



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

HIV

Annual Report
2015

Contact Information

BC Centre for Disease Control
Clinical Prevention Services
655 West 12th Avenue
Vancouver BC V5Z 4R4
Phone: 604-707-5621
Fax: 606-707-5604
Email: CPSSurveillance@bccdc.ca

Date of publication: August 31, 2017
Report is available at www.bccdc.ca

Suggested citation:

BC Centre for Disease Control. (2017). HIV in British Columbia: Annual Surveillance Report 2015.
Retrieved from <http://www.bccdc.ca/search?k=hiv%20annual%20report>



Table of Contents

Summary of Trends	4
HIV	5
HIV by Region, Gender, and Age	5
HIV by Ethnicity	10
New HIV Diagnoses among Aboriginal Peoples	11
HIV by Exposure Category	13
New HIV Diagnoses among Men who have Sex with Men	15
New HIV Diagnoses among People who Inject Drugs	18
New HIV Diagnoses among People who acquire HIV through Heterosexual Contact	20
HIV in Pregnancy	22
Prenatal HIV Testing	23
Provincial Surveillance Data Collated by the Oak Tree Clinic	23
Stage of Infection at Time of HIV Diagnosis	24
Inter-Test Intervals and Proportion of Known Previous Negative HIV Tests at Time of Diagnosis	26
Immigration of Individuals living with HIV	28
Estimates of HIV Incidence and Prevalence	28
AIDS	30
AIDS by Region, Gender, and Age	30
AIDS by Ethnicity	35
AIDS Case Reports among Aboriginal Peoples	36
Endnotes	37
Contributors	39
Technical Appendix	40
Data Limitations	40
Case Definitions	41
Data Sources	42
Additional Notes	43

Summary of Trends

HIV

In 2015, the rate of new HIV diagnoses in BC was 5.1 (239 cases) per 100,000 population, a slight decrease from 5.6 (261 cases) in 2014.

- The highest rates of new HIV diagnoses were in Vancouver Coastal and Fraser Health Authorities.
- Males continued to have higher rates of new HIV diagnoses than females.
- Trends by ethnicity have shifted over the past ten years with the percentage of new diagnoses among Caucasian people gradually decreasing while the percentage of new diagnoses among Asian people increasing and most other ethnicities remaining stable. In 2015, 46% of cases were Caucasian, 10% were Asian, and 8% were Aboriginal peoples.
- The majority of new HIV diagnoses among Aboriginal peoples are in those who identify as First Nations. The number and rate of new HIV diagnoses among First Nations people have decreased over time and in 2015, the rate was the lowest rate reported in the last decade.
- Gay, bisexual, and other men who have sex with men (MSM) continued to comprise the greatest number of new HIV diagnoses in BC (57% of all new HIV diagnoses in 2015). Trends were elevated but stable with the greatest increase in new HIV diagnoses among MSM born after 1980. Over time, the proportion of new HIV diagnoses among Caucasian MSM is gradually decreasing.
- The number of new HIV diagnoses in people who inject drugs (PWID) continued to decrease (7% of all new HIV diagnoses in 2015) for both males and females. The decrease in new diagnoses among PWID since 2008 is the main driver of the overall provincial decrease in new HIV diagnoses.
- Overall, there was a slight increase in new HIV diagnoses among people who acquire HIV through heterosexual contact (28% of all new HIV diagnoses in 2015). Within this category, 50% had an identified risk factor for HIV (e.g., partner known to be living with HIV or at higher risk, or born/residing in an HIV endemic country).
- One female was newly diagnosed with HIV through prenatal screening in 2015. In 2015, 24 women living with HIV who had live births accessed care at the Oak Tree Clinic, of which all were diagnosed before delivery and received antenatal ART. In 2015, no infants acquired HIV from prenatal exposure.
- Late stage HIV infection increased to 20% of new HIV diagnoses in 2015 from 17% in 2014.
- New HIV diagnoses in the Vancouver Coastal Health Authority had the lowest median inter-test interval (i.e., the time between the first positive HIV test and the most recent negative HIV test) for all health authorities at 0.9 years in 2015.
- A total of 59 immigrants living with HIV arrived in BC in 2015; 24% were from countries where HIV is considered to be endemic.

AIDS

In 2015, the rate of AIDS case reports continued to decrease to 1.5 (68 cases) per 100,000 population.

- The rate of AIDS cases among males continues to be greater than the rate among females. Rates among males have been gradually decreasing while rates among females remain relatively stable.
- The majority of AIDS case reports among Aboriginal peoples are in those who identify as First Nations. The rate of AIDS case reports among First Nations people has decreased since 2007.

