	1
Reports - Male	0	49	179	149	183	216	28	0
Reports - Transgender/Unknown	0	0	1	0	0	0	0	0
Rate - Female	6.7	98.0	94.9	53.1	28.3	6.9	0.6	
Rate - Male	-	33.6	111.6	96.5	62.6	32.3	6.5	

4.6 Female genital gonorrhea rates in BC by age group, 2000 to 2009

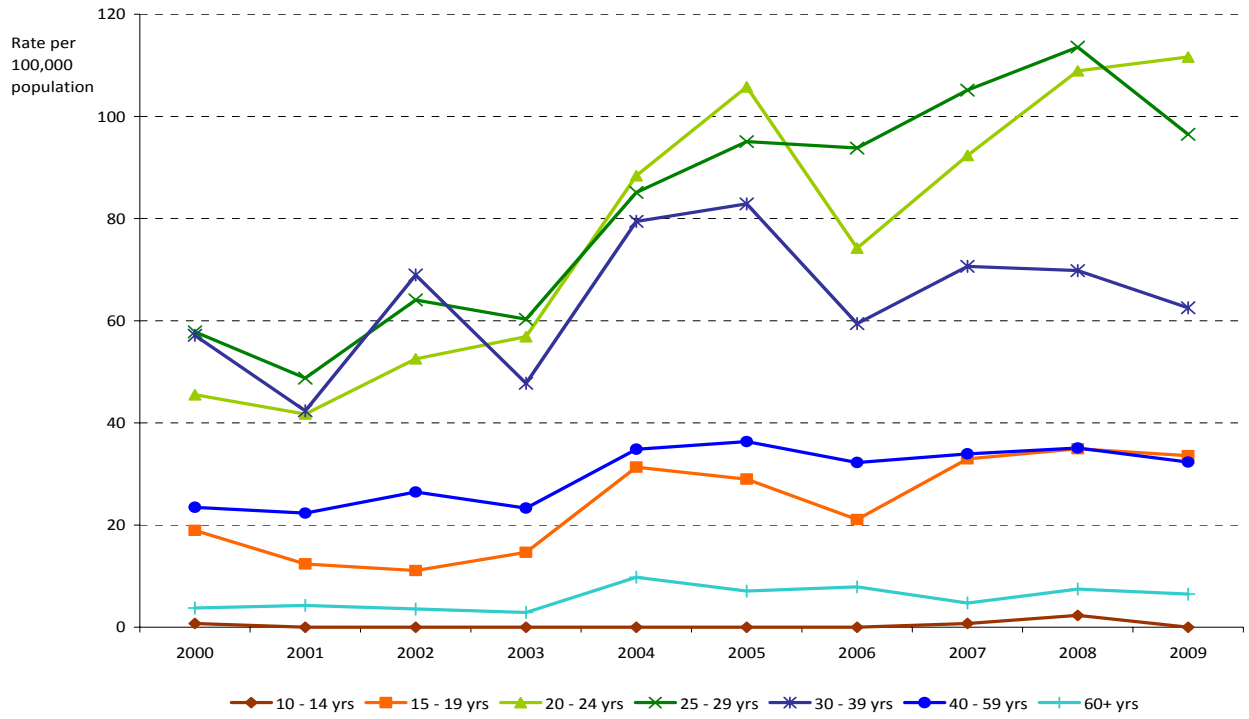


4.A Female genital gonorrhea case reports and rates in BC by age group, 2000 to 2009

		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
10 - 14 yrs	Cases	1	2	1	2	2	5	6	8	8	8
	Rate	0.8	1.6	0.8	1.6	1.6	4.0	4.8	6.5	6.6	6.7
15 - 19 yrs	Cases	65	34	24	41	57	61	70	99	128	134
	Rate	48.9	25.2	17.8	30.7	43.0	45.7	51.8	72.0	92.4	98.0
20 - 24 yrs	Cases	37	39	26	52	60	98	95	147	165	142
	Rate	28.6	29.7	19.3	37.8	42.5	68.7	66.3	101.9	112.9	94.9
25 - 29 yrs	Cases	22	15	25	28	30	42	59	69	95	82
	Rate	16.1	11.2	18.9	21.4	22.7	31.2	42.7	48.2	63.9	53.1
30 - 39 yrs	Cases	33	33	19	25	29	40	69	62	84	84
	Rate	10.1	10.2	6.0	8.1	9.7	13.6	23.7	21.2	28.5	28.3
40 - 59 yrs	Cases	11	19	13	19	12	23	38	38	46	47
	Rate	1.9	3.2	2.1	3.0	1.9	3.5	5.7	5.7	6.8	6.9
60+ yrs	Cases	2	2	1	4	2	5	2	2	4	3
	Rate	0.5	0.5	0.3	1.0	0.5	1.2	0.5	0.4	0.8	0.6
Total*	Cases	171	144	111	172	192	275	339	426	530	502
	Rate	8.4	7.0	5.4	8.3	9.2	13.0	15.8	19.6	24.0	22.4

Rate per 100,000 population
*Includes cases under age 10 yrs and unknown/missing age

4.7 Male genital gonorrhea rates in BC by age group, 2000 to 2009



4.B Male genital gonorrhea case reports and rates in BC by age group, 2000 to 2009

		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
10 - 14 yrs	Cases	1	0	0	0	0	0	0	1	3	0
	Rate	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.8	2.3	0.0
15 - 19 yrs	Cases	27	18	16	21	45	42	31	49	52	49
	Rate	19.0	12.4	11.1	14.7	31.4	29.0	21.1	32.9	34.9	33.6
20 - 24 yrs	Cases	61	57	73	81	128	156	110	140	170	179
	Rate	45.5	41.7	52.6	56.9	88.4	105.8	74.2	92.4	108.9	111.6
25 - 29 yrs	Cases	80	66	85	79	112	127	128	149	168	149
	Rate	57.8	48.8	64.1	60.3	85.1	95.1	93.8	105.1	113.6	96.5
30 - 39 yrs	Cases	186	136	216	145	235	241	171	204	203	183
	Rate	57.1	42.4	68.9	47.7	79.4	82.9	59.4	70.6	69.8	62.6
40 - 59 yrs	Cases	134	131	159	143	218	232	209	222	232	216
	Rate	23.5	22.3	26.5	23.3	34.8	36.3	32.3	34.0	35.1	32.3
60+ yrs	Cases	12	14	12	10	35	26	30	19	31	28
	Rate	3.8	4.3	3.6	2.9	9.8	7.1	7.9	4.8	7.5	6.5
Total*	Cases	501	423	562	481	776	825	679	784	859	804
	Rate	25.0	20.9	27.7	23.5	37.7	39.7	32.3	36.7	39.5	36.4

Rate per 100,000 population
*Includes cases under age 10 yrs and unknown/missing age

Extra-genital Gonorrhea

A small number of extra-genital gonorrhea infections are detected each year in BC, with 62 cases identified in 2009 (8 female, 54 male). The 564 extra-genital infections between 2000 and 2009 were identified from the throat (497 cases, 88.1%), eye (14 cases, 2.5%) or other sites (43, 7.6%), or represented disseminated gonococcal infection (10 cases, 1.8%).

4.C Extra-genital gonorrhea case reports in BC by sex and site/culture, 2000 to 2009

		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Female	Throat	7	5	6	6	1	14	16	15	3	7
	Eye	0	0	0	0	1	0	0	1	1	0
	Other	0	0	1	2	3	3	3	5	1	1
	DGI*	1	0	1	0	1	2	0	0	1	0
	Female Total	8	5	8	8	6	19	19	21	6	8
Male	Throat	22	28	41	27	54	74	41	46	41	43
	Eye	1	0	2	1	0	1	0	1	1	4
	Other	0	0	0	1	1	10	4	0	2	6
	DGI*	1	0	0	1	0	0	0	0	1	1
	Male Total	24	28	43	30	55	85	45	47	45	54
Total	Throat	29	33	47	33	55	88	57	61	44	50
	Eye	1	0	2	1	1	1	0	2	2	4
	Other	0	0	1	3	4	13	7	5	3	7
	DGI*	2	0	1	1	1	2	0	0	2	1
	Total	32	33	51	38	61	104	64	68	51	62

*DGI: Disseminated gonococcal infection

Perinatally-acquired Gonorrhea

One case of perinatally-acquired gonorrhea was observed in 2009, with no other cases identified between 2000 to 2009.

5. Pelvic Inflammatory Disease and Ectopic Pregnancy

Pelvic inflammatory disease (PID) and ectopic pregnancy (EP) are conditions in women which can be caused by sexually transmitted infections, particularly chlamydia and gonorrhea infections. As such, looking at the rates of these conditions provides an indication of the trends in complications of these STIs. Data is presented through 2008 only due to expected delays in reporting, collation and transfer of data. This report includes data on physician billings and hospital discharges provided by the BC Ministry of Health Services.

Please note that the current and historic data presented in this section differs from previous reports, as changes to the analysis and reporting of this data were made following an evaluation of the surveillance for these conditions in 2009. These changes included using a revised classification of the International Classification of Disease (ICD) codes for PID, and exclusion of tubal infertility (TI) from surveillance reports due to poor validity of this indicator in physician billing and hospital discharge data. While overall trends in PID and EP are similar to previous reports, as a result of these changes the annual magnitude of hospital discharges and physician billings may differ from previous reports. Please see the Technical Appendix for further information on data sources and analytic methods.

Pelvic Inflammatory Disease

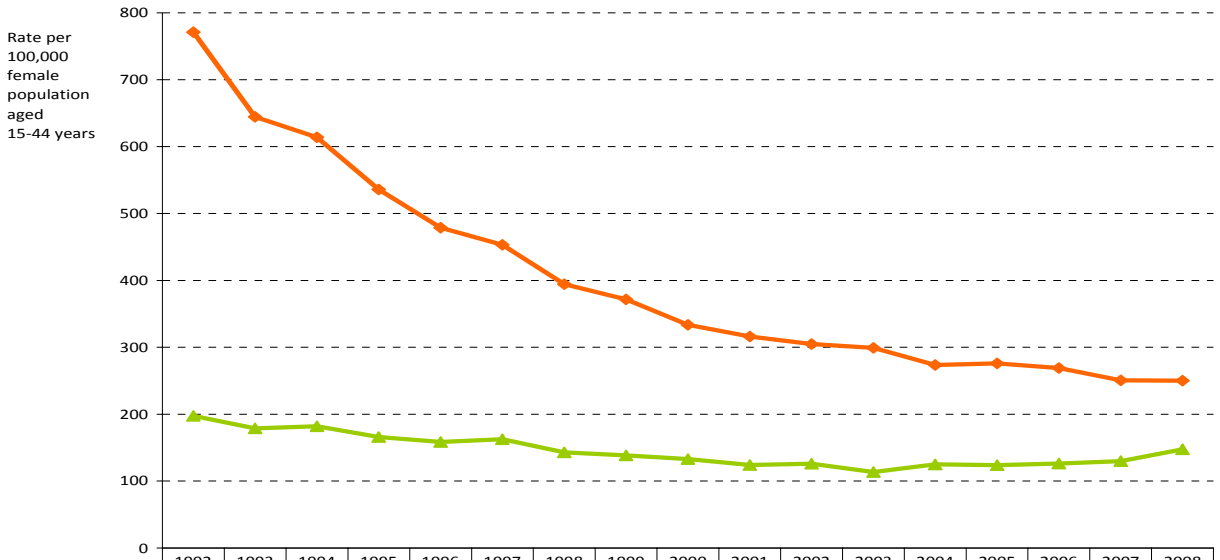
Rates of hospital discharges and physician billings related to PID have declined appreciably over time, with 2008 rates lower than or similar to 2007 rates (to 250.2 physician billings per 100,000 women aged 15-44 years, and 33.7 hospital discharges per 100,000 women aged 15-44 years).

Ectopic Pregnancy

A more moderate decrease in rates of hospital discharges and physician billings related to EP has been observed over time. In 2008, the rate of hospital discharges for EP increased slightly to 56.9 hospital discharges per 100,000 women aged 15-44 years. The rate of EP-related physician billings has remained relatively stable since 2001, however this rate has been recently increasing (to 147.6 billings per 100,000 women aged 15-44 years in 2008).

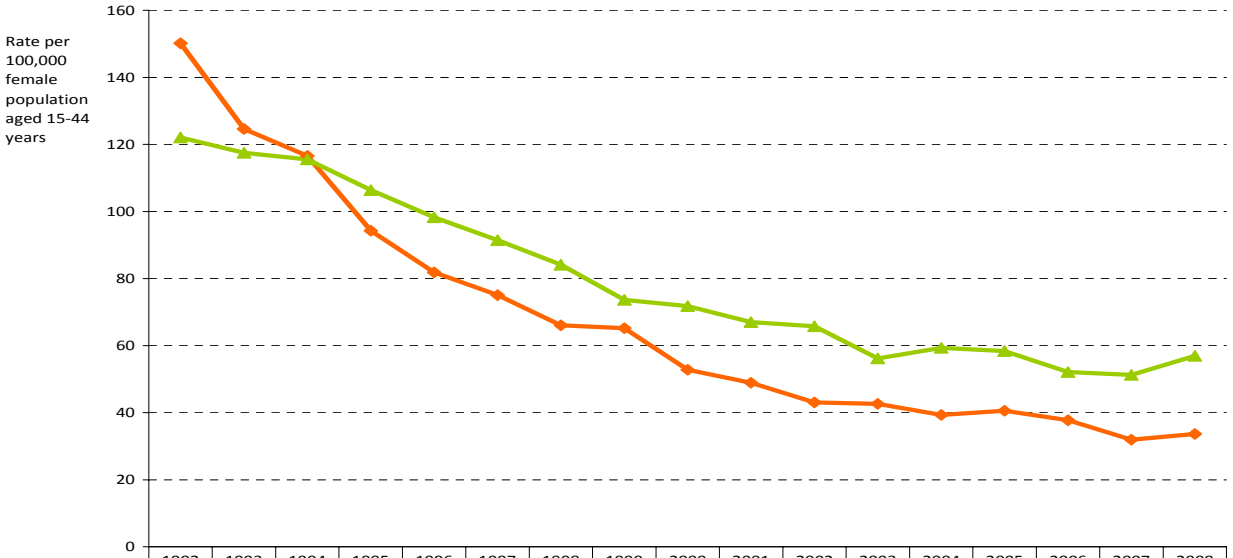
Taken together, these data indicate that despite overall increasing rates of chlamydia and gonorrhea infections among females in BC, a proportionate increase in potential complications of these infections has not been observed. As these complications are prevented by appropriate antibiotic treatment, this finding likely reflects the success of chlamydia public health control programs (implemented after chlamydia became a reportable infection in 1994) in identifying new cases of chlamydia and gonorrhea and ensuring appropriate treatment.

5.1 Case reports and rates of women aged 15-44 years with a physician billing related to PID or EP in BC, 1992 to 2008



	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Reports - PID	6,234	5,326	5,196	4,636	4,261	4,089	3,559	3,351	3,002	2,846	2,724	2,652	2,417	2,435	2,377	2,230	2,242
Reports - EP	1,597	1,478	1,541	1,436	1,410	1,469	1,289	1,248	1,196	1,116	1,127	1,006	1,103	1,093	1,114	1,156	1,323
Rate - PID	771.0	644.3	613.7	535.9	478.9	453.2	394.4	371.6	333.7	316.2	304.7	299.2	273.7	276.0	269.3	250.8	250.2
Rate - EP	197.5	178.8	182.0	166.0	158.5	162.8	142.9	138.4	132.9	124.0	126.1	113.5	124.9	123.9	126.2	130.0	147.6

5.2 Case reports and rates of women aged 15-44 years with a hospital discharge related to PID or EP in BC, 1992 to 2008



	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Reports - PID	1,214	1,030	987	815	728	677	596	588	475	440	385	378	347	358	333	284	302
Reports - EP	987	971	978	920	874	825	759	664	646	603	588	498	524	515	460	456	510
Rate - PID	150.1	124.6	116.6	94.2	81.8	75.0	66.1	65.2	52.8	48.9	43.1	42.6	39.3	40.6	37.7	31.9	33.7
Rate - EP	122.1	117.5	115.5	106.3	98.2	91.4	84.1	73.6	71.8	67.0	65.8	56.2	59.3	58.4	52.1	51.3	56.9

6. Infectious Syphilis

The rate of infectious syphilis (i.e., primary, secondary and early latent syphilis) in BC decreased substantially in 2009, to 4.9 (216 cases) from 7.5 per 100,000 population (328 cases) in 2008, and is approaching the Canadian rate. Decreased infectious syphilis rates were observed in most HSDAs in 2009. The highest rate was observed in Vancouver HSDA.

The majority of cases continue to be male, however, the rate of infectious syphilis in males decreased in 2009 and contributed substantially to the overall provincial decrease. The decrease in the rate of infectious syphilis in females in 2009 continued a decreasing trend starting in 2007. The highest rates of infection are observed in males aged between 25-29 years and 30-39 years, and the greatest decrease in age-specific rates in 2009 is for males between 40-59 years.

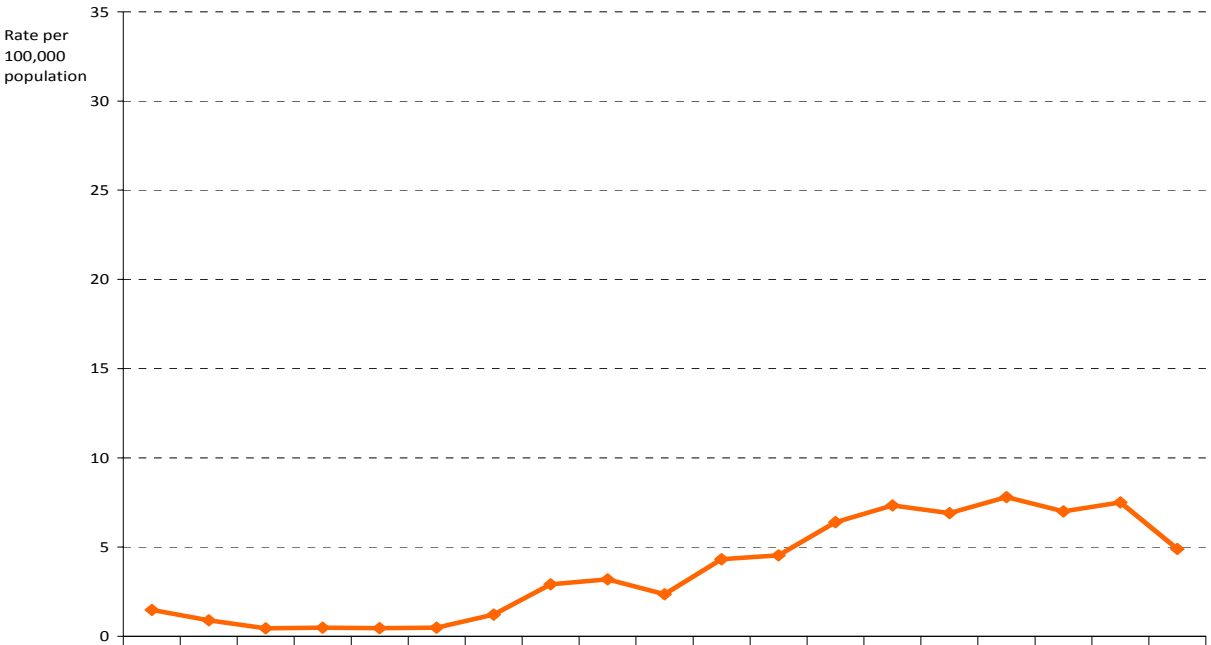
These findings are largely explained by a decrease in infectious syphilis cases among gay, bisexual and other men who have sex with men (MSM), from 229 cases (69.8%) in 2008 to 143 cases (66.2%) in 2009. HIV positive MSM are disproportionately affected, accounting for 55.9% (80 cases) of all MSM infectious syphilis cases in 2009 (37.0% of all BC infectious syphilis cases).

Infectious syphilis cases among street-involved persons, sex trade workers and their patrons decreased from 53 cases (16.2%) in 2008 to 19 cases (8.8%) in 2009, continuing a decreasing trend starting in 2007. Infectious syphilis cases among heterosexual persons without other risk factors has remained relatively stable over time, accounting for 48 cases (22.2%) in 2009.

While provincially there have been no recent campaigns related to syphilis, an enhanced and sustained response to the syphilis outbreak in BC has been in place throughout the province with activities including education for health care providers, promotion of testing, and centralized follow-up of infectious syphilis cases. This sustained response has likely contributed to these declining trends. In particular, initiatives over the past few years to promote syphilis testing among MSM (i.e., including syphilis testing with routine blood-work during antiretroviral therapy and the promotion of syphilis testing by service providers and community agencies) may be having an impact.

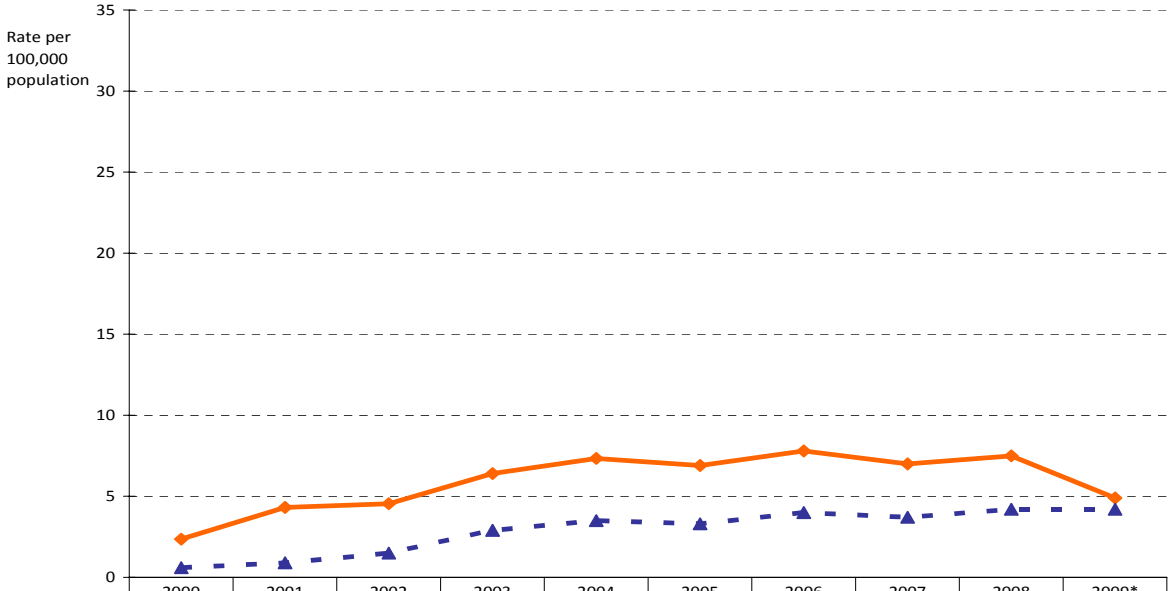
Similar to previous years, in 2009, most of the infectious syphilis cases continue to be among persons of Caucasian ethnicity (129 cases; 59.7%) followed by cases among persons of Hispanic (20 cases; 9.3%) and Aboriginal (18 cases; 8.3%) ethnicity. Aboriginal females continue to be disproportionately represented, accounting for 28.6% (8 cases) of all infectious syphilis cases among females in 2009.

6.1 Infectious syphilis case reports and rates in BC by historical trend, 1991 to 2009



	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
BC Reports	50	31	16	18	17	19	48	116	128	95	176	186	262	305	288	331	300	328	216
BC Rate	1.5	0.9	0.4	0.5	0.5	0.5	1.2	2.9	3.2	2.4	4.3	4.5	6.4	7.3	6.9	7.8	7.0	7.5	4.9

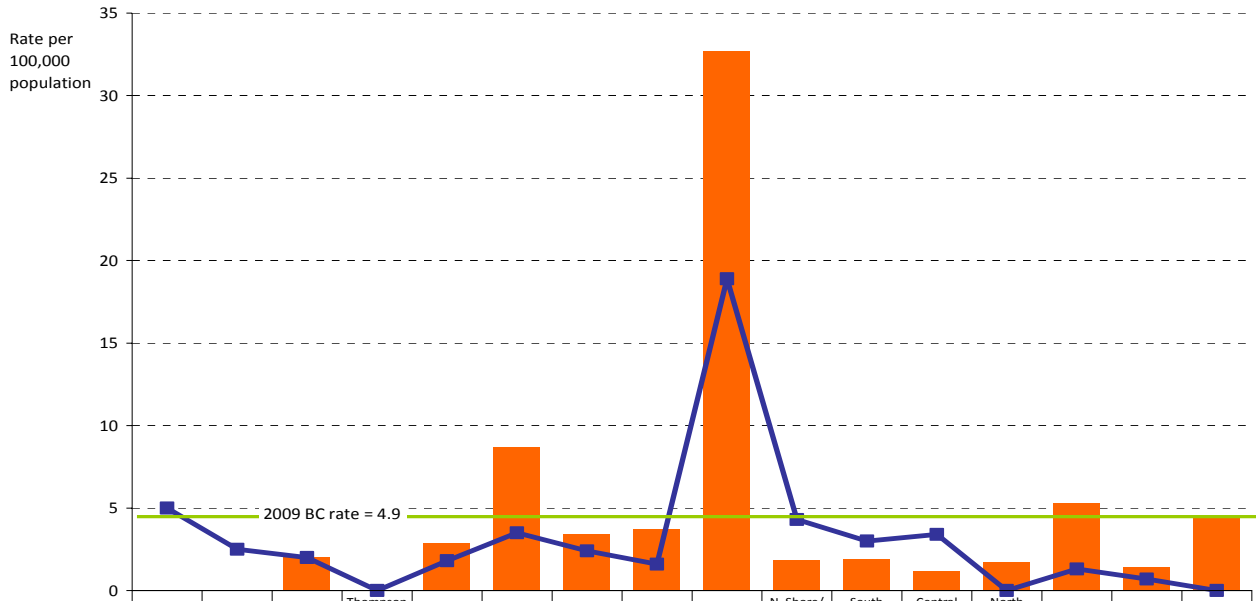
6.2 Infectious syphilis case reports and rates in BC, 2000 to 2009



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009*
BC Reports	95	176	186	262	305	288	331	300	328	216
BC Rate	2.4	4.3	4.5	6.4	7.3	6.9	7.8	7.0	7.5	4.9
Canadian Rate	0.6	0.9	1.5	2.9	3.5	3.3	4.0	3.7	4.2	4.2

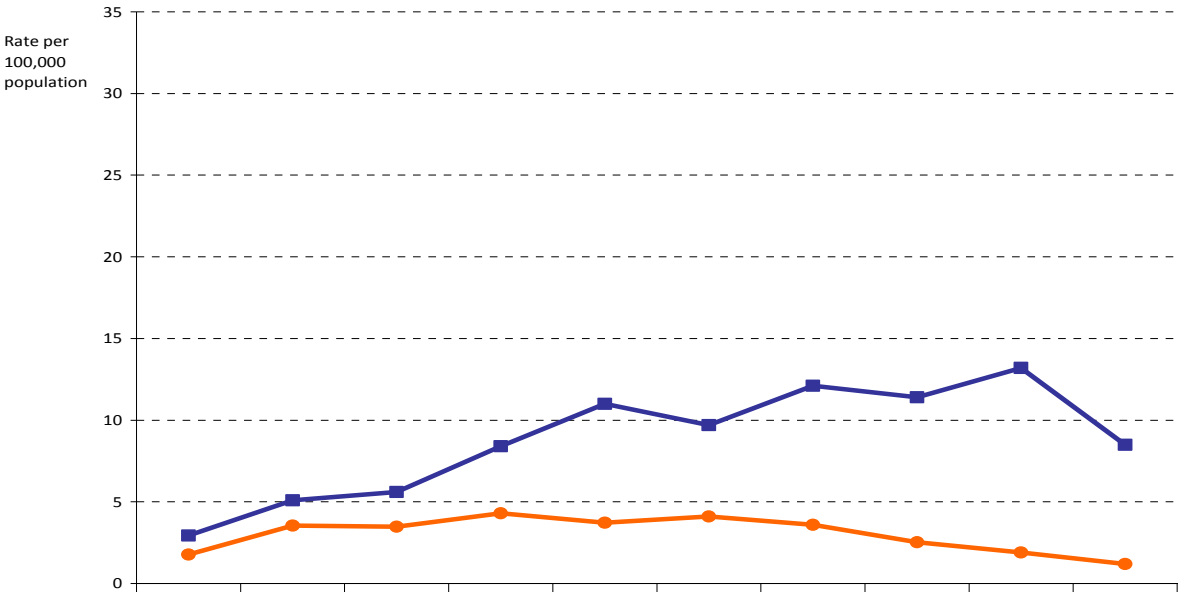
*2009 Canadian rate is projected and is subject to change (Public Health Agency of Canada, 2010).

6.3 Infectious syphilis case reports and rates in BC by health service delivery area, 2008 & 2009



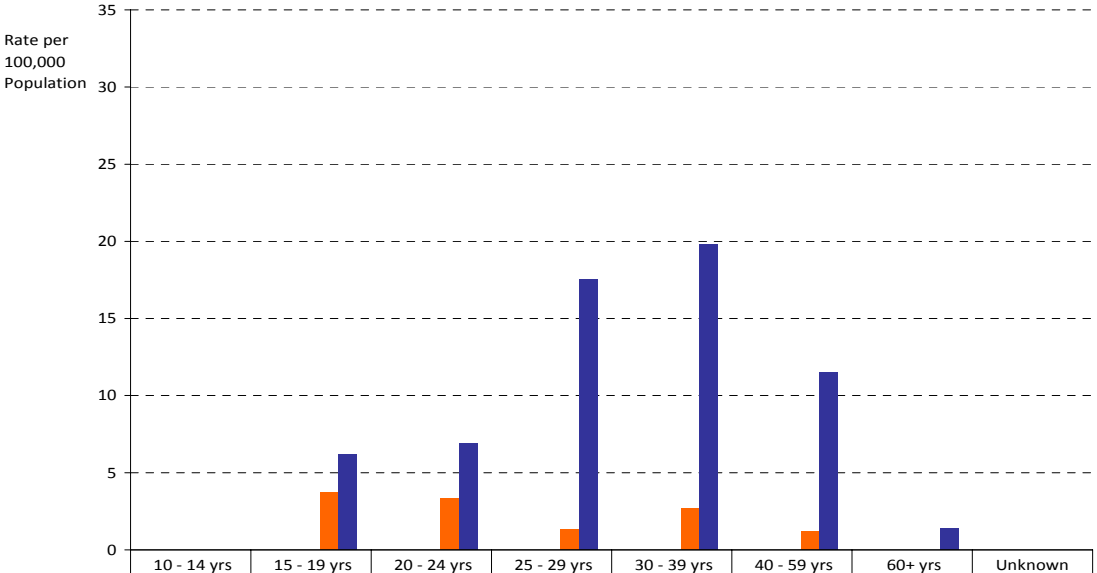
	East Kootenay	Kootenay Boundary	Okanagan	Thompson Cariboo Shuswap	Fraser East	Fraser North	Fraser South	Richmond	Vancouver	N. Shore/ Coast Garibaldi	South Vancouver Island	Central Vancouver Island	North Vancouver Island	Northwest	Northern Interior	Northeast
Reports 2009	4	2	7	0	5	21	17	3	121	12	11	9	0	1	1	0
Rate 2008	0.0	0.0	2.0	0.0	2.9	8.7	3.4	3.7	32.7	1.8	1.9	1.2	1.7	5.3	1.4	4.5
Rate 2009	5.0	2.5	2.0	0.0	1.8	3.5	2.4	1.6	18.9	4.3	3.0	3.4	0.0	1.3	0.7	0.0

6.4 Infectious syphilis case reports and rates in BC by sex, 2000 to 2009



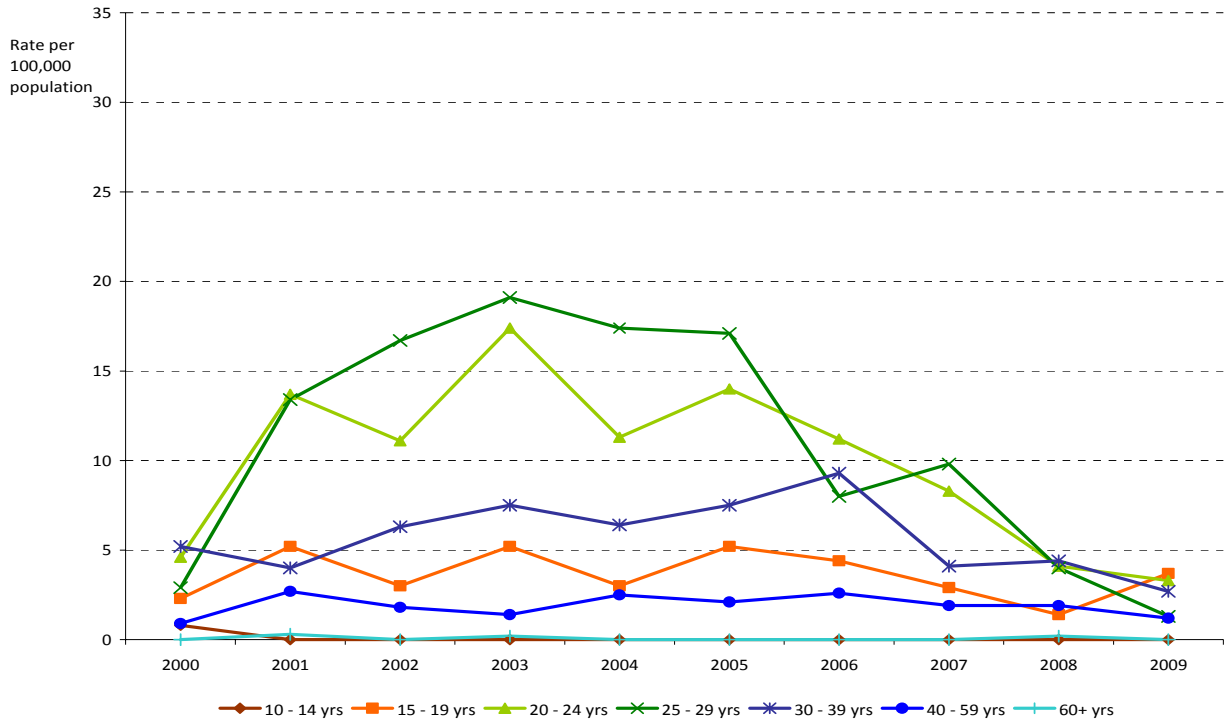
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Reports - Female	36	73	72	89	78	86	77	55	41	28
Reports - Male	59	103	113	171	226	202	254	244	286	188
Rate - Female	1.8	3.6	3.5	4.3	3.7	4.1	3.6	2.5	1.9	1.2
Rate - Male	2.9	5.1	5.6	8.4	11.0	9.7	12.1	11.4	13.2	8.5

6.5 Infectious syphilis case reports and rates in BC by age group and sex, 2009



	10 - 14 yrs	15 - 19 yrs	20 - 24 yrs	25 - 29 yrs	30 - 39 yrs	40 - 59 yrs	60+ yrs	Unknown
Reports - Female	0	5	5	2	8	8	0	0
Reports - Male	0	9	11	27	58	77	6	0
Reports - Transgender/Unknown	0	0	0	0	0	0	0	0
Rate - Female	-	3.7	3.3	1.3	2.7	1.2	-	
Rate - Male	-	6.2	6.9	17.5	19.8	11.5	1.4	

6.6 Female infectious syphilis rates in BC by age group, 2000 to 2009

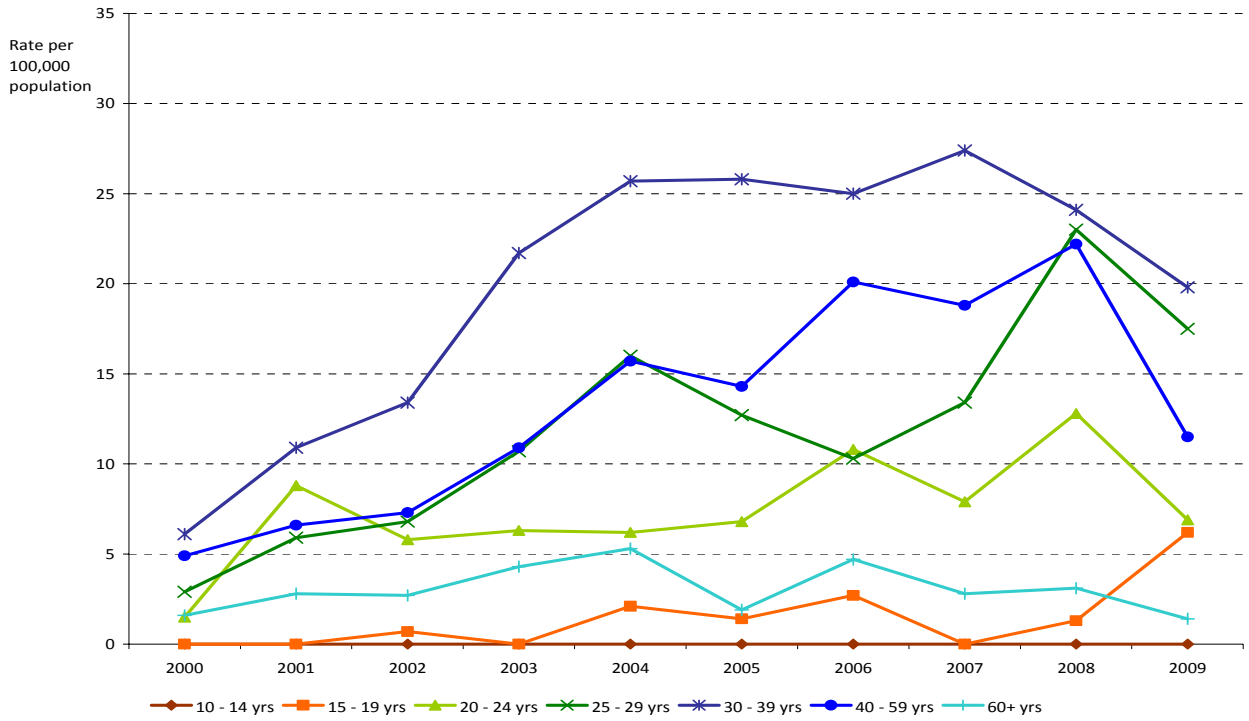


6.A Female infectious syphilis case reports and rates in BC by age group, 2000 to 2009