HIV by Region, Gender, and Age

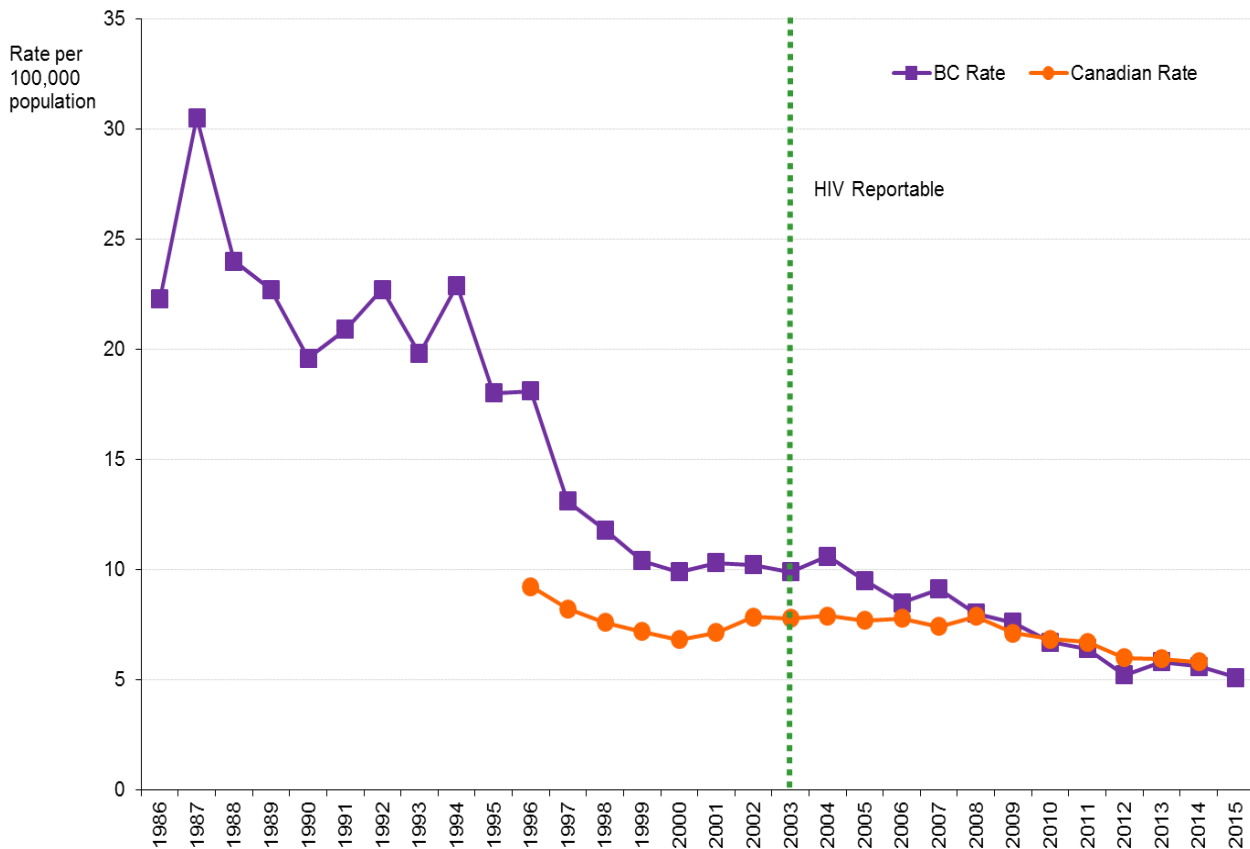
In 2015, the rate of new HIV diagnoses¹ in BC was 5.1 (239 cases) per 100,000 population, a slight decrease from 5.6 (261 cases) in 2014 (Figure 1).

The highest rates of new HIV diagnoses were in the Vancouver Coastal and Fraser Health Authorities (Figure 3). More specifically, Vancouver, Fraser North, and Thompson Cariboo Shuswap Health Service Delivery Areas (HSDAs) had the highest rates of new HIV diagnoses in 2015 (Figure 2).

Rates of new HIV diagnoses among both males and females show a general decreasing trend over the past ten years (Figure 4). The rate among males decreased to 8.7 (202 cases) in 2015 from 9.3 (215 cases) per 100,000 population in 2014 and the rate among females decreased in 2015 to 1.6 (37 cases) from 1.9 (44 cases) per 100,000 population in 2014.

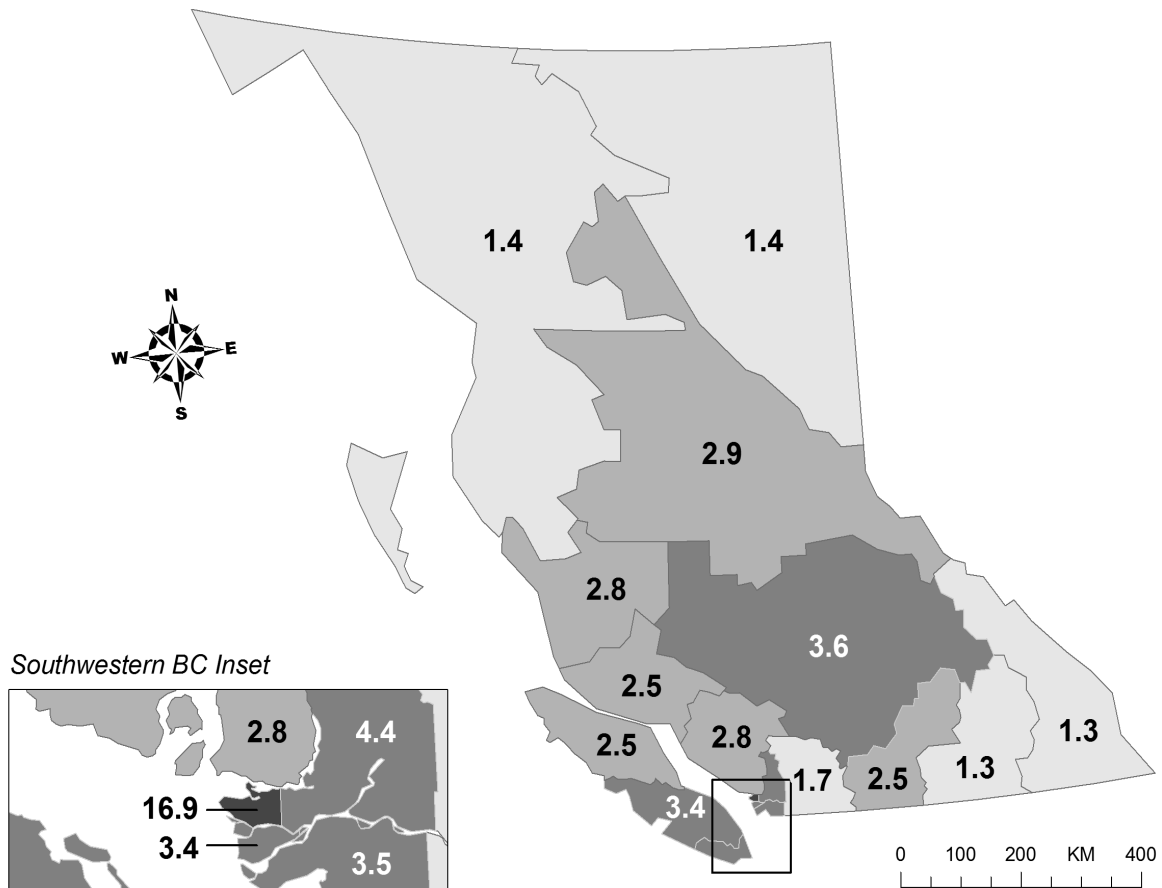
The rate of new HIV diagnoses continues to be higher among males than females. In 2015, the highest rates among males were in those 25-39 years old and among females in those 30-39 years old (Figure 5).