		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
10 - 14 yrs	Cases	1	0	0	0	0	0	0	0	0	0
	Rate	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15 - 19 yrs	Cases	3	7	4	7	4	7	6	4	2	5
	Rate	2.3	5.2	3.0	5.2	3.0	5.2	4.4	2.9	1.4	3.7
20 - 24 yrs	Cases	6	18	15	24	16	20	16	12	6	5
	Rate	4.6	13.7	11.1	17.4	11.3	14.0	11.2	8.3	4.1	3.3
25 - 29 yrs	Cases	4	18	22	25	23	23	11	14	6	2
	Rate	2.9	13.4	16.7	19.1	17.4	17.1	8.0	9.8	4.0	1.3
30 - 39 yrs	Cases	17	13	20	23	19	22	27	12	13	8
	Rate	5.2	4.0	6.3	7.5	6.4	7.5	9.3	4.1	4.4	2.7
40 - 59 yrs	Cases	5	16	11	9	16	14	17	13	13	8
	Rate	0.9	2.7	1.8	1.4	2.5	2.1	2.6	1.9	1.9	1.2
60+ yrs	Cases	0	1	0	1	0	0	0	0	1	0
	Rate	0.0	0.3	0.0	0.2	0.0	0.0	0.0	0.0	0.2	0.0
Total*	Cases	36	73	72	89	78	86	77	55	41	28
	Rate	1.8	3.6	3.5	4.3	3.7	4.1	3.6	2.5	1.9	1.2

Rate per 100,000 population
*Includes cases under age 10 yrs and unknown/missing age

6.7 Male infectious syphilis rates in BC by age group, 2000 to 2009

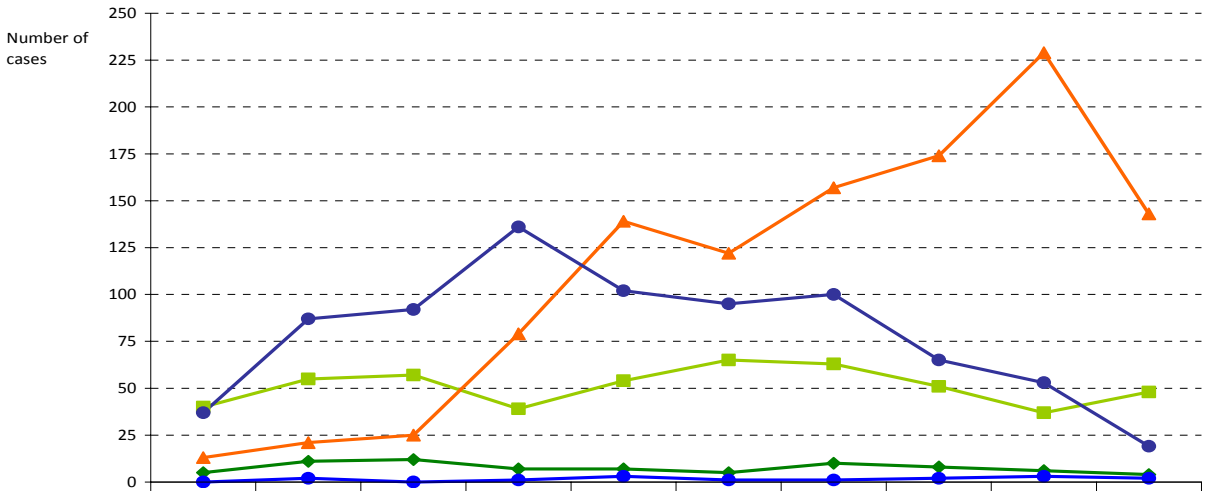


6.B Male infectious syphilis case reports and rates in BC by age group, 2000 to 2009

		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
10 - 14 yrs	Cases	0	0	0	0	0	0	0	0	0	0
	Rate	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15 - 19 yrs	Cases	0	0	1	0	3	2	4	0	2	9
	Rate	0.0	0.0	0.7	0.0	2.1	1.4	2.7	0.0	1.3	6.2
20 - 24 yrs	Cases	2	12	8	9	9	10	16	12	20	11
	Rate	1.5	8.8	5.8	6.3	6.2	6.8	10.8	7.9	12.8	6.9
25 - 29 yrs	Cases	4	8	9	14	21	17	14	19	34	27
	Rate	2.9	5.9	6.8	10.7	16.0	12.7	10.3	13.4	23.0	17.5
30 - 39 yrs	Cases	20	35	42	66	76	75	72	79	70	58
	Rate	6.1	10.9	13.4	21.7	25.7	25.8	25.0	27.4	24.1	19.8
40 - 59 yrs	Cases	28	39	44	67	98	91	130	123	147	77
	Rate	4.9	6.6	7.3	10.9	15.7	14.3	20.1	18.8	22.2	11.5
60+ yrs	Cases	5	9	9	15	19	7	18	11	13	6
	Rate	1.6	2.8	2.7	4.3	5.3	1.9	4.7	2.8	3.1	1.4
Total*	Cases	59	103	113	171	226	202	254	244	286	188
	Rate	2.9	5.1	5.6	8.4	11.0	9.7	12.1	11.4	13.2	8.5

Rate per 100,000 population
*Includes cases under age 10 yrs and unknown/missing age

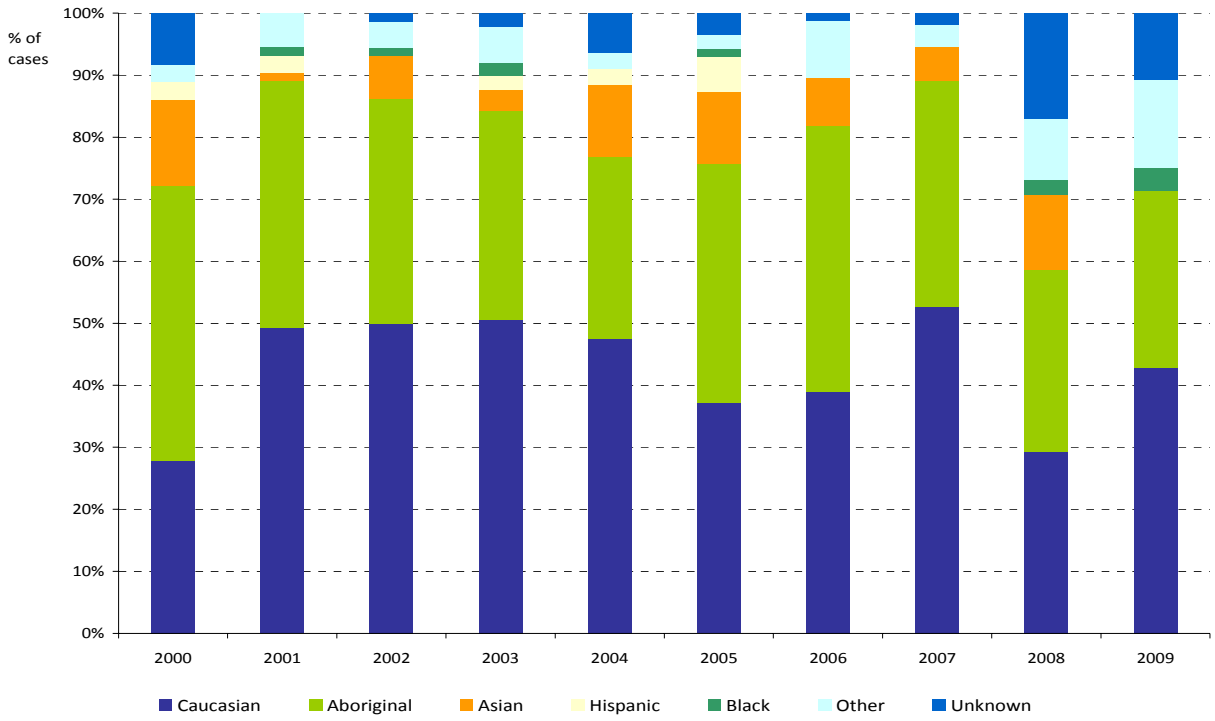
6.8 Infectious syphilis case reports in BC by exposure category, 2000 to 2009



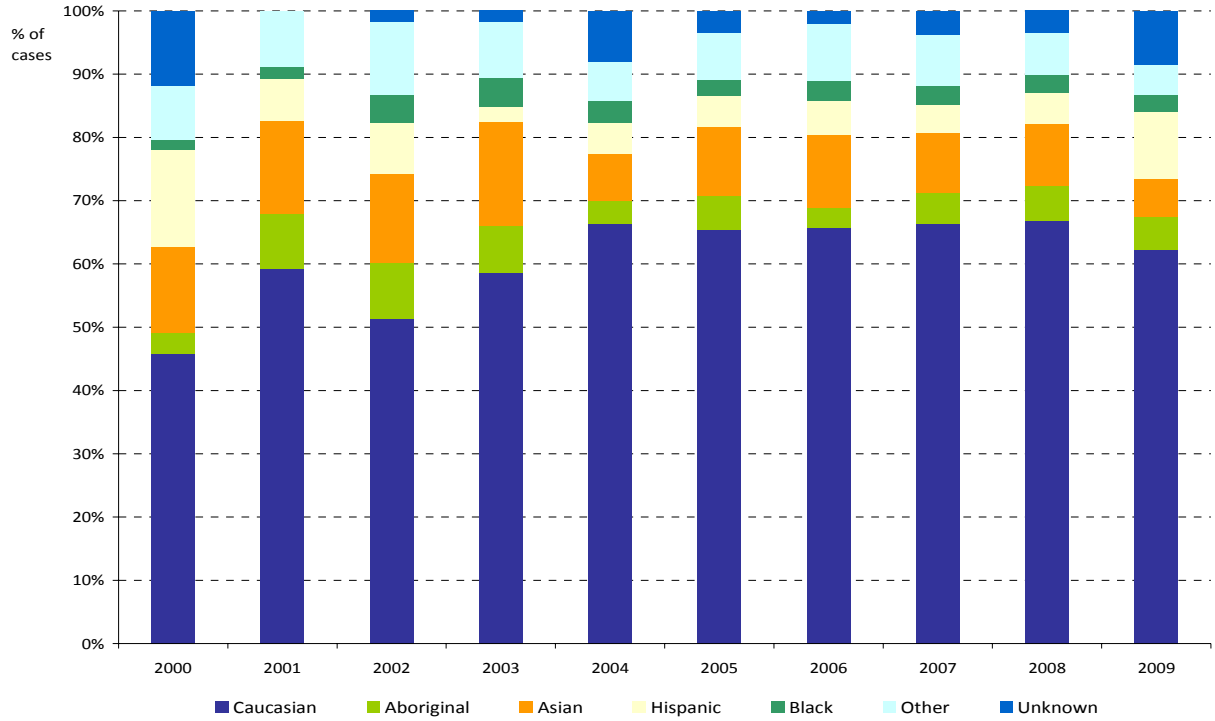
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
HET	40	55	57	39	54	65	63	51	37	48
MSM	13	21	25	79	139	122	157	174	229	143
Outside	5	11	12	7	7	5	10	8	6	4
Street/STW	37	87	92	136	102	95	100	65	53	19
Other/UNK	0	2	0	1	3	1	1	2	3	2

HET = Heterosexual Contact
MSM = Men having Sex with Men
Outside = Acquired Outside of Canada
Street/STW = Street Involved / Sex Trade Worker or Patron
Other/UNK = Other / Unknown Risk

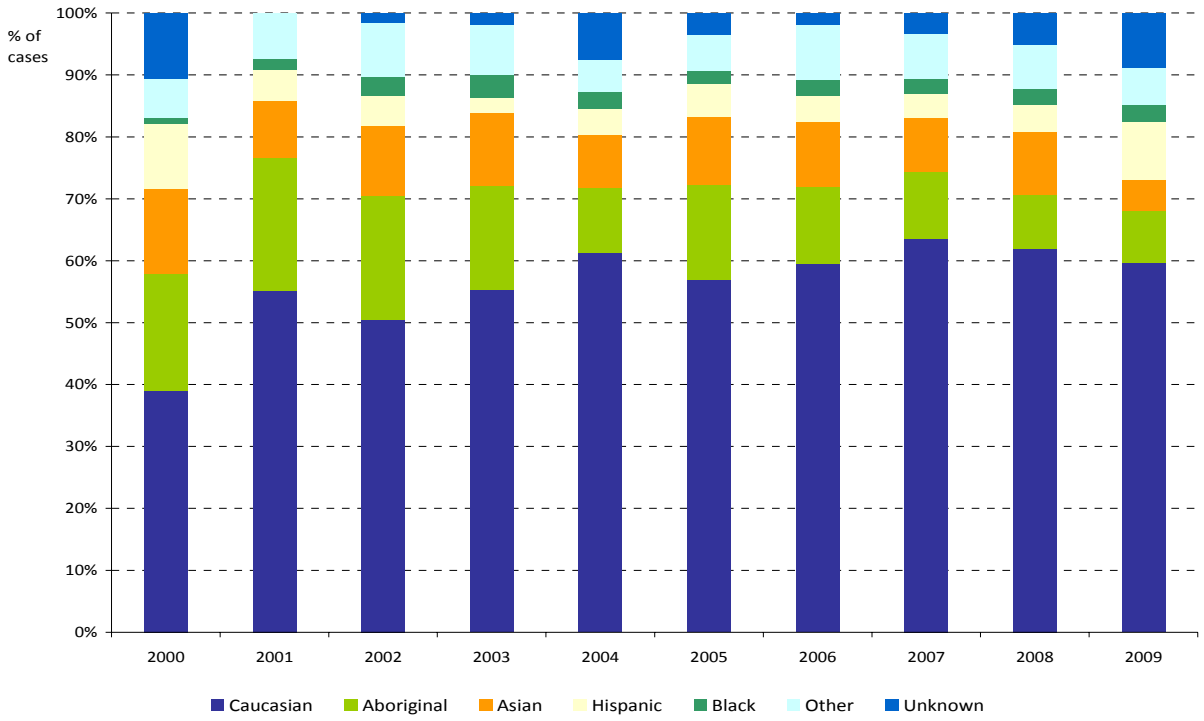
6.9 Female infectious syphilis case reports in BC by ethnicity, 2000 to 2009



6.10 Male infectious syphilis case reports in BC by ethnicity, 2000 to 2009



6.11 Total infectious syphilis case reports in BC by ethnicity, 2000 to 2009



6.C Infectious syphilis case reports in BC by ethnicity and sex, 2009

		Caucasian	Aboriginal	Asian	Hispanic	Black	Other*	Unknown
Cases	Female	12	8	0	0	1	4	3
	Male	117	10	11	20	5	9	16
	Transgender/Unknown	0	0	0	0	0	0	0
	Total	129	18	11	20	6	13	19
%	Female	42.9	28.6	0.0	0.0	3.6	14.3	10.7
	Male	62.2	5.3	5.9	10.6	2.7	4.8	8.5
	Total	59.7	8.3	5.1	9.3	2.8	6.0	8.8

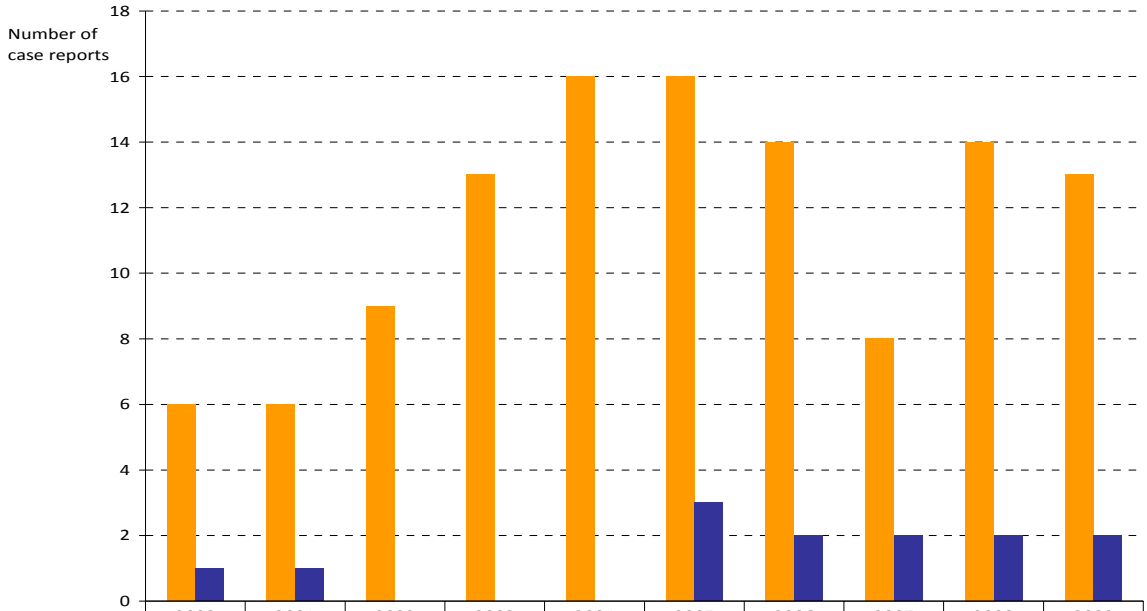
*Other includes Arab/West Asian, South Asian and Other

Congenital Syphilis

Two cases of early congenital syphilis were identified in 2009, for a rate of 4.5 per 100,000 live births. Since 2005, the number of early congenital syphilis cases per year ranged from 2 to 3 cases, compared to 0 to 1 cases per year between 2000 and 2004.

In 2009, thirteen cases of maternal syphilis were identified among pregnant women. The number of maternal syphilis cases has increased provincially since 2001, ranging from 8 to 16 cases per year. Please note that the annual number of maternal syphilis cases has increased slightly from the annual numbers in previous reports due to improvements in our ability to identify syphilis reports in pregnant women in surveillance data; however, the trend over time is similar to previous reports.

6.12 Maternal and early congenital infectious syphilis case reports in BC, 2000 to 2009



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Reports - Maternal	6	6	9	13	16	16	14	8	14	13
Reports - Early Congenital	1	1	0	0	0	3	2	2	2	2
Rate* - Early Congenital	2.5	2.5	0.0	0.0	0.0	7.4	4.8	4.6	4.5	4.5

* Rate per 100,000 live births

Prenatal Syphilis Testing

We are currently revising our algorithm to identify prenatal syphilis tests conducted at the Provincial Public Health Microbiology and Reference Laboratory, based on an evaluation of prenatal testing data for HIV and syphilis conducted in 2010. This data will be presented in the 2010 Annual Surveillance Report.

7. HIV

Notes Regarding the Interpretation of HIV Data

The number of new positive HIV tests is not a true reflection of the number of new HIV infections per year (i.e., HIV incidence), as an individual may have a new positive HIV test one or more years after they became infected with HIV.

HIV became a reportable disease in BC in 2003, which was accompanied by enhanced follow-up of new positive HIV tests by HIV designated nurses. This change has led to more complete follow-up of individuals having new positive HIV tests, and has had a demonstrable impact on the quality of HIV surveillance data through:

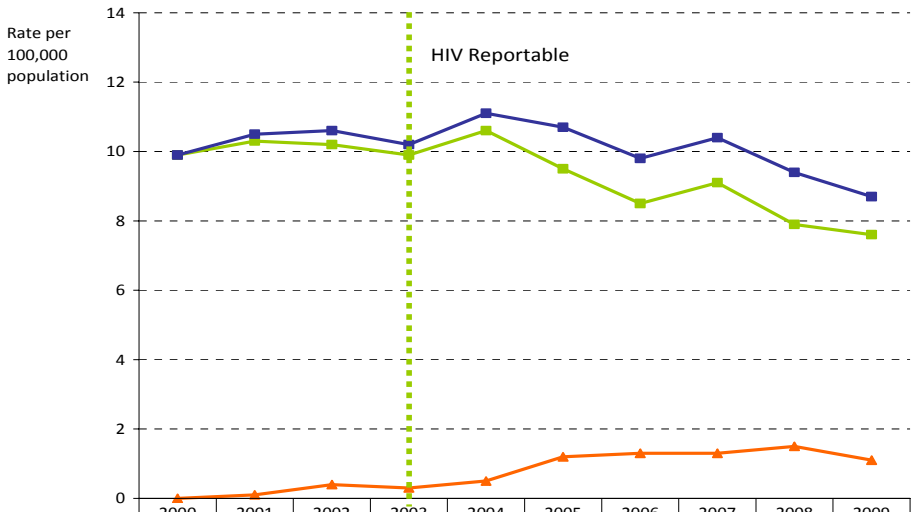
- The improved identification of individuals having a first positive HIV test in BC who have a previous positive HIV test outside of BC. These previously positive individuals are excluded from surveillance reporting. As shown in Figure 7.1 , the increased exclusion of individuals with a previous positive HIV test has contributed to the observed decline in new positive HIV tests observed in BC since 2004.