1. New HIV diagnoses in BC and Canada, 1986 to 2015*

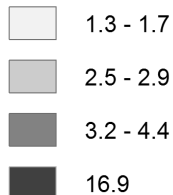


* 2015 Canadian rate is not available

2. New HIV diagnoses in BC by health service delivery area, 2015



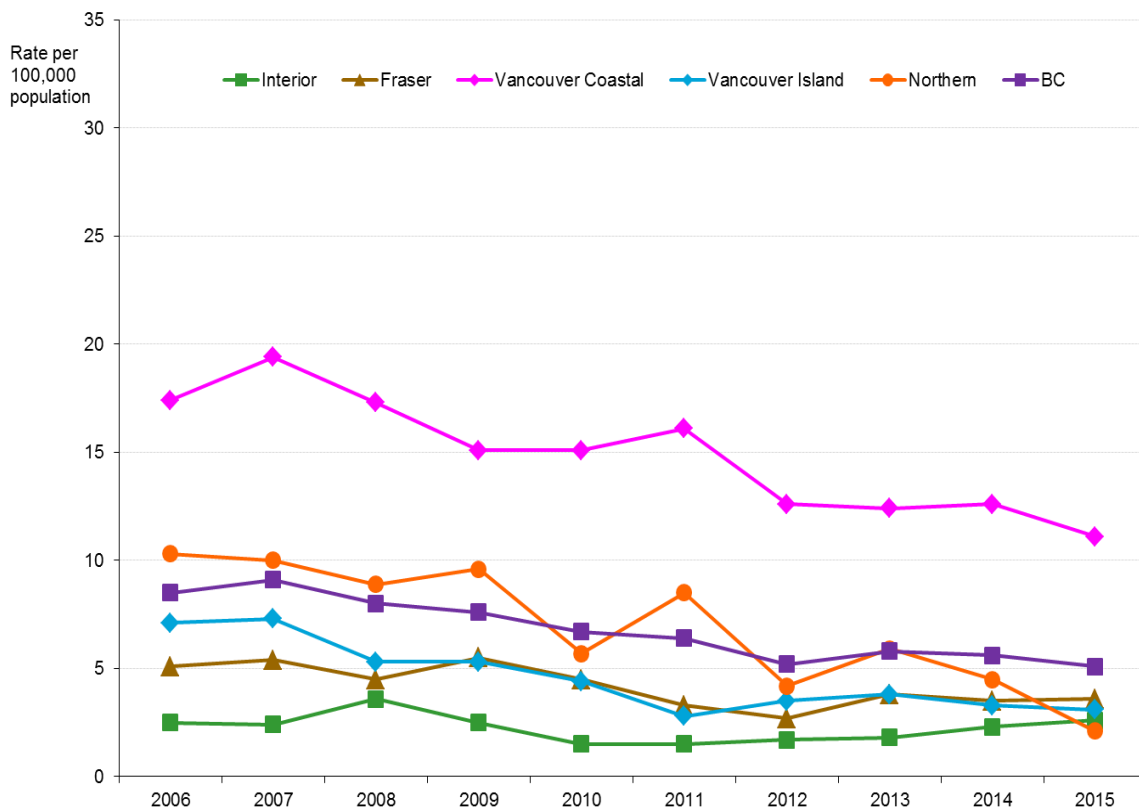
Rate per 100,000 population by HSDA



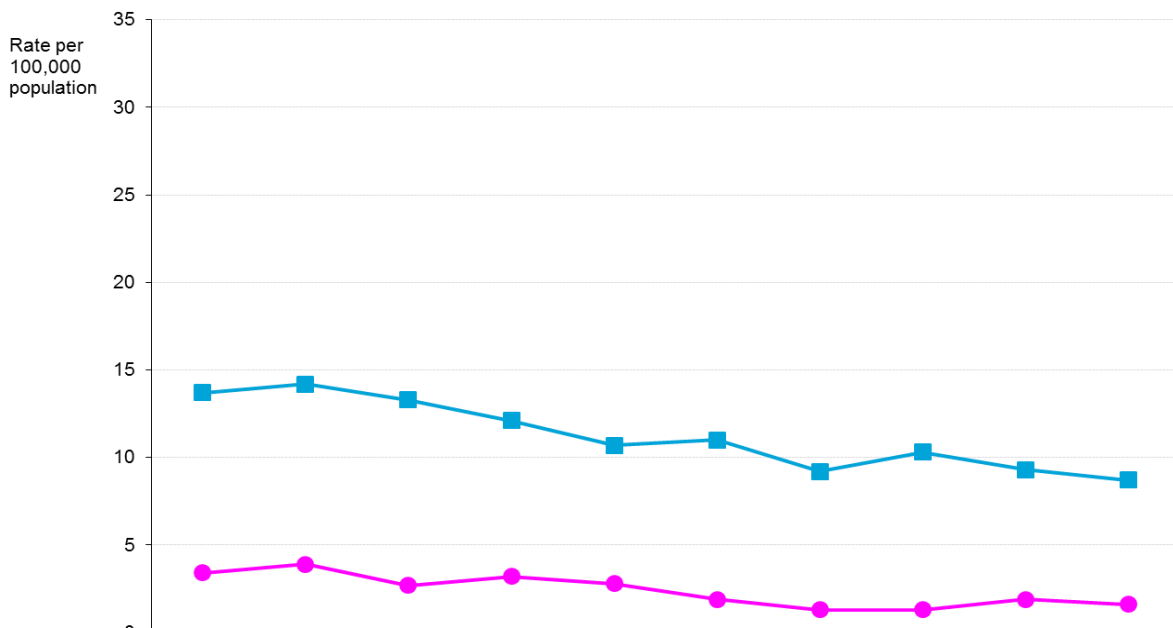
ID	Health Service Delivery Area	Cases	Rate
11	East Kootenay	1	1.3
12	Kootenay Boundary	1	1.3
13	Okanagan	9	2.5
14	Thompson Cariboo Shuswap	8	3.6
21	Fraser East	5	1.7
22	Fraser North	29	4.4
23	Fraser South	28	3.5
31	Richmond	7	3.4
32	Vancouver	113	16.9
33	North Shore/Coast Garibaldi	8	2.8
41	South Vancouver Island	12	3.2
42	Central Vancouver Island	9	3.4
43	North Vancouver Island	3	2.5
51	Northwest	1	1.4
52	Northern Interior	4	2.9
53	Northeast	1	1.4