- The improved identification of exposure category and ethnicity, resulting in a decrease in the proportion of new positive HIV tests each year where exposure or ethnicity is unknown.

These data quality issues need to be considered when comparing trends before and after 2003. In this report, we have added a line indicating when HIV became reportable to each figure to serve as a visual reminder of this major influence on observed trends.

For interpretation of ethnicity and exposure category data, the data presented in this report for 2009 is not final. There is an expected delay in collection of this information for individuals having a new positive HIV test, resulting in a proportion of individuals having unknown ethnicity or exposure category. This proportion will have decreased by the time of next year's report.

7.1 Reported positive HIV test rates* in BC, 2000 to 2009



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Reports - New (+) in BC	400	420	418	408	441	400	361	391	346	338
Reports - 1st (+) in BC, Prev (+) outside BC	1	6	17	13	20	50	55	58	64	48
Reports - Total (+) in BC	401	426	435	421	461	450	416	449	410	386
Rate - New (+) in BC	9.9	10.3	10.2	9.9	10.6	9.5	8.5	9.1	7.9	7.6
Rate - 1st (+) in BC, Prev (+) outside BC	0.0	0.1	0.4	0.3	0.5	1.2	1.3	1.3	1.5	1.1
Rate - Total (+) in BC	9.9	10.5	10.6	10.2	11.1	10.7	9.8	10.4	9.4	8.7

*Caution is advised in interpreting historic trends of New Positive Rates of HIV.

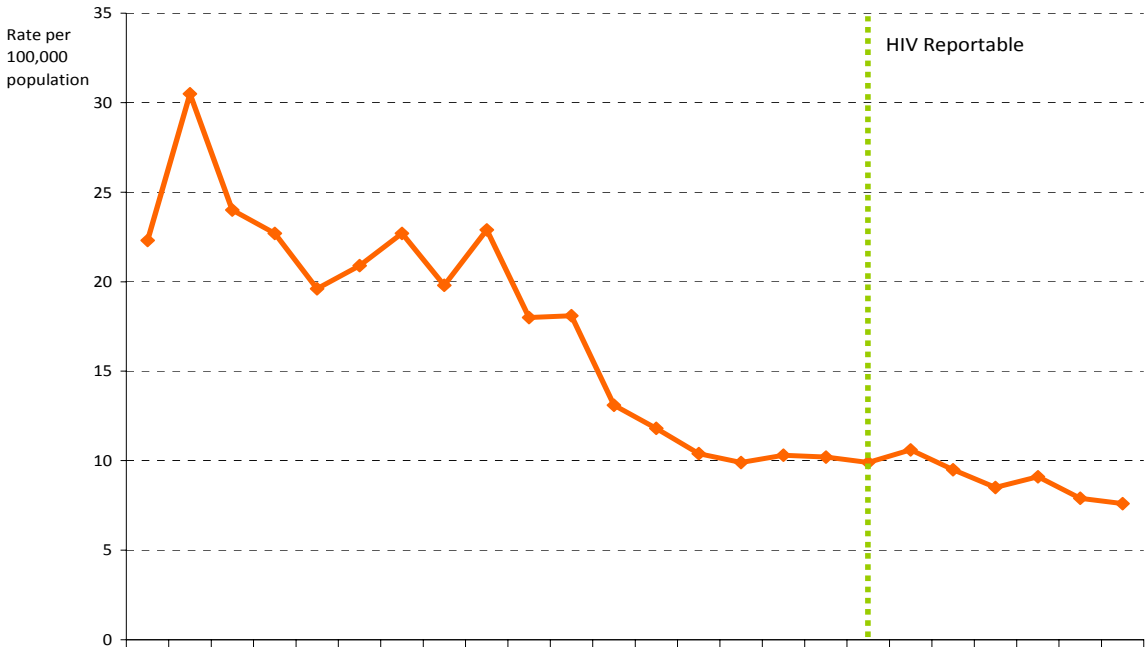
New Positive HIV Tests

The rate of new positive HIV tests in BC decreased slightly in 2009 to 7.6 (338 cases) from 7.9 per 100,000 population (346 cases) in 2008, and is currently similar to the Canadian rate. The highest rates of new positive HIV tests were in Vancouver HSDA, Northwest HSDA, and Northern Interior HSDA.

The rate of new positive HIV tests continues to be higher among males than females, with the highest rates among males between the ages of 25-29 years and 30-39 years, and females aged 30-39 years.

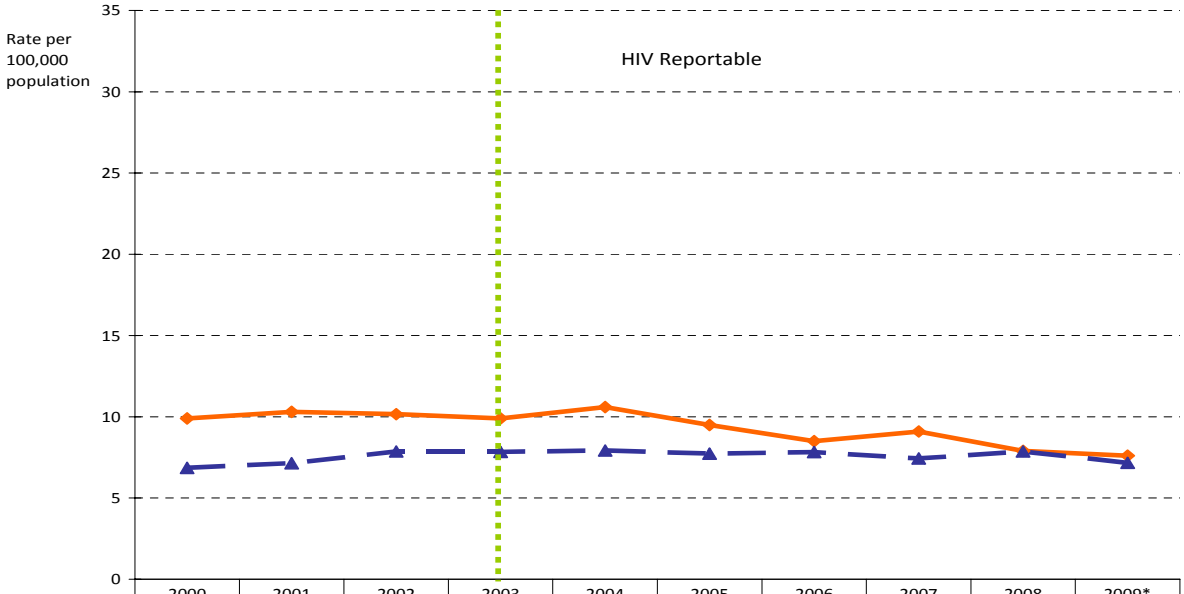
At the time of this report, the ethnicity of 16 individuals having a new positive HIV test (4.7%) in 2009 is unknown. Similar to previous years, in 2009, most of the new positive HIV cases continue to be among persons of Caucasian ethnicity (181 cases; 53.6%) followed by cases of Aboriginal (56 cases; 16.6%) and Asian (26 cases; 7.7%) ethnicity. Aboriginal persons, who make up approximately 5% of the population in BC, are disproportionately represented in BC's HIV epidemic, particularly Aboriginal females who comprised 23.9% (17 cases) of all new positive HIV cases among females in 2009. Aboriginal males comprised 14.6% (39 cases) of all new positive HIV cases among males.

7.2 Persons testing newly positive for HIV in BC by historical trend, 1986 to 2009



	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
BC Reports	670	929	746	726	645	704	788	706	840	681	702	519	471	416	400	420	418	408	441	400	361	391	346	338
BC Rate	22.3	30.5	24.0	22.7	19.6	20.9	22.7	19.8	22.9	18.0	18.1	13.1	11.8	10.4	9.9	10.3	10.2	9.9	10.6	9.5	8.5	9.1	7.9	7.6

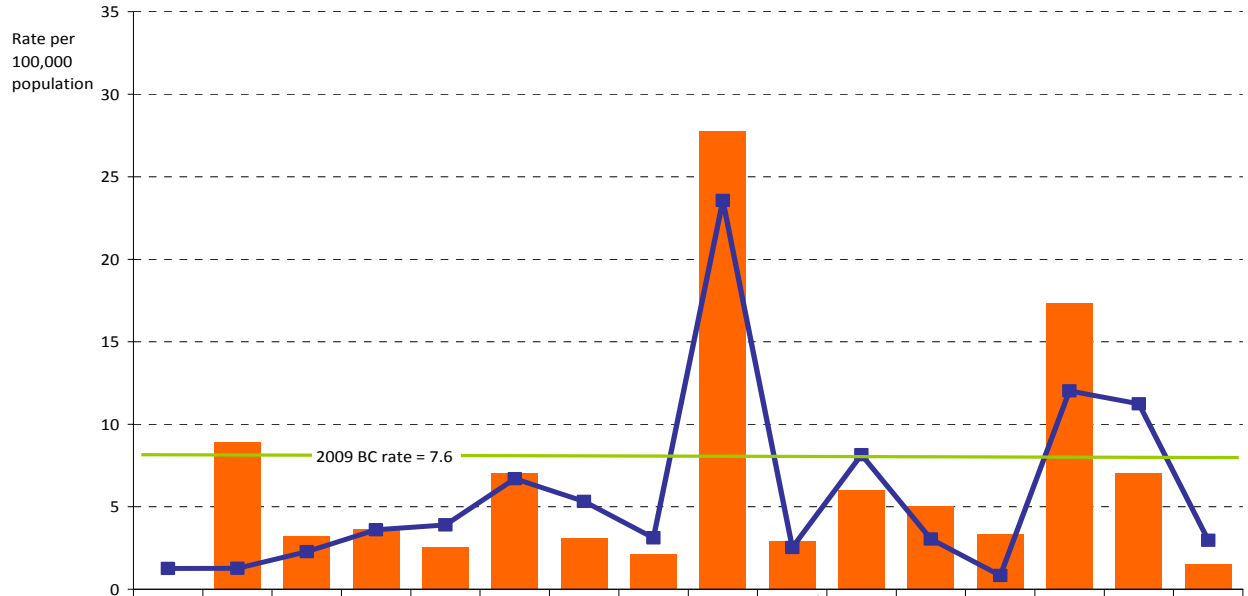
7.3 Persons testing newly positive for HIV in BC, 2000 to 2009



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009*
BC Reports	400	420	418	408	441	400	361	391	346	338
BC Rate	9.9	10.3	10.2	9.9	10.6	9.5	8.5	9.1	7.9	7.6
Canadian Rate	6.9	7.1	7.9	7.8	7.9	7.7	7.8	7.4	7.9	7.2

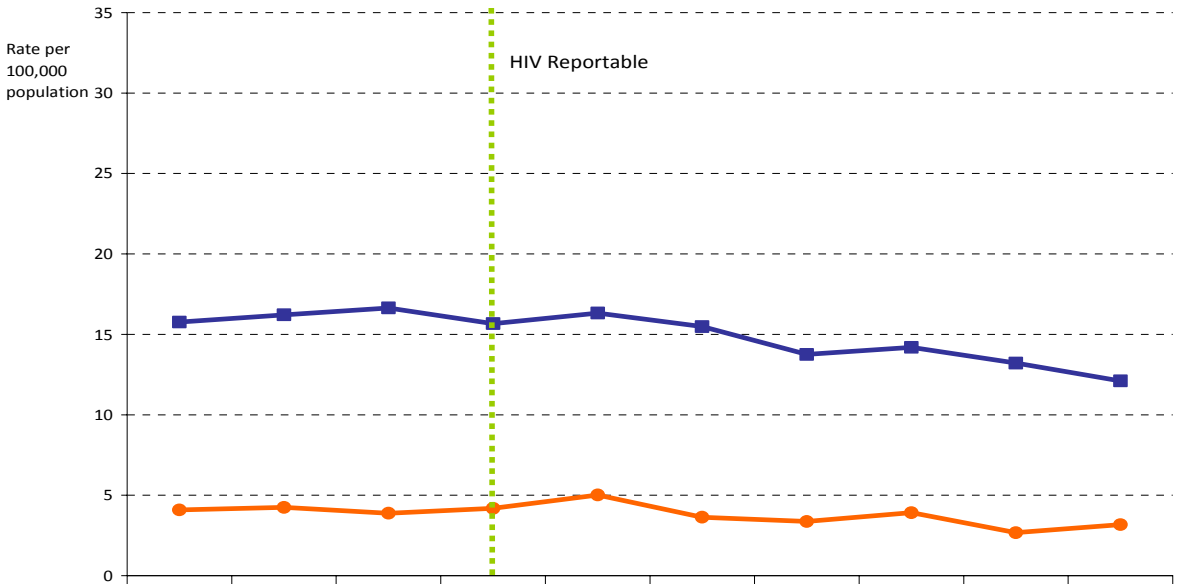
*2009 Canadian rate is preliminary and is subject to change (Public Health Agency of Canada, 2010).

7.4 Persons testing newly positive for HIV in BC by health service delivery area, 2008 & 2009



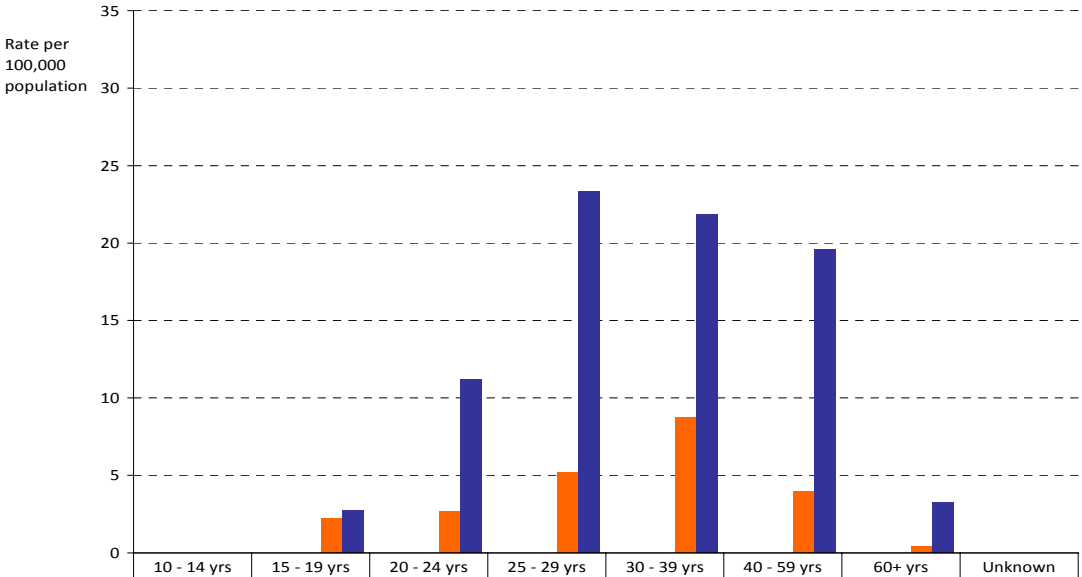
	East Kootenay	Kootenay Boundary	Okanagan	Thompson Cariboo Shuswap	Fraser East	Fraser North	Fraser South	Richmond	Vancouver	N. Shore/ Coast Garibaldi	South Vancouver Island	Central Vancouver Island	North Vancouver Island	Northwest	Northern Interior	Northeast
Reports 2009	1	1	8	8	11	40	37	6	151	7	30	8	1	9	16	2
Rate 2008	0.0	8.9	3.2	3.6	2.5	7.0	3.1	2.1	27.8	2.9	6.0	5.0	3.4	17.4	7.0	1.5
Rate 2009	1.3	1.3	2.3	3.6	3.9	6.7	5.3	3.1	23.6	2.5	8.2	3.0	0.8	12.0	11.2	3.0

7.5 Persons testing newly positive for HIV in BC by sex, 2000 to 2009



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Reports - Female	83	87	80	87	105	77	72	85	59	71
Reports - Male	316	328	338	320	336	322	289	303	287	267
Rate - Female	4.1	4.2	3.9	4.2	5.0	3.6	3.4	3.9	2.7	3.2
Rate - Male	15.8	16.2	16.6	15.7	16.3	15.5	13.7	14.2	13.2	12.1

7.6 Persons testing newly positive for HIV in BC by age group and sex, 2009



	10 - 14 yrs	15 - 19 yrs	20 - 24 yrs	25 - 29 yrs	30 - 39 yrs	40 - 59 yrs	60+ yrs	Unknown
Reports - Female	0	3	4	8	26	27	2	0
Reports - Male	0	4	18	36	64	131	14	0
Reports - Transgender/Unknown	0	0	0	0	0	0	0	0
Rate - Female	-	2.2	2.7	5.2	8.7	4.0	0.4	
Rate - Male	-	2.7	11.2	23.3	21.9	19.6	3.3	

7.A Females testing newly positive for HIV in BC by age group, 2000 to 2009

		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
10 - 14 yrs	Cases	0	0	0	0	2	0	0	0	2	0
	Rate	0.0	0.0	0.0	0.0	1.6	0.0	0.0	0.0	1.6	0.0
15—19 yrs	Cases	4	8	4	2	3	3	2	1	0	3
	Rate	3.0	5.9	3.0	1.5	2.3	2.2	1.5	0.7	0	2.2
20 - 24 yrs	Cases	12	18	6	11	12	7	15	15	6	4
	Rate	9.3	13.7	4.5	8.0	8.5	4.9	10.5	10.4	4.1	2.7
25 - 29 yrs	Cases	14	17	16	15	17	11	10	22	8	8
	Rate	10.2	12.7	12.1	11.5	12.9	8.2	7.2	15.4	5.4	5.2
30 - 39 yrs	Cases	24	28	35	33	38	19	23	21	13	26
	Rate	7.4	8.7	11.1	10.8	12.7	6.5	7.9	7.2	4.4	8.7
40 - 59 yrs	Cases	29	15	17	24	28	34	15	25	25	27
	Rate	5.0	2.5	2.8	3.8	4.4	5.2	2.3	3.7	3.7	4.0
60+ yrs	Cases	0	0	1	2	3	2	6	1	4	2
	Rate	0	0	0.3	0.5	0.7	0.5	1.4	0.2	0.8	0.4
Total*	Cases	83	87	80	87	105	77	72	85	59	71
	Rate	4.1	4.2	3.9	4.2	5.0	3.6	3.4	3.9	2.7	3.2