Rates calculated with population estimates released by BC Stats

3. New HIV diagnoses in BC by health authority, 2006 to 2015



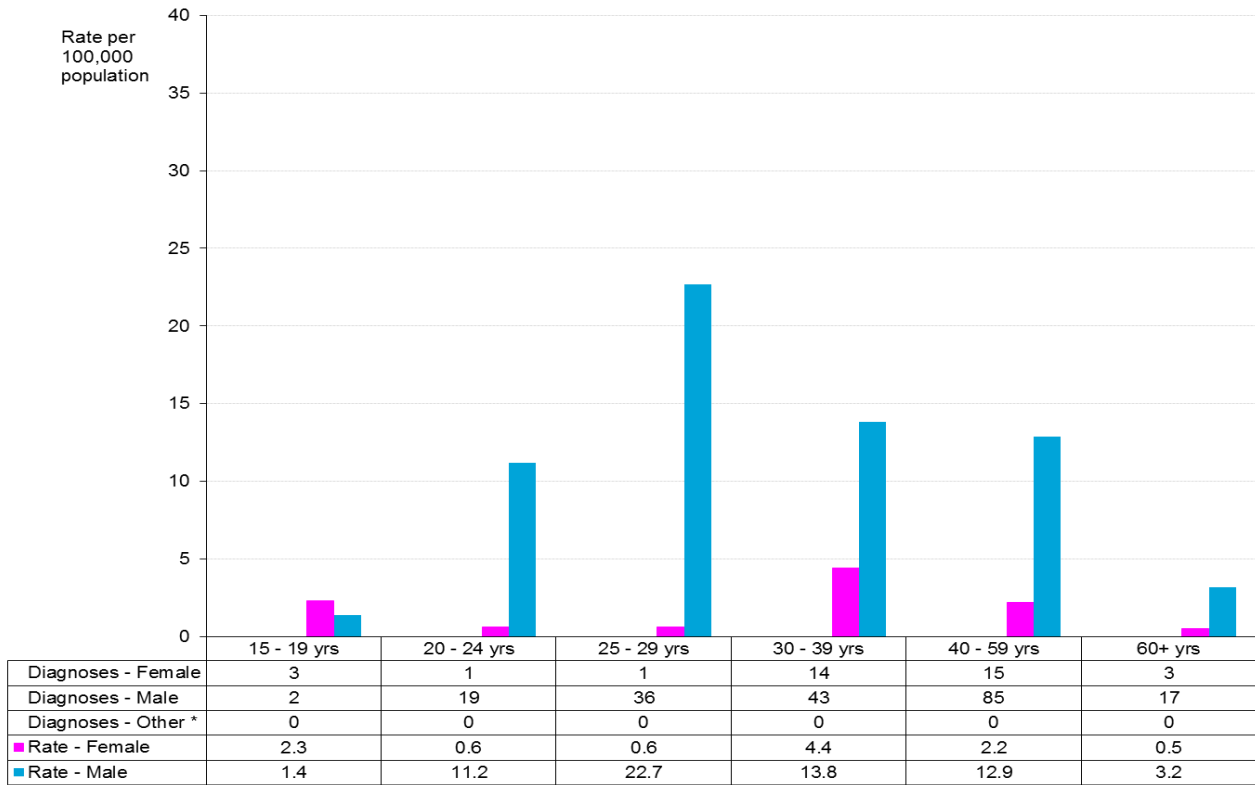
4. New HIV diagnoses in BC by gender, 2006 to 2015



	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Diagnoses - Female	73	85	60	71	62	43	29	31	44	37
Diagnoses - Male	288	303	287	266	238	245	208	234	215	202
Diagnoses - Other *	0	3	0	0	0	0	0	0	2	0
Rate - Female	3.4	3.9	2.7	3.2	2.8	1.9	1.3	1.3	1.9	1.6
Rate - Male	13.7	14.2	13.3	12.1	10.7	11	9.2	10.3	9.3	8.7

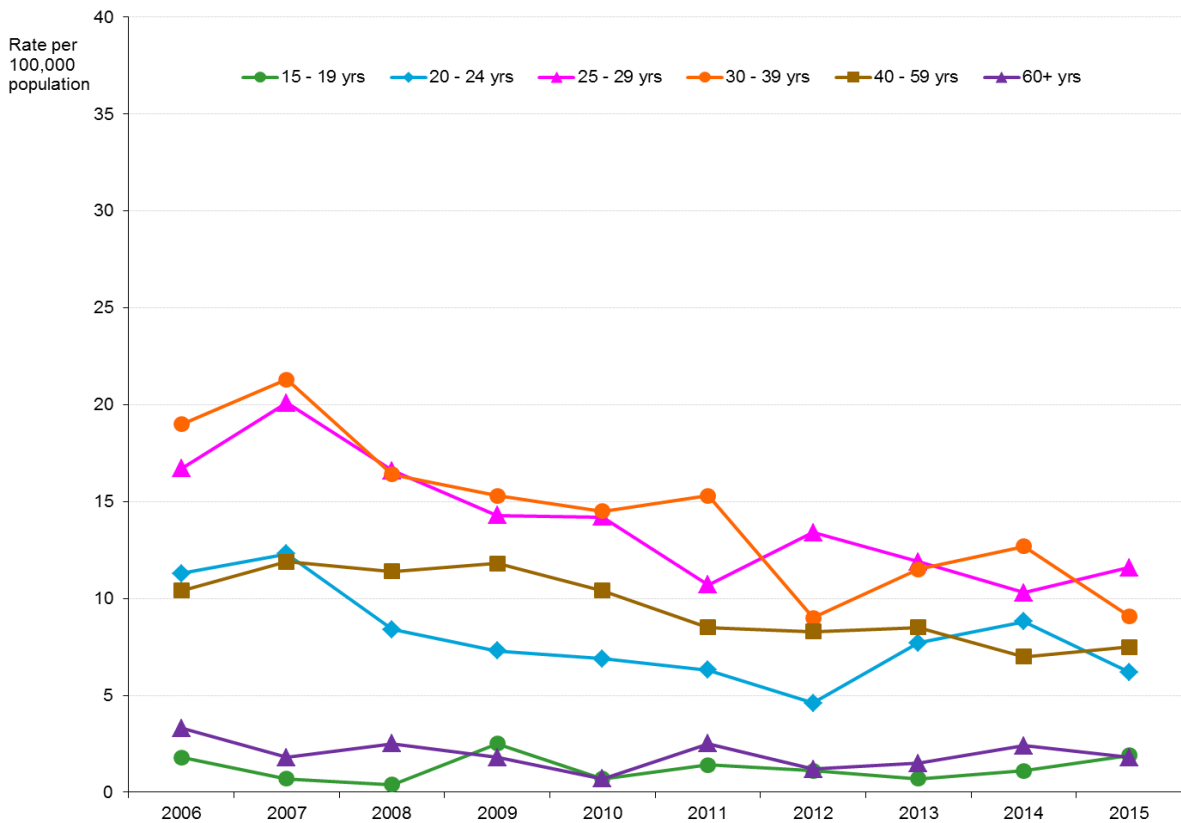
* Other - transgender and gender unknown