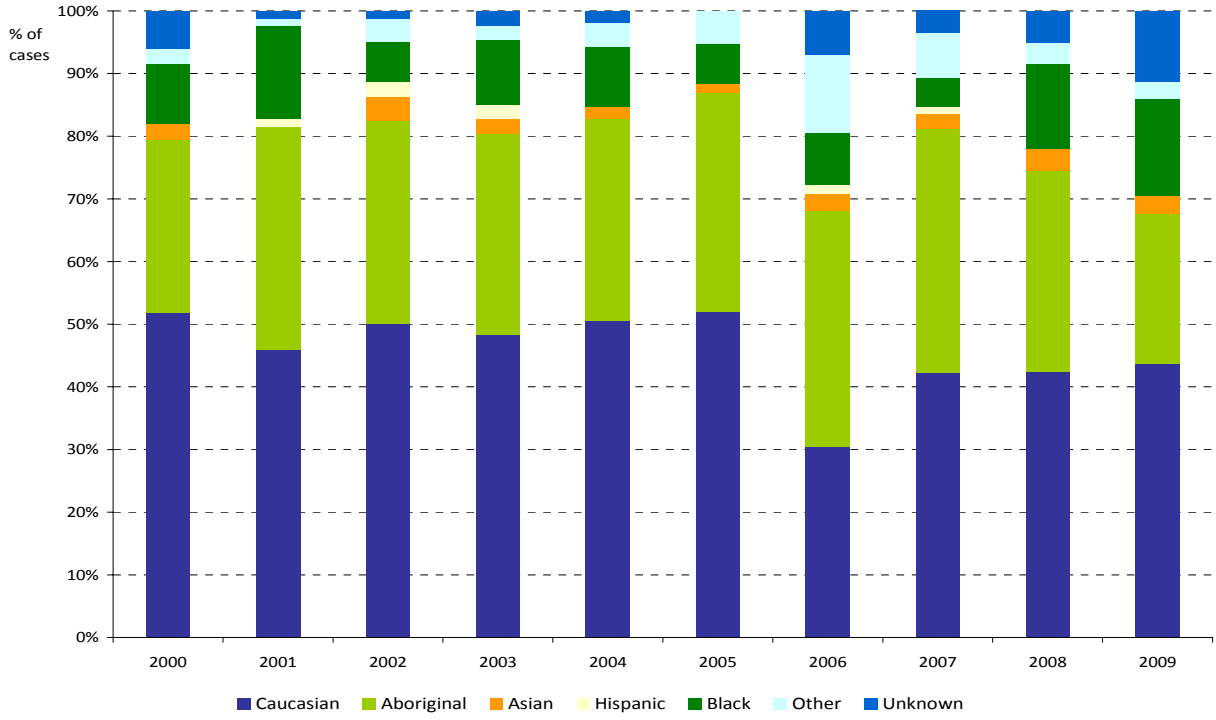
7.B Males testing newly positive for HIV in BC by age group, 2000 to 2009

		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
10 - 14 yrs	Cases	1	1	0	1	0	0	1	0	0	0
	Rate	0.7	0.7	0.0	0.7	0.0	0.0	0.8	0.0	0.0	0.0
15 - 19 yrs	Cases	3	2	1	2	2	2	3	1	1	4
	Rate	2.1	1.4	0.7	1.4	1.4	1.4	2.0	0.7	0.7	2.7
20 - 24 yrs	Cases	19	16	12	12	17	18	18	21	18	18
	Rate	14.2	11.7	8.6	8.4	11.7	12.2	12.1	13.9	11.5	11.2
25 - 29 yrs	Cases	41	45	34	32	32	23	36	34	42	36
	Rate	29.6	33.3	25.6	24.4	24.3	17.2	26.4	24.0	28.4	23.3
30 - 39 yrs	Cases	117	114	124	105	99	110	87	103	83	64
	Rate	35.9	35.5	39.6	34.6	33.5	37.8	30.2	35.7	28.5	21.9
40 - 59 yrs	Cases	122	135	145	153	166	154	122	130	125	131
	Rate	21.4	23.0	24.1	24.9	26.5	24.1	18.8	19.9	18.9	19.6
60+ yrs	Cases	12	12	21	15	20	15	21	14	18	14
	Rate	3.8	3.7	6.3	4.3	5.6	4.1	5.5	3.5	4.3	3.3
Total*	Cases	316	328	338	320	336	322	289	303	287	267
	Rate	15.8	16.2	16.6	15.7	16.3	15.5	13.7	14.2	13.2	12.1

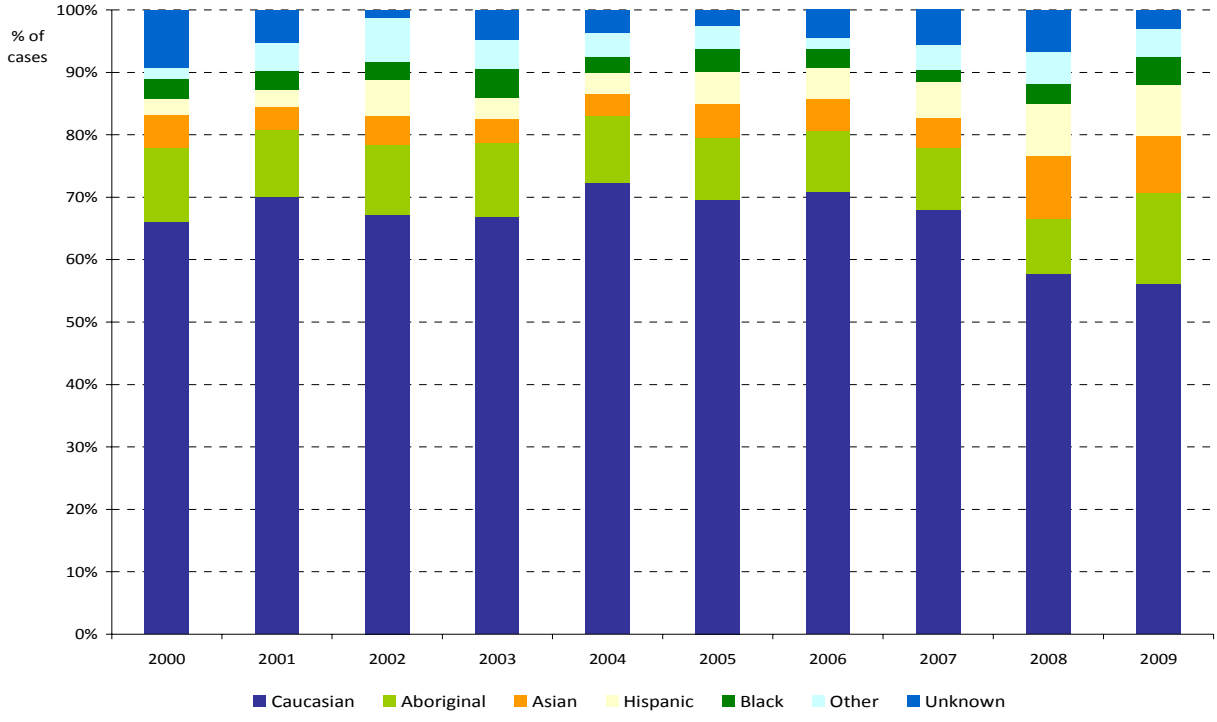
Rate per 100,000 population

*Includes cases under age 10 yrs and unknown/missing age

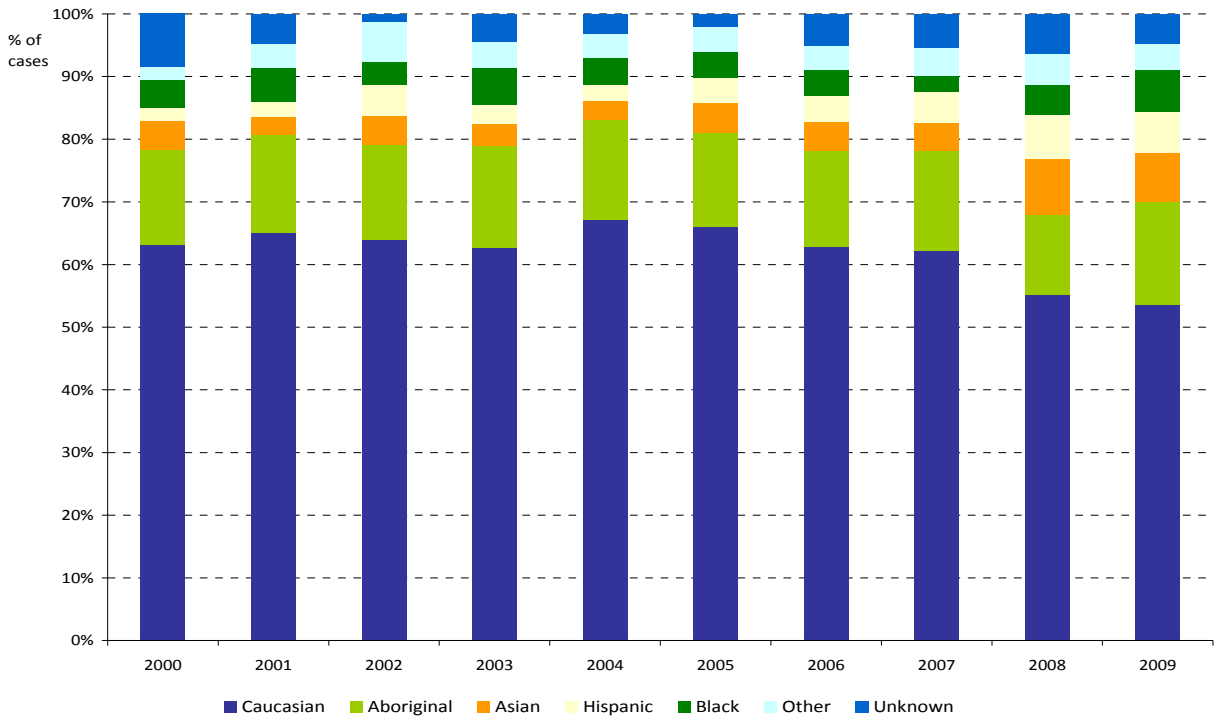
7.7 Females testing newly positive for HIV in BC by ethnicity, 2000 to 2009



7.8 Males testing newly positive for HIV in BC by ethnicity, 2000 to 2009



7.9 Persons testing newly positive for HIV in BC by ethnicity, 2000 to 2009



7.C Persons testing newly positive for HIV in BC by ethnicity and sex, 2009

		Caucasian	Aboriginal	Asian	Hispanic	Black	Other*	Unknown
Cases	Female	31	17	2	0	11	2	8
	Male	150	39	24	22	12	12	8
	Transgender/Unknown	0	0	0	0	0	0	0
	Total	181	56	26	22	23	14	16
%	Female	43.7	23.9	2.8	0.0	15.5	2.8	11.3
	Male	56.2	14.6	9.0	8.2	4.5	4.5	3.0
	Total	53.6	16.6	7.7	6.5	6.8	4.1	4.7

*Other includes Arab/West Asian, South Asian and Other

New Positive HIV Tests by Exposure Category

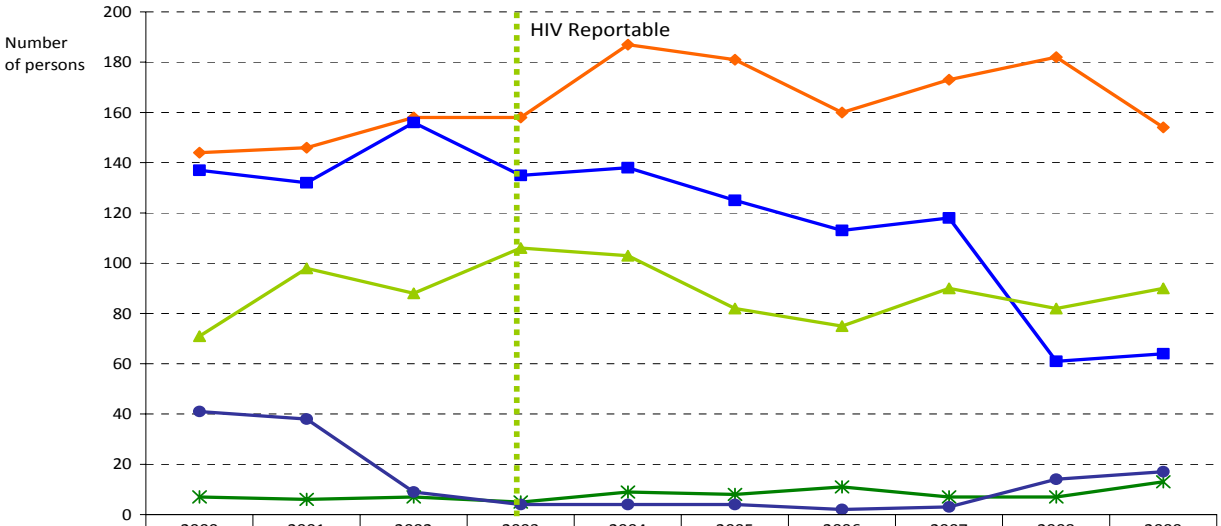
At the time of this report, the exposure category of 17 individuals having a new positive HIV test (5.0%) in 2009 is not identified or is unknown. The final number of individuals in each exposure category for 2009 may change slightly if further information on these 17 individuals is received.

Gay, bisexual and other men who have sex with men (MSM) continue to be the population most affected by HIV in BC. The number of new positive HIV tests among MSM decreased in 2009 to 154 (45.6%) from 182 new positive HIV tests (52.6%) in 2008.

The number of new positive HIV tests among individuals in the heterosexual exposure category has been generally stable in recent years (overall and for both males and females). The number of new positive HIV tests in the heterosexual exposure category increased slightly in 2009 to 90 (26.6%) from 82 new positive HIV tests (23.7%) in 2008.

The number of new positive HIV tests among people who use injection drugs (IDU) increased slightly in 2009 to 64 (18.9%) from 61 new positive HIV tests (17.6%) in 2008. However, the number of new positive HIV tests among IDU in 2009 remains low following a large decrease in new positive HIV tests in 2008, a trend observed for both males and females and in most regional health authorities. This decrease most likely represents a true decrease in HIV incidence among IDU in BC. Possible explanations for the decrease in HIV incidence include the impact of increasing coverage of highly active antiretroviral therapy (HAART) among IDU, changes in injection behaviours (e.g. increased smoking of crack cocaine), and the impact of HIV prevention programs (e.g. harm reduction programs) in this population.

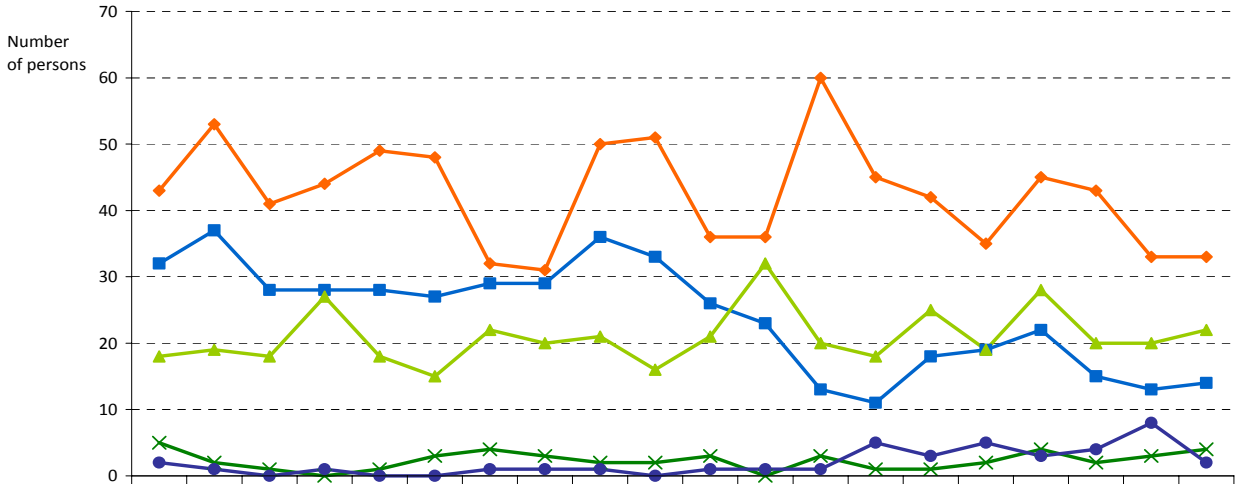
7.10 Persons testing newly positive for HIV in BC by exposure category, 2000 to 2009



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
MSM	144	146	158	158	187	181	160	173	182	154
IDU	137	132	156	135	138	125	113	118	61	64
HET	71	98	88	106	103	82	75	90	82	90
Other	7	6	7	5	9	8	11	7	7	13
NIR/UNK	41	38	9	4	4	4	2	3	14	17

MSM = Men having Sex with Men IDU = Injection Drug Use HET = Heterosexual Contact NIR = No Identified Risk / Unknown Risk

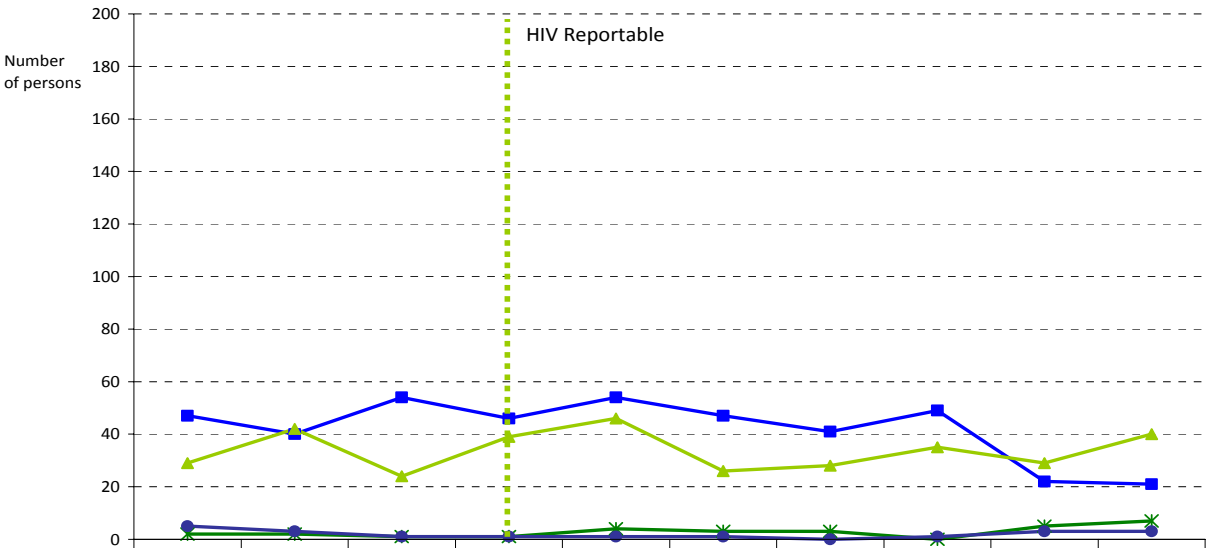
7.11 Persons testing newly positive for HIV in BC by exposure category, 2005 to 2009 (by quarter)



	2005 Q 1	2005 Q 2	2005 Q 3	2005 Q 4	2006 Q 1	2006 Q 2	2006 Q 3	2006 Q 4	2007 Q 1	2007 Q 2	2007 Q 3	2007 Q 4	2008 Q 1	2008 Q 2	2008 Q 3	2008 Q 4	2009 Q 1	2009 Q 2	2009 Q 3	2009 Q 4
MSM	43	53	41	44	49	48	32	31	50	51	36	36	60	45	42	35	45	43	33	33
IDU	32	37	28	28	28	27	29	29	36	33	26	23	13	11	18	19	22	15	13	14
HET	18	19	18	27	18	15	22	20	21	16	21	32	20	18	25	19	28	20	20	22
Other	5	2	1	0	1	3	4	3	2	2	3	0	3	1	1	2	4	2	3	4
NIR/UNK	2	1	0	1	0	0	1	1	1	0	1	1	1	5	3	5	3	4	8	2