5. New HIV diagnoses in BC by age group and gender, 2015

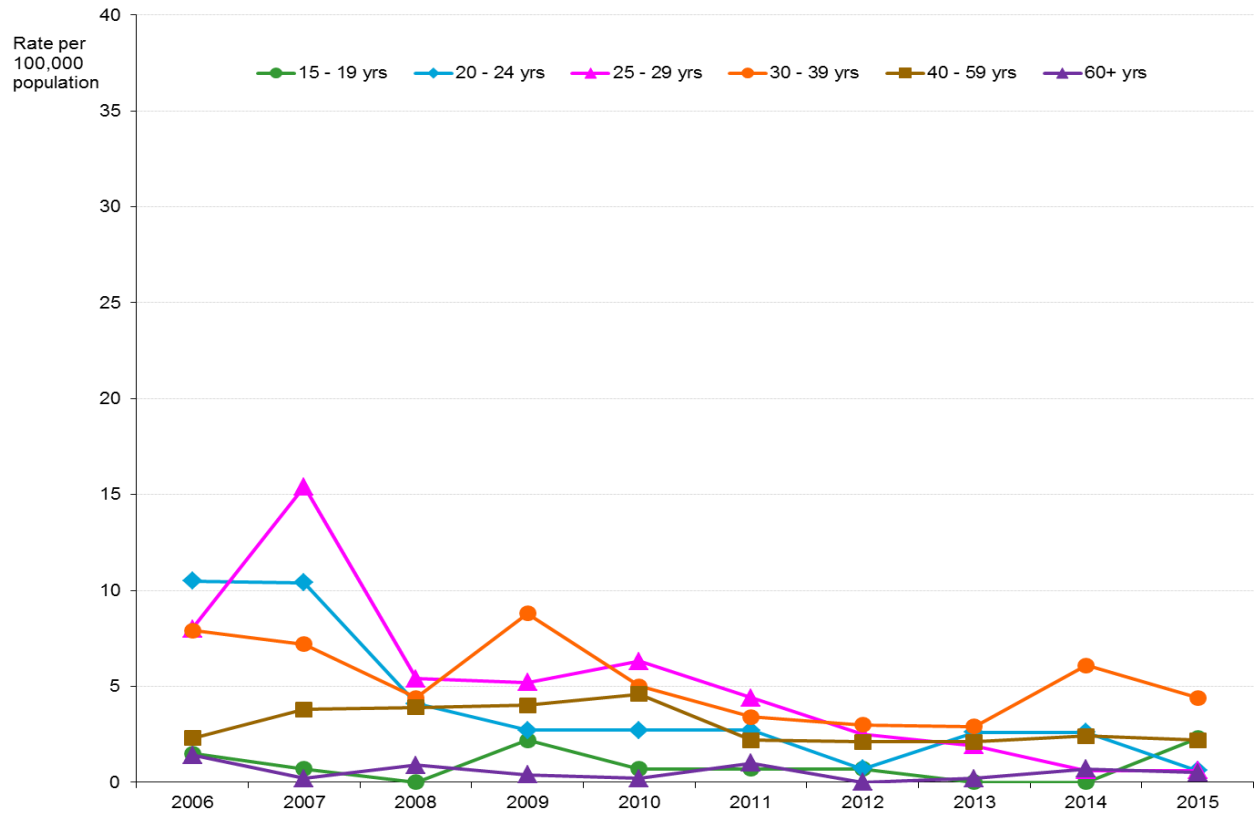


* Other - transgender and gender unknown

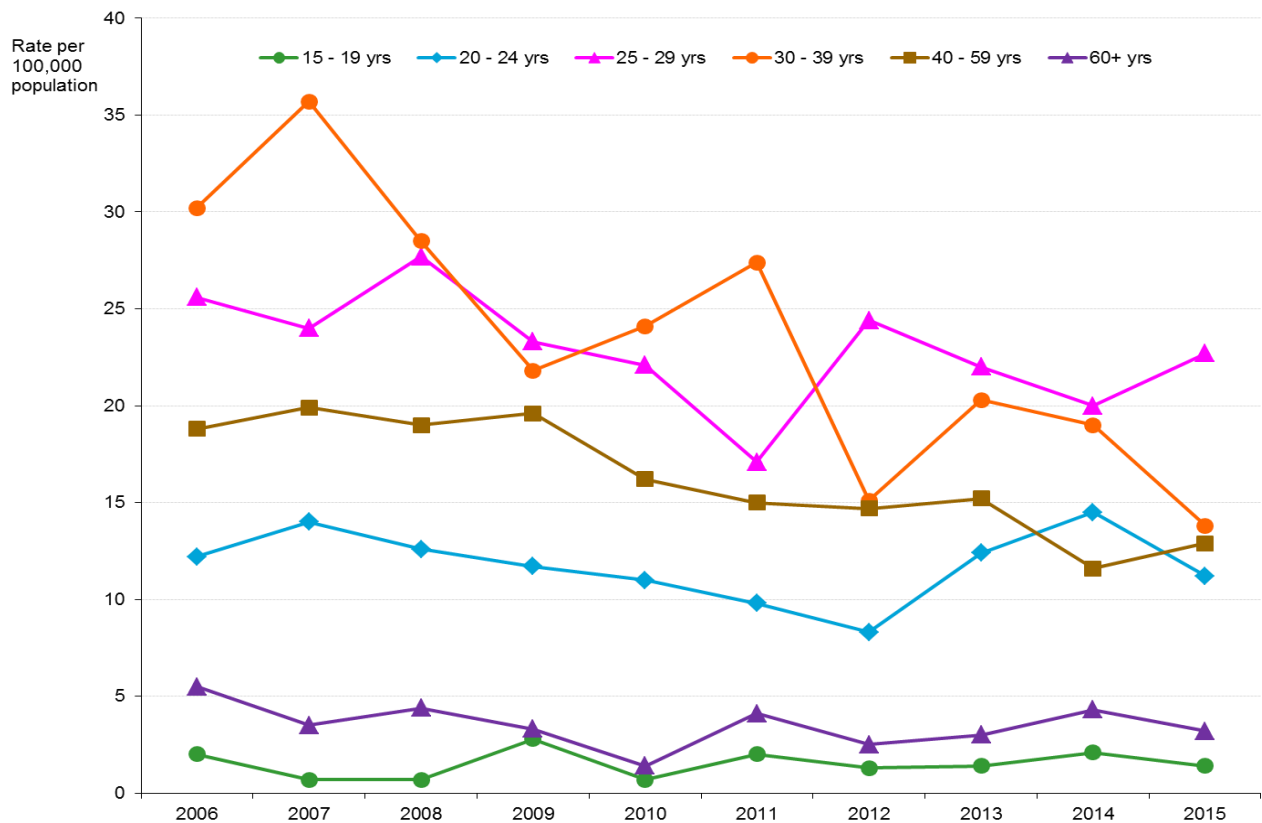
6. New HIV diagnoses in BC by age group - total, 2006 to 2015



7. New HIV diagnoses in BC by age group - female, 2006 to 2015



8. New HIV diagnoses in BC by age group - male, 2006 to 2015



HIV by Ethnicity

Over the past ten years, the proportion of reported ethnicities among people newly diagnosed with HIV in BC has shifted. The percentage of new diagnoses among Caucasian people has gradually decreased while the percentage of diagnoses among Asian people has increased with the proportion of most other ethnicities remaining relatively stable.