MSM = Men having Sex with Men IDU = Injection Drug Use HET = Heterosexual Contact NIR/UNK = No Identified Risk / Unknown Risk

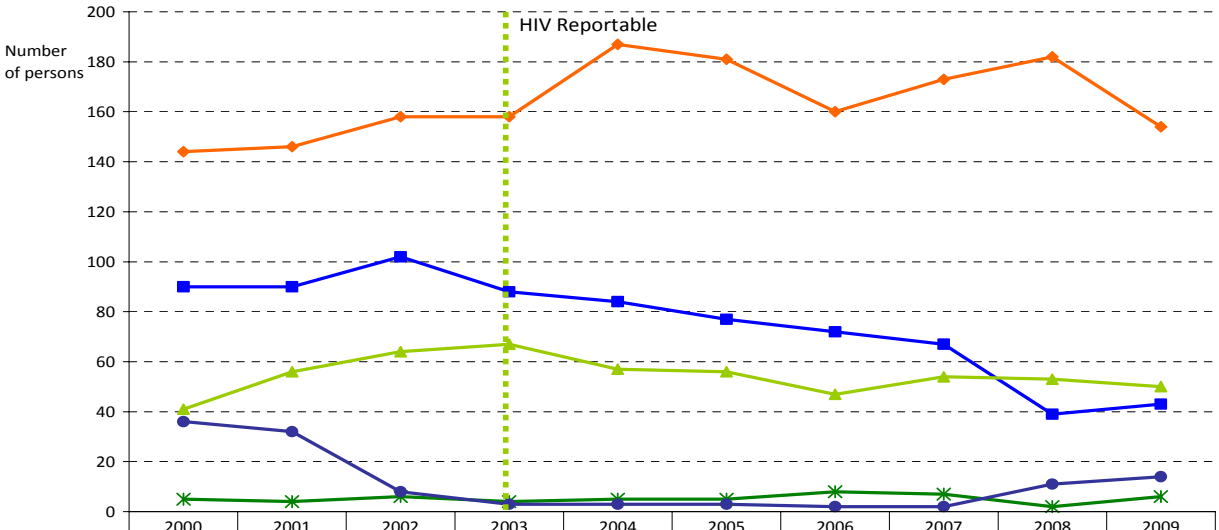
7.12 Females testing newly positive for HIV in BC by exposure category, 2000 to 2009



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
IDU	47	40	54	46	54	47	41	49	22	21
HET	29	42	24	39	46	26	28	35	29	40
Other	2	2	1	1	4	3	3	0	5	7
NIR/UNK	5	3	1	1	1	1	0	1	3	3

IDU = Injection Drug Use HET = Heterosexual Contact NIR = No Identified Risk / Unknown Risk

7.13 Males testing newly positive for HIV in BC by exposure category, 2000 to 2009



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
MSM	144	146	158	158	187	181	160	173	182	154
IDU	90	90	102	88	84	77	72	67	39	43
HET	41	56	64	67	57	56	47	54	53	50
Other	5	4	6	4	5	5	8	7	2	6
NIR/UNK	36	32	8	3	3	3	2	2	11	14

MSM = Men having Sex with Men IDU = Injection Drug Use HET = Heterosexual Contact NIR = No Identified Risk / Unknown Risk

7.D Persons testing newly positive for HIV in BC by exposure category and health authority, 2000 to 2009

		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
IHA	MSM	5	5	6	12	5	7	8	4	10	4
	IDU	13	13	5	8	8	5	7	9	6	1
	HET	6	8	2	7	5	8	1	4	9	11
	Other	1	0	0	0	1	0	1	0	1	2
	NIR/UNK	2	4	0	1	0	0	0	0	0	0
FHA	MSM	22	16	20	27	42	26	26	30	30	28
	IDU	37	29	42	25	33	34	20	16	8	18
	HET	19	28	33	40	32	23	24	33	26	34
	Other	2	1	4	1	1	4	2	1	3	5
	NIR/UNK	14	13	2	2	1	1	1	1	2	3
VCHA	MSM	110	118	122	110	119	135	114	128	122	104
	IDU	67	60	71	56	45	47	37	41	24	20
	HET	33	43	40	45	42	27	33	39	31	29
	Other	3	4	3	4	5	3	3	1	2	5
	NIR/UNK	19	19	6	1	1	1	0	0	8	6
VIHA	MSM	7	7	10	7	16	11	8	9	18	16
	IDU	16	25	29	31	35	20	32	30	11	10
	HET	10	14	11	10	20	14	7	10	9	7
	Other	1	1	0	0	0	0	3	4	0	1
	NIR/UNK	6	2	1	0	0	0	1	0	1	5
NHA	MSM	0	0	0	2	4	1	3	0	2	1
	IDU	4	5	9	15	17	19	15	22	11	15
	HET	3	4	2	4	3	7	9	4	7	9
	Other	0	0	0	0	2	0	2	1	1	0
	NIR/UNK	0	0	0	0	0	1	0	1	3	2

IHA = Interior Health Authority
FHA = Fraser Health Authority
VCHA = Vancouver Coastal Health Authority
VIHA = Vancouver Island Health Authority
NHA = Northern Health Authority

MSM = Men having Sex with Men
IDU = Injection Drug Use
HET = Heterosexual Contact
NIR/UNK = No Identified Risk / Unknown Risk

HIV in Pregnancy

In this annual report we present data from two information sources to describe HIV infection among pregnant women in BC: data from prenatal HIV testing, and data from the Oak Tree Clinic. The Oak Tree Clinic provides antenatal care directly or indirectly for pregnant women with HIV infection in BC.

There are important differences between these data sources that need to be understood in order to interpret the data correctly:

- ***Prenatal HIV tests*** are assigned to the year in which the HIV test was performed, and this data includes all pregnant women **(including women who do and do not have a live birth)**. This data comes from laboratory and surveillance data, which have established limitations to data quality (see Technical Appendix for details).

- ***Data provided by the Oak Tree Clinic*** includes pregnant women accessing care **who have a live birth,** and year is assigned based on the year of birth. This data comes from clinical data abstraction for women for whom the Clinic provides direct or indirect antenatal HIV care (estimated at close to complete coverage of all pregnant women with HIV infection in BC).

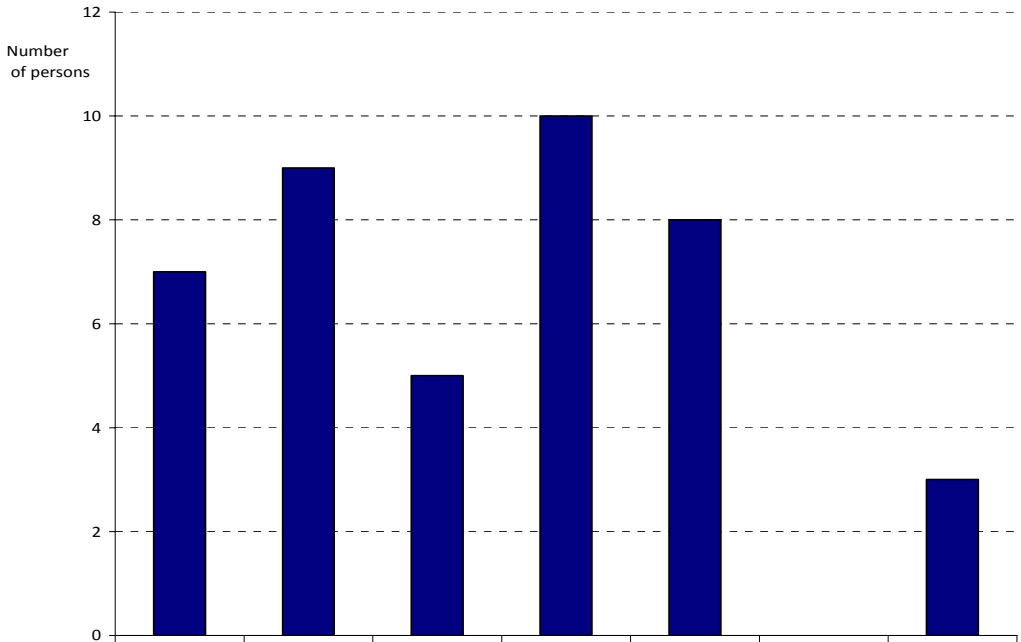
For these reasons, these two data sources are not directly comparable. However, taken together these data provide a more comprehensive overview of HIV in pregnancy in British Columbia.

Prenatal HIV Testing

We are currently revising our algorithm to identify prenatal HIV tests conducted at the Provincial Public Health Microbiology and Reference Laboratory, based on an evaluation of prenatal testing data for HIV and syphilis conducted in 2010. This data will be presented in the 2010 Annual Surveillance Report.

Between 2003 and 2009 in HIV surveillance data, 42 women were newly diagnosed as HIV positive through prenatal screening (i.e., "Prenatal Testing" indicated as the reason for testing during the follow-up of new positive HIV tests). Three women were diagnosed as HIV positive through prenatal screening in 2009.

7.14 Women newly diagnosed HIV positive as part of a prenatal test panel in BC, 2003 to 2009 (based on year of HIV test)



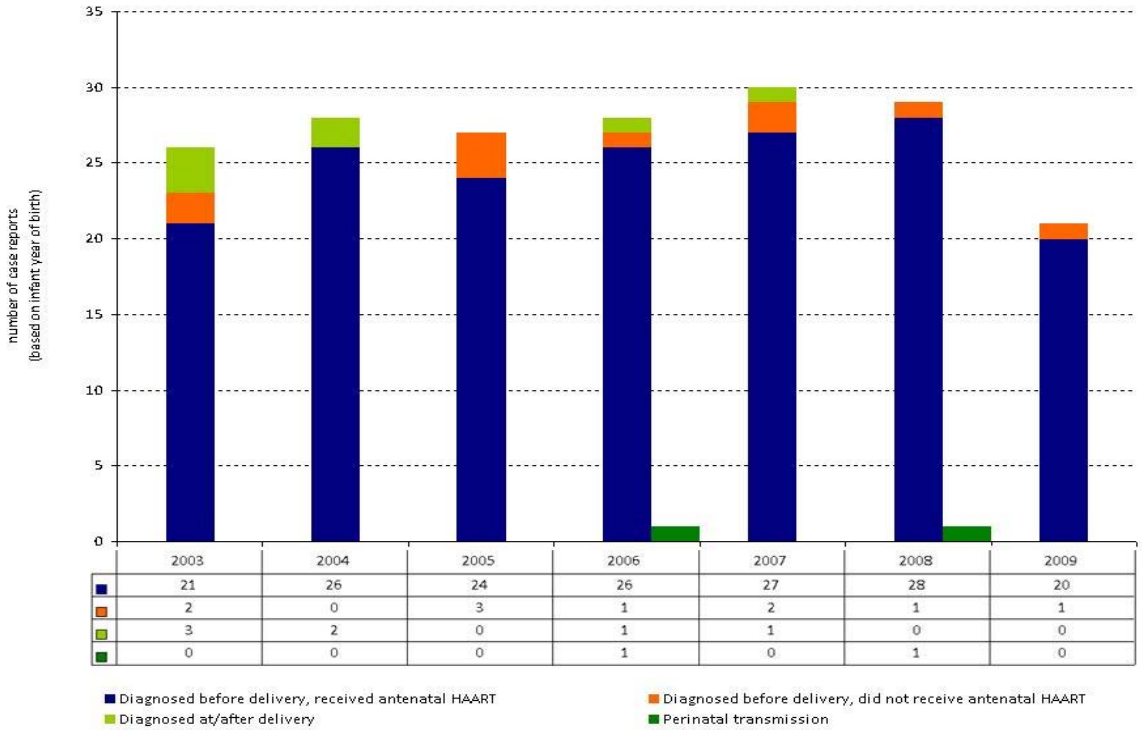
	2003	2004	2005	2006	2007	2008	2009
Newly diagnosed HIV positive women with a prenatal test	7	9	5	10	8	0	3

Data Provided by the Oak Tree Clinic

The Oak Tree Clinic (OTC) at BC Children's & Women's Hospital directly or indirectly provides antenatal care for pregnant women with HIV infection and their children, including antenatal highly active antiretroviral therapy (HAART) for the prevention of mother to child transmission of HIV.

In the absence of antenatal HAART, the transmission rate of HIV to infants born to HIV positive women is estimated at 25%. Between 2003 and 2009, 189 HIV positive pregnant women having live births accessed care at OTC, ranging from 21 to 30 women per year. The majority of women were diagnosed with HIV before conception or delivery (182/189, 96.3%). Of these 182 women, 172 (94.5%) received antenatal HAART prior to delivery and HIV was not diagnosed in any infants born to these women (transmission rate 0% among women accessing antenatal HAART). However, perinatally acquired HIV infection was diagnosed in two infants during this time period born to women who did not receive antenatal HAART prior to delivery.

7.15 HIV positive pregnant women having live births and accessing care at Oak Tree Clinic, 2003 to 2009 (based on infant year of birth)



	2003	2004	2005	2006	2007	2008	2009
Diagnosed before delivery, received antenatal HAART	21	26	24	26	27	28	20
Diagnosed before delivery, did not receive antenatal HAART	2	0	3	1	2	1	1
Diagnosed at/after delivery	3	2	0	1	1	0	0
Perinatal transmission	0	0	0	1	0	1	0

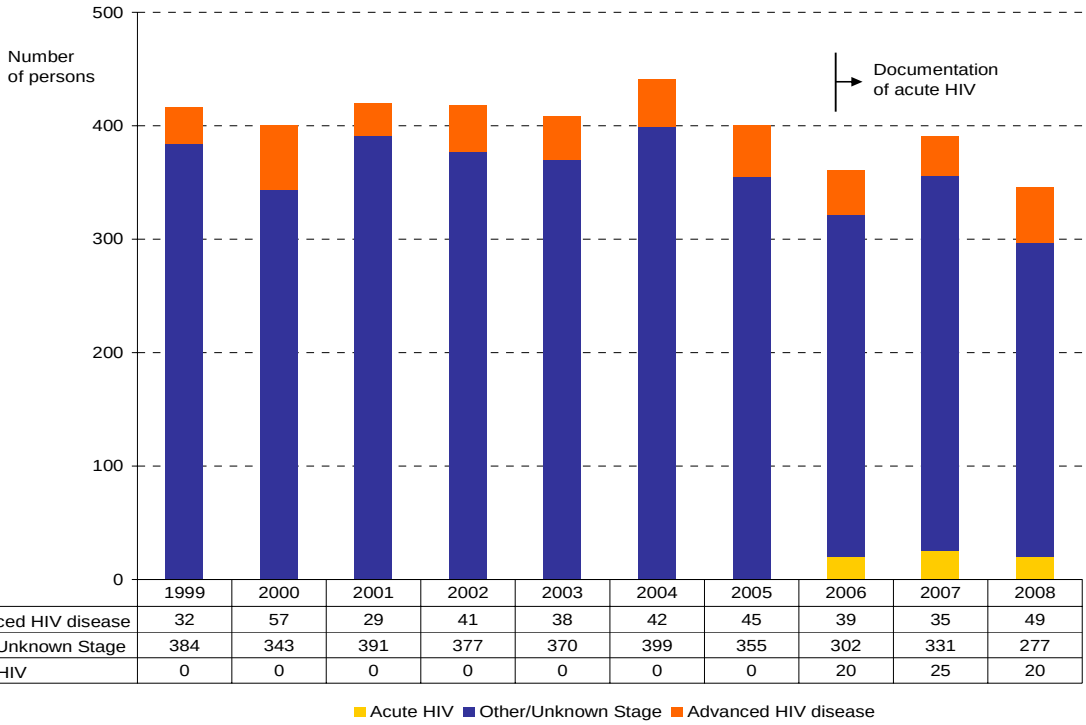
Stage of Infection at HIV Diagnosis

Individuals who test positive for HIV may have tested for HIV at any time from weeks to years after the time that they are infected with HIV. Accordingly, individuals at the time of diagnosis could be at different stages of HIV, and understanding the trends in stage of infection at HIV diagnosis may provide insights into the timeliness of access to HIV testing following infection. To do this, in this section we describe the trends in the number of individuals identified with either acute HIV or advanced HIV disease at the time of HIV diagnosis. Due to expected delays in AIDS case reporting, data is only presented to 2008.

Individuals with acute HIV infection at the time of diagnosis have tested early after infection with HIV. Acute HIV infection refers to the period of the first 6 to 8 weeks after the time of infection with HIV, and is identified through characteristic patterns of laboratory HIV tests in the period prior to an established antibody response. Individuals with acute HIV infection have high blood viral loads and are more likely to transmit HIV compared to individuals at other stages of HIV infection. Data on acute HIV infections is available from 2006 onwards. In 2008, 5.8% (20 cases) of individuals diagnosed with HIV were identified as having acute HIV infection, which is similar to previous years (5.5% in 2006 and 6.4% in 2007).

Individuals with advanced HIV disease at diagnosis have delayed access to HIV testing, and have had undiagnosed infection likely for years prior to diagnosis. Advanced HIV disease at diagnosis is defined as an individual with an AIDS case report within 12 months after testing newly positive for HIV. The percentage of newly diagnosed individuals with advanced HIV disease at diagnosis increased in 2008 to 14.2% (49 cases) from 9.0% (35 cases) in 2007, which is within the historic range (from 6.9% to 14.3% between 1999 and 2008). This percentage may be an underestimate due to under-reporting of AIDS cases.

7.16 Stage of infection at time of HIV diagnosis, 1999 to 2008



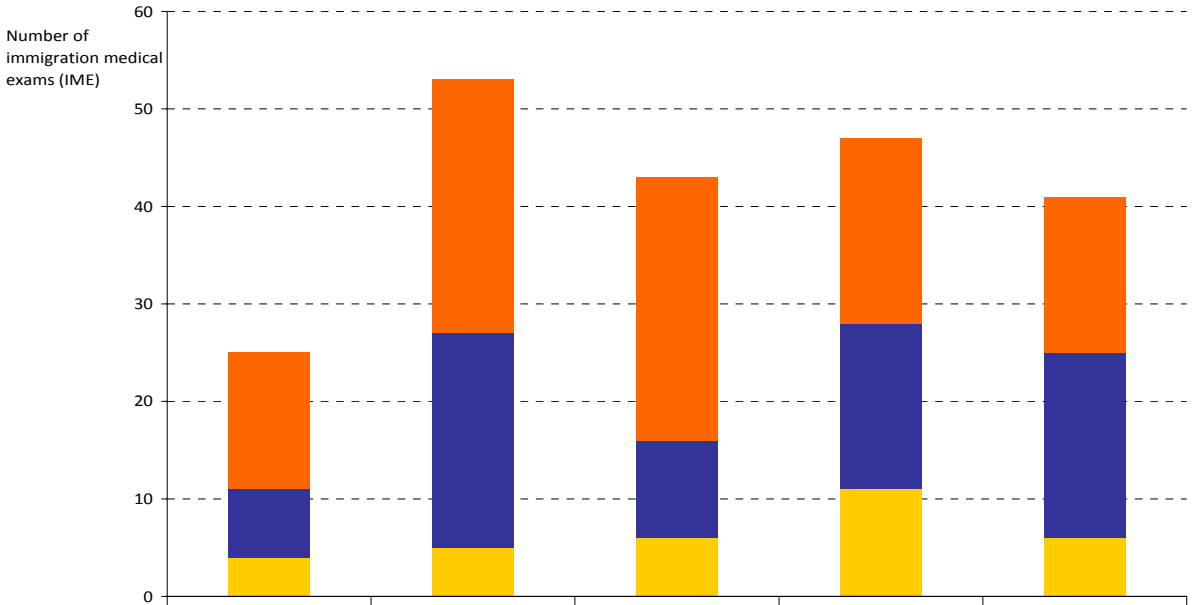
	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Advanced HIV disease	32	57	29	41	38	42	45	39	35	49
Other/Unknown Stage	384	343	391	377	370	399	355	302	331	277
Acute HIV	0	0	0	0	0	0	0	20	25	20

Immigration of Individuals with HIV

In 2002, Citizenship and Immigration Canada (CIC) included HIV testing as part of the immigration medical examination (IME) required for all immigration applications, Convention refugees, and refugee claimants. As of September 2004, CIC notifies STI/HIV Prevention and Control at BCCDC of individuals who undergo an IME outside of Canada, test positive for HIV, and indicate BC as their intended province of residence. Individuals who undertake their IME within BC and test positive for HIV are reported to the BCCDC by the Provincial Public Health Microbiology and Reference Laboratory through routine surveillance.

The number of HIV positive individuals immigrating into BC varies annually and may reflect global migration patterns. In 2009, a total of 41 HIV positive immigrants arrived in BC, 19 (46.3%) coming from countries where HIV is considered to be endemic.

7.17 Immigration-related HIV positive reports from endemic and non-endemic countries, 2005 to 2009



	2005	2006	2007	2008	2009
Non-Endemic Countries	14	26	27	19	16
Endemic Countries	7	22	10	17	19
Country Unspecified	4	5	6	11	6

Estimates of HIV Incidence and Prevalence

The HIV surveillance data presented in this report is based on individuals with a new positive HIV test (or new diagnosis of HIV). Individuals who have undiagnosed HIV infection and have not yet tested are not captured in the data. Furthermore, a person with a new positive test for HIV can be diagnosed at months or years after the time that they became infected with HIV. For these reasons, HIV surveillance data based on new positive HIV tests does not provide accurate information on HIV incidence (i.e., the number of new infections in a one-year period, both diagnosed and undiagnosed) or prevalence (i.e., the number of people living with HIV). Knowing incidence and prevalence is important in order to monitor the HIV epidemic and to guide the development and evaluation of HIV-related prevention, treatment, care and support programs.

Based on HIV surveillance data and using multiple estimation methods, the Public Health Agency of Canada (PHAC) generates periodic national estimates of HIV incidence and prevalence. To arrive at national estimates, specific estimates for provinces including BC are generated (see tables on following page). These estimates have recently been updated for 2008, and the updated previous estimates for 2005 are provided for comparison.

In BC, estimates of the total number of incident or new HIV infections in 2008 ranged from 280 to 540 cases, and were slightly lower than 2005 estimates (range 320 to 620 cases). Estimates of prevalent HIV infections or the total number of people living with HIV in the province in 2008 was 11,400 (range 9,300 to 13,500 cases), an increase from 10,350 (8,300 to 12,400 cases) in 2005. In 2008, gay, bisexual and other men who have sex with men (MSM) continued to comprise the greatest proportion of incident and prevalent HIV infections, followed by persons who use injection drugs (IDU), and heterosexual (non-endemic) persons.

Data provided courtesy of the Surveillance and Risk Assessment Division, Centre for Communicable Diseases and Infection Control, Public Health Agency of Canada (2009).

7.E Estimated number of incident HIV infections in BC by exposure category, 2005 & 2008

Exposure Category	2005			2008		
	Number	Range	% of Total	Number	Range	% of Total
MSM		150-260	44%		140-250	47%
MSM-IDU		10-20	3%		10-20	3%
IDU		90-190	30%		70-140	25%
HET (non-endemic)		50-130	19%		50-120	21%
HET (endemic)		10-30	4%		<20	4%
Other		<10	- - -		<10	- - -
All		320-620			280-540	

7.F Estimated number of prevalent HIV infections in BC by exposure category, 2005 & 2008

Exposure Category	2005			2008		
	Number	Range	% of Total	Number	Range	% of Total
MSM	4,260	3,280-5,240	41%	4,770	3,640-5,900	42%
MSM-IDU	340	240-440	3%	360	250-470	3%
IDU	3,580	2,660-4,500	35%	3,760	2,820-4,700	33%
HET (non-endemic)	1,750	1,300-2,200	17%	2,030	1,520-2,540	18%
HET (endemic)	300	220-380	3%	350	260-440	3%
Other	120	70-170	1%	130	80-180	1%
All	10,350	8,300-12,400		11,400	9,300-13,500	

MSM = Men having Sex with Men
IDU = Injection Drug Use
HET (non-endemic) = Heterosexual contact with a person who is either HIV-infected or at risk for HIV or heterosexual as the only identified risk
HET (endemic) = Heterosexual contact and origin from a country where HIV is endemic
Other = recipients of blood transfusion or clotting factor, perinatal and occupational transmission

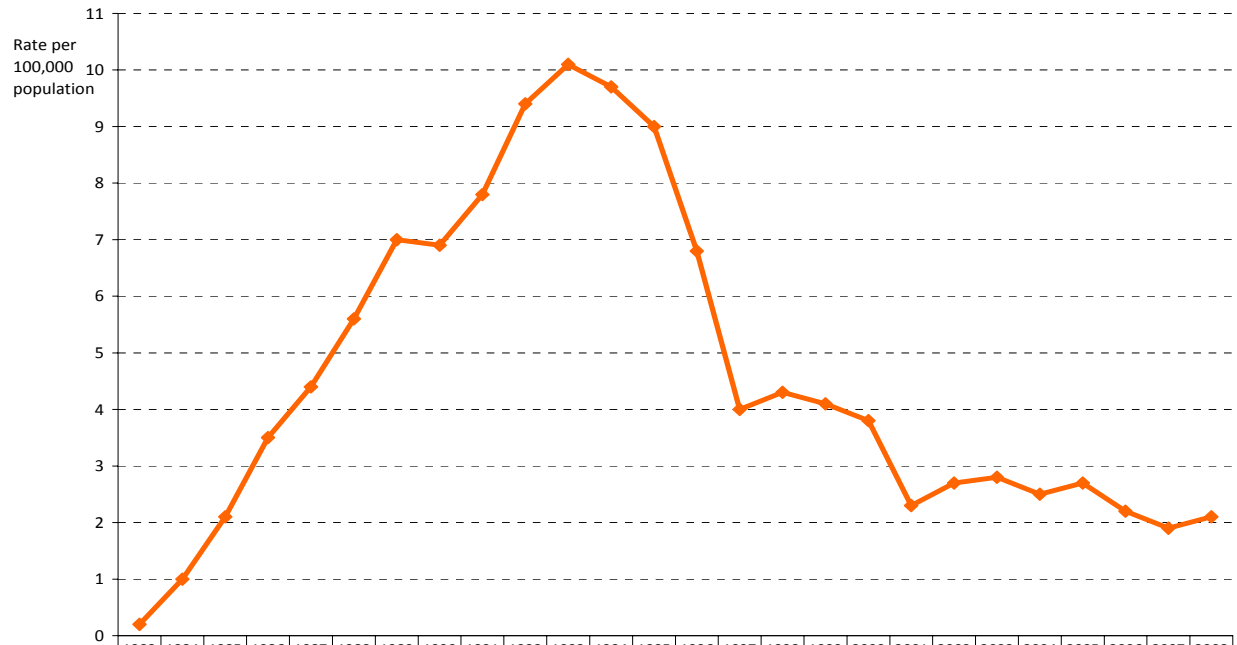
8. AIDS

Due to expected delays associated with reporting AIDS cases, this report only includes cases to 2008. The rate of AIDS and the number of AIDS case reports per year have decreased from a peak in 1993, due primarily to advances in HIV treatment which includes highly active antiretroviral therapy.

The rate of AIDS in BC increased slightly in 2008 to 2.1 (91 cases) from 1.9 per 100,000 population (84 cases) in 2007 and remains approximately two times higher than the Canadian rate. Rates are variable by HSDA per year and are influenced by the small number of cases in most regions. In 2008, the highest rate was reported in Vancouver HSDA.

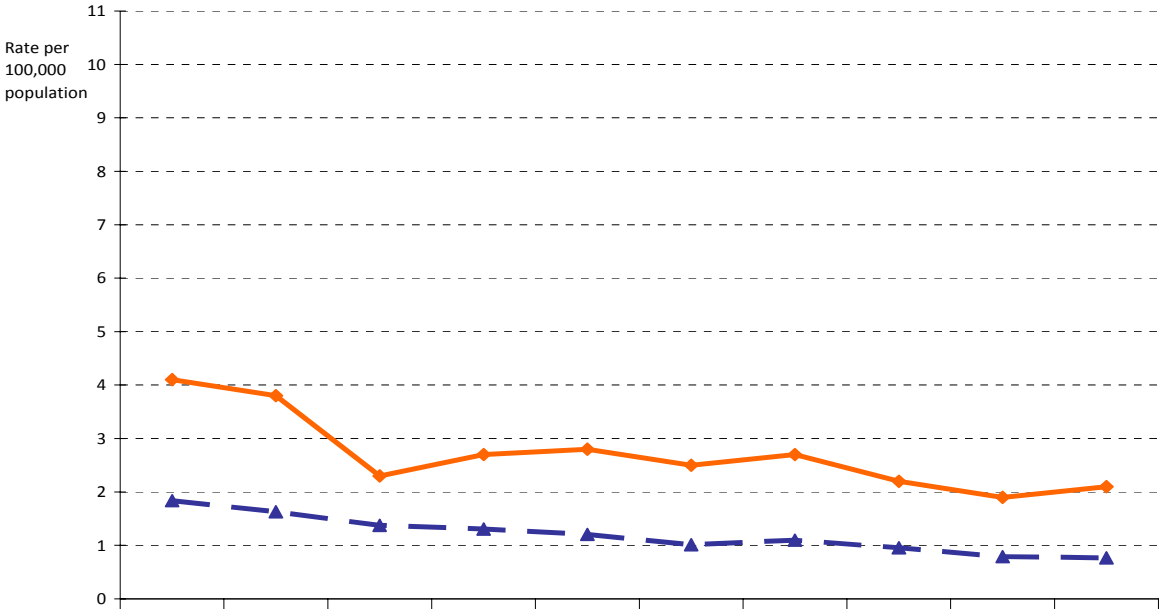
The rate of AIDS among males continues to be greater than the rate among females, which likely reflects the distribution of HIV between males and females in BC. Rates among males have been gradually decreasing while rates in females appear relatively stable.

8.1 AIDS case reports and rates in BC by historical trend, 1983 to 2008



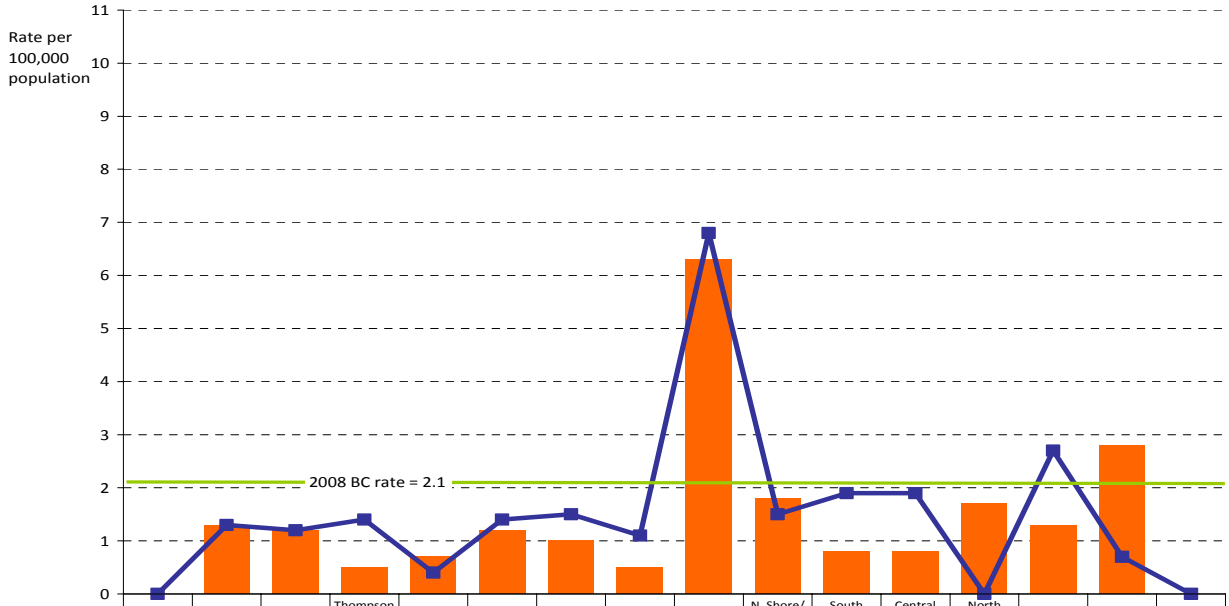
	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
BC Reports	7	29	62	106	134	175	223	227	263	325	359	355	339	265	158	172	163	153	92	111	116	103	114	93	84	91
BC Rate	0.2	1.0	2.1	3.5	4.4	5.6	7.0	6.9	7.8	9.4	10.1	9.7	9.0	6.8	4.0	4.3	4.1	3.8	2.3	2.7	2.8	2.5	2.7	2.2	1.9	2.1

8.2 AIDS case reports and rates in BC, 1999 to 2008



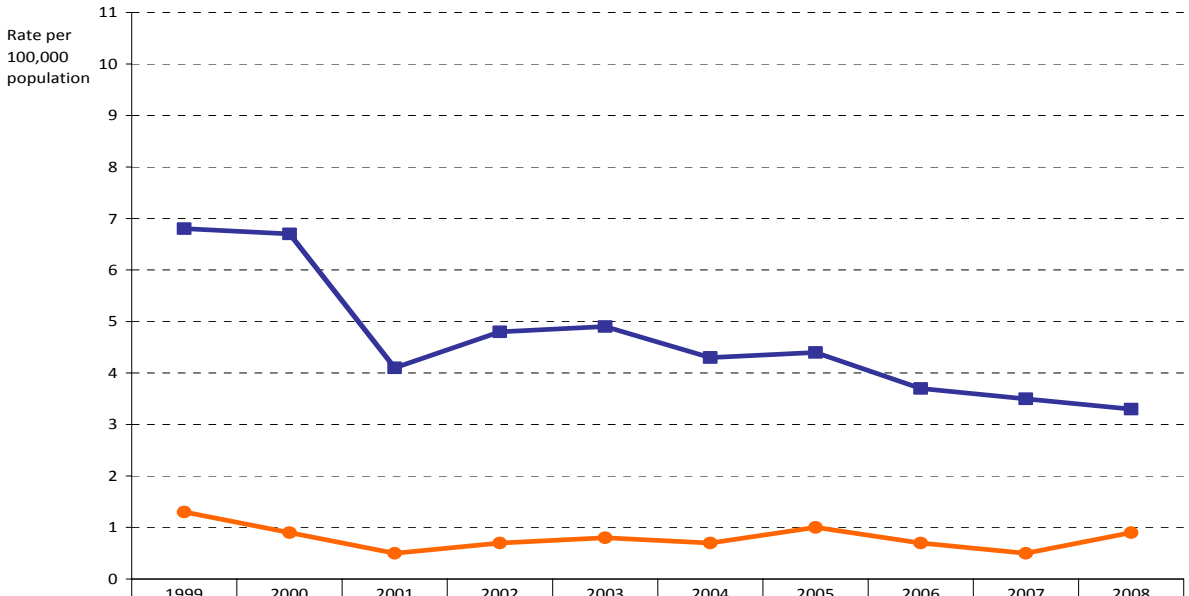
	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
BC Reports	163	153	92	111	116	103	114	93	84	91
BC Rate	4.1	3.8	2.3	2.7	2.8	2.5	2.7	2.2	1.9	2.1
Canadian Rate	1.8	1.6	1.4	1.3	1.2	1.0	1.1	1.0	0.8	0.8

8.3 AIDS case reports and rates in BC by health service delivery area, 2007 & 2008



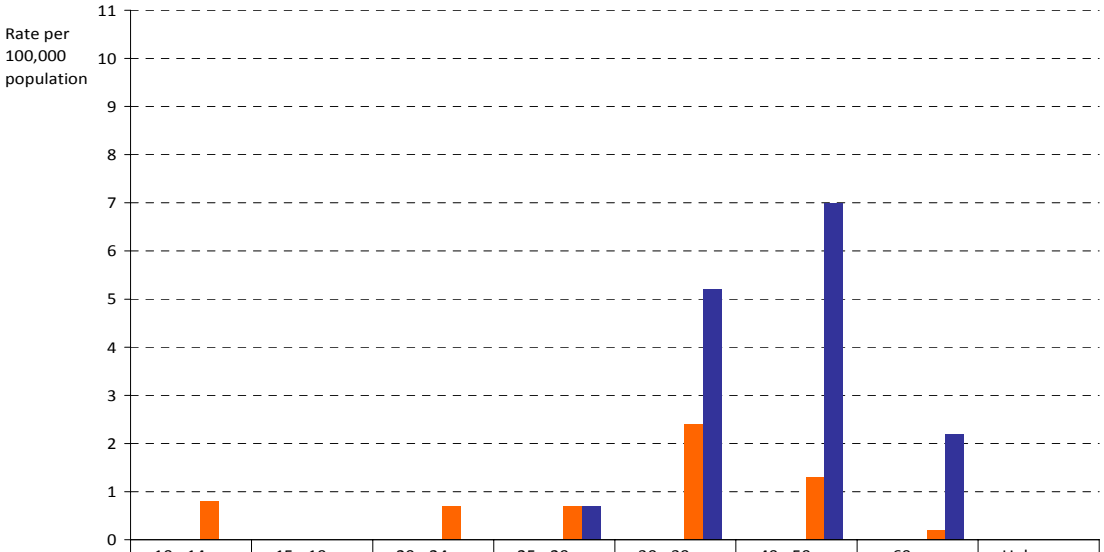
	East Kootenay	Kootenay Boundary	Okanagan	Thompson Cariboo Shuswap	Fraser East	Fraser North	Fraser South	Richmond	Vancouver	N. Shore/ Coast Garibaldi	South Vancouver Island	Central Vancouver Island	North Vancouver Island	Northwest	Northern Interior	Northeast
Reports 2008	0	1	4	3	1	8	10	2	43	4	7	5	0	2	1	0
Rate 2007	0.0	1.3	1.2	0.5	0.7	1.2	1.0	0.5	6.3	1.8	0.8	0.8	1.7	1.3	2.8	0.0
Rate 2008	0.0	1.3	1.2	1.4	0.4	1.4	1.5	1.1	6.8	1.5	1.9	1.9	0.0	2.7	0.7	0.0

8.4 AIDS case reports and rates in BC by sex, 1999 to 2008



	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Reports - Female	27	18	10	14	16	15	22	16	10	20
Reports - Male	135	135	82	97	100	88	92	77	74	71
Rate - Female	1.3	0.9	0.5	0.7	0.8	0.7	1.0	0.7	0.5	0.9
Rate - Male	6.8	6.7	4.1	4.8	4.9	4.3	4.4	3.7	3.5	3.3

8.5 AIDS case reports and rates in BC by age group and sex, 2008



	10 - 14 yrs	15 - 19 yrs	20 - 24 yrs	25 - 29 yrs	30 - 39 yrs	40 - 59 yrs	60+ yrs	Unknown
Reports - Female	1	0	1	1	7	9	1	0
Reports - Male	0	0	0	1	15	46	9	0
Reports - Transgender/Unknown	0	0	0	0	0	0	0	0
Rate - Female	0.8	-	0.7	0.7	2.4	1.3	0.2	
Rate - Male	-	-	-	0.7	5.2	7.0	2.2	

9. Technical Appendix

DATA LIMITATIONS

There are several key limitations to surveillance data which are important to understand in order to interpret surveillance data appropriately:

- The majority of surveillance data presented in this report is extracted from case report forms completed by either health care providers or public health nurses as part of the follow-up process (which includes ensuring appropriate treatment, patient education, and referral to appropriate services). There is an expected reporting delay to receipt of these forms. In this report this primarily affects the reporting of HIV and AIDS data. For HIV data this affects the classification of cases according to exposure category and ethnicity, resulting in a number of cases for the most recent year where this information is unknown. These numbers are not considered final until the following year's annual report. For AIDS data, there is typically a one year reporting delay and data is presented for the previous year only.

- Surveillance trends can be affected by factors which do not represent a true increase or decrease in infection rates. For example, trends are influenced by patient or provider testing behaviours, which may result in changes to the number of tests performed each year (e.g. an increasing number of HIV tests are performed each year by the Provincial Public Health Microbiology and Reference Laboratory). Changes to laboratory testing may also affect results; for example, the greater acceptability of urine nucleic acid antigen testing for chlamydia and gonorrhea may affect uptake of testing (particularly among males), and these tests have increased sensitivity and capacity for detection compared to other methods such as culture.

- Surveillance data is only reflective of the proportion of the population who test for STI or HIV. Individuals with asymptomatic infection or who have not tested would not be represented in surveillance data.

- Cases are classified by exposure category and ethnicity according to information elicited during follow-up from the case or their health care provider, and under-reporting of this information may lead to misclassification.

- HIV is reported as the number of new positive HIV tests, and does not reflect the number of new HIV infections (i.e., HIV incidence) as individuals may test positive years after the time of HIV infection.

- The system of enhanced follow-up for HIV was established following the addition of HIV to the reportable diseases list in 2003 and has resulted in improved data quality in subsequent years (see section 7 for details).

CASE DEFINITIONS FOR REPORTABLE INFECTIONS

Diseases included in this annual report are listed as reportable diseases in the *Communicable Disease Regulation* (Schedule A) of the *Public Health Act.*

Chlamydia

Genital: Detection and confirmation of *C. trachomatis* in anogenital or urinary specimens by appropriate laboratory techniques (e.g. isolation of *C. trachomatis* by culture, demonstration of *C. trachomatis* nucleic acid or antigen).

Extra-genital: Detection and confirmation of *C. trachomatis* in specimens from the conjunctiva, pharynx and other extra-genital sites by appropriate laboratory techniques (e.g. isolation of *C. trachomatis* by culture, demonstration of *C. trachomatis* nucleic acid or antigen).

Perinatally-acquired: Detection and confirmation[1] of *C. trachomatis* in nasopharyngeal or other respiratory tract specimens from an infant who developed pneumonia in the first 6 months of life, or conjunctival specimens from an infant who developed conjunctivitis in the first month of life.

Gonorrhea

Genital: Detection and confirmation of *N. gonorrhoeae* in anogenital or urinary specimens by appropriate laboratory techniques (e.g. culture, detection of *N. gonorrhoeae* nucleic acid).

Extra-genital: Detection and confirmation of *N. gonorrhoeae* in specimens from the conjunctiva, pharynx, joint, blood and other extra-genital sites by appropriate laboratory techniques (e.g. culture, detection of *N. gonorrhoeae* nucleic acid).

Perinatally-acquired: Detection and confirmation of N. gonorrhoeae infection in the first 4 weeks of life leading to the diagnosis of gonococcal conjunctivitis, scalp abscess, vaginitis, bacteremia, arthritis, meningitis or endocarditis, by an appropriate laboratory technique (e.g. culture, detection of N. gonorrhoeae nucleic acid).

[1] By appropriate laboratory techniques (e.g. isolation of *C. trachomatis* by culture, demonstration of *C. trachomatis* nucleic acid or antigen).

Syphilis

Syphilis is a complex sexually transmitted infection that has a highly variable clinical course. Classification by a clinician with expertise in syphilis may take precedence over the following case definitions developed for surveillance purposes.

Infectious Syphilis

Meets the case definition for primary, secondary, or early latent syphilis.

Primary Syphilis: Current clinical presentation compatible with primary syphilis (e.g. one or more ulcers/chancres), and one of the following:

- Identification of *T. pallidum* in clinical specimens (e.g. from chancre, regional lymph node) by dark-field microscopy, direct fluorescent antibody, or nucleic acid amplification test (NAAT), or
- Reactive serology (treponemal, regardless of non-treponemal serology reactivity) in individuals with no previous history of syphilis, or
- Significant (e.g. four-fold or greater) increase in titre over the last known non-treponemal test.

Secondary Syphilis: Clinical presentation compatible with secondary syphilis (e.g. rash, fever, malaise, lymphadenopathy, mucus lesions, condyloma lata, alopecia, meningitis, headaches, uveitis, retinitis, recent hearing impairment), and one of the following:

- Identification of *T. pallidum* in clinical specimens (e.g. from chancre, regional lymph node) by dark-field microscopy, direct fluorescent antibody, or nucleic acid amplification test (NAAT), or
- Reactive serology (non-treponemal and treponemal) serology in individuals with no previous history of syphilis, or
- Significant (e.g. four-fold or greater) increase in titre over the last known non-treponemal test.

Early Latent Syphilis: An individual without symptoms of primary or secondary syphilis, and reactive serology (non-treponemal and treponemal), or four-fold increase in titre over the last known non-treponemal test, and one of the following within the previous 12 months:

- Non-reactive serology, or
- Symptoms suggestive of primary or secondary syphilis, or
- Exposure to a sexual partner with primary, secondary or early latent syphilis, or
- Is a member of (or has had sexual partners in the previous 12 months from) groups at known increased risk of syphilis infection in BC, or
- Has a titre of ≥ 1:16.

Early Congenital Syphilis: A stillbirth, neonate, or older individual with clinical presentation[2] compatible with congenital syphilis, onset less than two years of age, and one of the following:

- Four-fold higher RPR than maternal titre and positive treponemal confirmatory test, or
- Detection of *T. pallidum* in clinical specimens (e.g. lesions, placenta, umbilical cord, autopsy) through darkfield microscopy, direct fluorescent antibody assay, or PCR, or
- Mother with untreated or inadequately treated syphilis (primary, secondary, early or late latent syphilis) during pregnancy or at birth.

Maternal Syphilis: A woman who meets the case definition of infectious syphilis (primary, secondary, early latent syphilis) or late latent syphilis, and one of the following:

- Syphilis serology conducted as part of prenatal blood screening, or
- Known to have given birth to an infant (live or stillborn) with congenital syphilis, or
- Clinical presentation with infectious syphilis during pregnancy.

Human Immunodeficiency Virus (HIV)

Adults, adolescents and children ≥ 18 months: Detection of HIV antibody by screening test (i.e., ELISA or Point of Care HIV test) followed by positive confirmatory test (i.e., Western Blot or Nucleic Acid Amplification Test), or detection of HIV nucleic acid (RNA or DNA) or detection of p24 antigen with confirmation by neutralization assay, or isolation of HIV in culture.

Children < 18 months: Detection of HIV DNA by nucleic acid amplification testing on two separate samples collected at different times.

Stage of Infection at Time of HIV Diagnosis

Acute HIV Infection: Meets definition for HIV case, and has laboratory findings suggestive of acute HIV infection in the absence of confirmed detection of HIV antibody (detection of HIV DNA or RNA by NAAT, detection of p24 antigen with confirmation by neutralization assay), and is not diagnosed with AIDS before or up to 12 months after the date of first positive HIV test.

Advanced HIV Disease: Meets definition for HIV case, and is diagnosed with AIDS (based on receipt of an AIDS case report form) before or up to 12 months after the date of the first positive HIV test.

Other/Unknown Stage: Meets the definition for HIV case and does not meet the definitions for acute HIV infection or advanced HIV disease at the time of HIV diagnosis.

[2] Clinical presentation includes any evidence of congenital syphilis on physical examination (e.g. hepatosplenomegaly), evidence of congenital syphilis on radiographs of long bones, a reactive CSF VDRL, an elevated CSF cell count or protein without other cause. Note that neonates may not display clinical manifestations of congenital syphilis and may meet laboratory criteria

Acquired Immune Deficiency Syndrome (AIDS)

One or more of the specified indicator diseases, and meets the case definition for HIV infection.

Indicator diseases for adult and pediatric cases:

- Bacterial pneumonia (recurrent)*
- Candidiasis (bronchi, trachea or lungs)
- Candidiasis (esophageal)*
- Cervical cancer (invasive)
- Coccidioidomycosis (disseminated or extrapulmonary)
- Cryptococcosis (extrapulmonary)
- Cryptosporidiosis chronic intestinal (> 1 month duration)
- Cytomegalovirus diseases (other than in liver, spleen or nodes)
- Cytomegalovirus retinitis (with loss of vision)*
- Encephalopathy, HIV-related (dementia)
- Herpes simplex: chronic ulcer(s) (> 1 month duration) or bronchitis, pneumonitis or esophagitis
- Histoplasmosis (disseminated or extrapulmonary)
- Isosporiasis, chronic intestinal (> 1 month duration)
- Kaposi's sarcoma*
- Lymphoma, Burkitt's (or equivalent term
- Lymphoma, immunoblastic (or equivalent term)
- Lymphoma (primary in brain)
- Mycobacterium avium complex or M. kansasii (disseminated or extrapulmonary)*
- Mycobacterium of other species or unidentified species*
- M. tuberculosis (disseminated or extrapulmonary
- M. tuberculosis (pulmonary)*
- Pneumocvstis iirovecii (formerly Pneumocystis carinii) pneumonia (PCP)*
- Progressive multifocal leukoencephalopathy
- Salmonella septicemia (recurrent)
- Toxoplasmosis of brain*
- Wasting syndrome due to HIV

Indicator diseases that apply only to pediatric cases (< 15 years old):

- Bacterial infections (multiple or recurrent, excluding recurrent bacterial pneumonia)
- Lymphoid interstitial pneumonia and/or pulmonary lymphoid hyperplasia*

*These conditions may be diagnosed presumptively; otherwise, definitive diagnosis is required.

DATA SOURCES

HIV Data

All confirmatory laboratory testing for HIV antibodies is done at the Provincial Public Health Microbiology and Reference Laboratory located at the BC Centre for Disease Control (BCCDC). BCCDC determines which of these individuals are testing positive for HIV for the first time then informs the appropriate designated public health nurse (PHN) about these individuals. The PHN provides follow-up for these individuals that include completing two forms – Case Report and Risk Assessment. The completed forms are then forwarded to BCCDC where the collected information is entered into the provincial HIV/AIDS database.

AIDS Data

When an individual is diagnosed with an AIDS defining illness, the care provider completes an AIDS Case Report form then forwards it to BCCDC where the information is entered into the provincial HIV/AIDS database. A twice-yearly review of clinical records maintained by the BC Centre for Excellence in HIV/AIDS is also conducted to identify new diagnoses of AIDS defining illness and the information is entered into the provincial HIV/AIDS database.

STI Data (gonorrhea, chlamydia, infectious syphilis)

When an individual is diagnosed with a reportable STI, the care provider completes a case report form (Health 208 form) then forwards it to BCCDC where the information is entered into the provincial STI database. Public health clinics with access to the provincial STI database directly enter the information for their newly diagnosed individuals.

Pelvic Inflammatory Disease and Ectopic Pregnancy Data

The diagnoses of pelvic inflammatory disease (PID) and ectopic pregnancy (EP) are captured in the Discharge Abstract Database (DAD) and the Medical Service Plan (MSP) payment database maintained by the BC Ministry of Health Services. The DAD includes data on patient discharges and day surgeries directly from hospitals in BC, including all known facilities for acute care and day surgery and most facilities for chronic care and rehabilitation. The MSP database contains data on insured medical services which are available to over 95% of the population of BC. This data includes physician billings for inpatient and outpatient care, claims from supplementary healthcare practitioners, and claims for laboratory services and diagnostic procedure. Data is extracted for women of reproductive age (15-44 years) who have at least one physician billing or hospital discharge per year based on the following International Classification of Disease (ICD) codes:

Pelvic Inflammatory Disease

ICD 9 Codes: MSP (1992-2007), DAD (1992-2000)

- Salpingitis and oophoritis (614, 614.0-614.2
- Parametritis and pelvic cellulitis/ peritonitis (614.3-614.5, 614.7)
- Other or unspecified inflammatory disease of female pelvic organs and tissues (614.8, 614.9
- Inflammatory diseases of uterus except cervix (615, 615.0-615.9)

ICD 10 Codes: DAD (2001-2007)

- Salpingitis and oophoritis (N70, N70.0-N70.9
- Parametritis and pelvic cellulitis/peritonitis (N73.0-N73.5)
- Other or unspecified female pelvic inflammatory disease (N73.8, N73.9)
- Inflammatory diseases of uterus except cervix (N71, N71.0-N71.9)

Ectopic Pregnancy

ICD 9 Codes: MSP (1992-2007), DAD (1992-2000)

- Ectopic pregnancy (633)
- Abdominal pregnancy (633.0)
- Tubal pregnancy (633.1)
- Ovarian pregnancy (633.2)
- Other or unspecified ectopic pregnancy (633.8, 633.9)

ICD 10 Codes: DAD (2001-2007)

- Ectopic pregnancy (O00)
- Abdominal pregnancy (O00.0)
- Tubal pregnancy (O00.1)
- Ovarian pregnancy (O00.2)

Please note that the current and historic data presented in this section differs from previous reports, as changes to the analysis and reporting of this data were made following a review of this surveillance system. These changes include using a revised classification of ICD codes for PID, and exclusion of tubal infertility (TI) from surveillance reports due to poor validity of this indicator in physician billing and hospital discharge data. While overall trends in PID and EP are similar to previous reports, as a result of these changes the annual magnitude of hospital discharges and physician billings may differ from previous reports.

Population Data

Population data and associated rates were based on the P.E.O.P.L.E. 34 Population Estimates and Projections released by BC STATS, BC Ministry of Labour and Citizens' Services (September 2009).

ADDITIONAL NOTES

Classification of Health Region

Cases are assigned to health regions (i.e., health authority, health service delivery area (HSDA)) by patient residence. If residence is unknown, the case is assigned to the health region where the individual was tested.

Classification of Ethnicity

Cases are classified by ethnicity according to information elicited from the case or health care provider during follow-up:

Aboriginal: e.g. First Nations, Inuit, Metis
Arab/West Asian: e.g. Armenian, Egyptian, Iranian, Moroccan, Lebanese, Afghani, Iranian
Asian: e.g. Chinese, Japanese, Vietnamese, Cambodian, Indonesian, Filipino, Korean, Laotian
Black: e.g. African, Haitian, Jamaican, Somali
Caucasian (White): e.g. Irish, Scottish, English, Portuguese, Italian, Russian
Hispanic: e.g. Mexican, Central/South American
South Asian: e.g. East Indian, Pakistani, Sri Lankan, Punjabi, Bangladeshi
Other / Mixed Ethnicity: ethnicity is known but is not included in one of the above categories or case has dual ethnicity
Unspecified: if information about ethnicity is not elicited from case or health care provider

HIV

New or Previous Positive HIV Test: If a report of a new positive HIV test is identified in an individual having a history of a previous positive test (i.e., previous positive test result identified in the Provincial Public Health Microbiology and Reference Laboratory database, or elicited during case follow-up), this is considered a previous positive HIV test and excluded from surveillance reporting. If no such history is elicited, the report is considered to represent a new positive HIV diagnosis and included in surveillance reporting.

Endemic Country: Individuals are categorized as being from an endemic country according to the Endemic Countries List maintained by the Public Health Agency of Canada.[3]

Exposure Group Hierarchy: Individuals having a new positive HIV test may belong to more than one exposure category (e.g. a person may have a history of using injection drugs and heterosexual sex). These individuals are assigned to the exposure category listed first (or highest) in the following hierarchy.

1. **MSM:** Male who reports having male sex partner(s), with or without female sex partners.

2. **IDU**: Person who reports current or prior history of injection drug use.

3. **Blood / Blood Product Recipient:** Person who reports receipt of whole blood or blood product (e.g. packed red cells, plasma, platelets, cryoprecipitate, pooled concentrates of clotting factor).

4. **Heterosexual Contact:** Male who reports having female sex partner(s) only, and females who report having male sex partner(s) only.

[3] Public Health Agency of Canada. HIV and AIDS in Canada: Surveillance Report to December 31, 2008. Appendix 4. Surveillance and Risk Assessment Division, Centre for Communicable Diseases and Infection Control, Public Health Agency of Canada, 2008. <www.phac-aspc.gc.ca/aids-sida/publication/index.html#surveillance>

5. **Occupational Exposure:** Exposure to HIV contaminated blood or body fluids, or concentrated virus in an occupational setting.

6. **Perinatal Transmission:** Transmission of HIV from an HIV-infected mother to her child either in utero, during childbirth, or through breastfeeding.

7. **Other Risk Factor:** Likely route of exposure to HIV is known but cannot be classified into any of the major exposure categories listed here. For example, receipt of semen from an HIV positive donor, or females reporting female sex partner(s) only.

8. **No Identified Risk (NIR):** Route of exposure to HIV is not identified at the time of completion of case follow-up (e.g. route of exposure not provided by case).

9. **Unknown:** Route of exposure to HIV is unknown.

Note that in this report, individuals with a new positive HIV test are categorized into five groups: MSM, IDU, Heterosexual, Other (i.e., blood/blood product recipient, occupational exposure, perinatal transmission, other risk factor) and No Identified Risk (NIR)/Unknown.

Infectious Syphilis

Exposure Group Hierarchy: Infectious syphilis cases may belong to more than one exposure category. These individuals are assigned to the exposure category listed first (or highest) in the following hierarchy.

1. **MSM**: Male who reports having male sex partner(s), with or without female sex partners.

2. **Street-Involved, Sex Trade Worker and Patron**: Includes
   - Sex trade worker (STW) – Reports providing sex to another individual in exchange or money, shelter, food, drugs, etc.
   - Patron of STW – Reports payment (with money, shelter, drugs, food, etc.) for sex with a STW.
   - Street-involved – Reports either: (i) living on the street or in a single room occupancy (SRO) hotel; or (ii) attached to the street; or (iii) having no fixed address; or (iv) transient.

3. **Heterosexual**: Includes
   - Heterosexual contact – Male or female who reports having sex partner(s) of the opposite gender only.
   - Casual heterosexual contact – Reports having more than one sexual partner of the opposite gender during the stage-specific trace-back period.
   - One partner - Reports one sexual partner of the opposite gender during the stage-specific trace-back period.
   - Partner at risk – Reports a sexual partner having an identified risk (e.g. STW, multiple sexual partners, MSM).

4. **Acquired Outside of Canada**: Includes
   - Foreign acquired – Case currently residing in Canada but likely acquired syphilis outside of Canada (i.e., reports sexual partner(s) in other countries).
   - Immigration – Individual immigrating to Canada and identified with syphilis through testing done as part of the immigration process.

5. **Other/Unknown**: Includes
   - WSW – Female who reports having female sex partner(s), with or without male sex partners.
   - No Identified Risk – No risk reported.