Similar to previous years, in 2015 most new HIV diagnoses are among people of Caucasian ethnicity (110 cases, 46.0%) followed by Asian (24 cases, 10.0%) and peoples of Aboriginal (19 cases, 7.9%) ethnicity (Table 9). Over this time period, Aboriginal peoples have been disproportionately represented in BC's HIV epidemic, consistently comprising approximately 11-17% of new HIV diagnoses while representing only about 5% of the total provincial population.² This disparity is particularly pronounced for Aboriginal women who comprise 27.0% (10 cases) of new HIV diagnoses among females in 2015 (Table 10). Notably, the proportion of new HIV diagnoses among Aboriginal peoples has decreased from 15.5% (56/361 cases) in 2006 to 7.9% (19/239 cases) in 2015, the lowest proportion in the last ten years.

At the time of this report, the ethnicity of 57 (23.8%) individuals newly diagnosed with HIV in 2015 is unknown.

9. Percentage of new HIV diagnoses in BC by ethnicity - total, 2006 to 2015

Ethnicity	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
<i>No. Diagnoses</i>	361	391	347	337	300	288	237	265	261	239
Caucasian	62.9	62.1	55.3	53.1	59.7	53.1	57.4	58.1	45.6	46.0
Aboriginal	15.5	16.1	13.5	16.9	13.0	15.3	12.7	11.3	13.8	7.9
Asian	4.7	4.3	8.9	7.7	9.7	11.5	12.7	10.2	10.3	10.0
South Asian	2.8	3.1	2.3	2.1	2.7	5.2	3.4	3.4	8.4	2.5
Hispanic	4.2	4.9	6.6	6.5	3.3	4.2	4.2	4.2	5.0	2.1
Black	4.2	2.6	4.9	6.8	5.3	4.5	3.0	2.6	3.8	5.0
Other *	1.1	1.5	2.6	2.1	2.3	1.4	2.5	0.8	1.1	2.5
Unknown	4.7	5.4	5.8	4.7	4.0	4.9	4.2	9.4	11.9	23.8

* Other - Arab/West Asian and other/mixed ethnicity

10. Percentage of new HIV diagnoses in BC by ethnicity - female, 2006 to 2015

Ethnicity	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
<i>No. Diagnoses</i>	73	85	60	71	62	43	29	31	44	37
Caucasian	30.1	42.4	41.7	43.7	37.1	32.6	34.5	38.7	27.3	27.0
Aboriginal	38.4	38.8	35.0	23.9	33.9	37.2	37.9	38.7	36.4	27.0
Asian	2.7	2.4	3.3	2.8	6.5	4.7	6.9	9.7	4.5	10.8
South Asian	9.6	4.7	1.7	1.4	3.2	4.7	0.0	6.5	13.6	2.7
Hispanic	1.4	1.2	0.0	0.0	1.6	2.3	3.4	0.0	0.0	0.0
Black	9.6	4.7	13.3	15.5	9.7	11.6	13.8	3.2	6.8	10.8
Other *	2.7	2.4	1.7	1.4	3.2	2.3	3.4	0.0	0.0	0.0
Unknown	5.5	3.5	3.3	11.3	4.8	4.7	0.0	3.2	11.4	21.6

* Other - Arab/West Asian and other/mixed ethnicity

11. Percentage of new HIV diagnoses in BC by ethnicity - male, 2006 to 2015

Ethnicity	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
<i>No. Diagnoses</i>	288	303	287	266	238	245	208	234	215	202
Caucasian	71.2	68.0	58.2	55.6	65.5	56.7	60.6	60.7	48.8	49.5
Aboriginal	9.7	9.9	9.1	15.0	7.6	11.4	9.1	7.7	9.3	4.5
Asian	5.2	5.0	10.1	9.0	10.5	12.7	13.5	10.3	11.6	9.9
South Asian	1.0	2.6	2.4	2.3	2.5	5.3	3.8	3.0	7.4	2.5
Hispanic	4.9	5.6	8.0	8.3	3.8	4.5	4.3	4.7	6.0	2.5
Black	2.8	2.0	3.1	4.5	4.2	3.3	1.4	2.6	3.3	4.0
Other *	0.7	1.3	2.8	2.3	2.1	1.2	2.4	0.9	1.4	3.0
Unknown	4.5	5.6	6.3	3.0	3.8	4.9	4.8	10.3	12.1	24.3

* Other - Arab/West Asian and other/mixed ethnicity

New HIV Diagnoses among Aboriginal Peoples

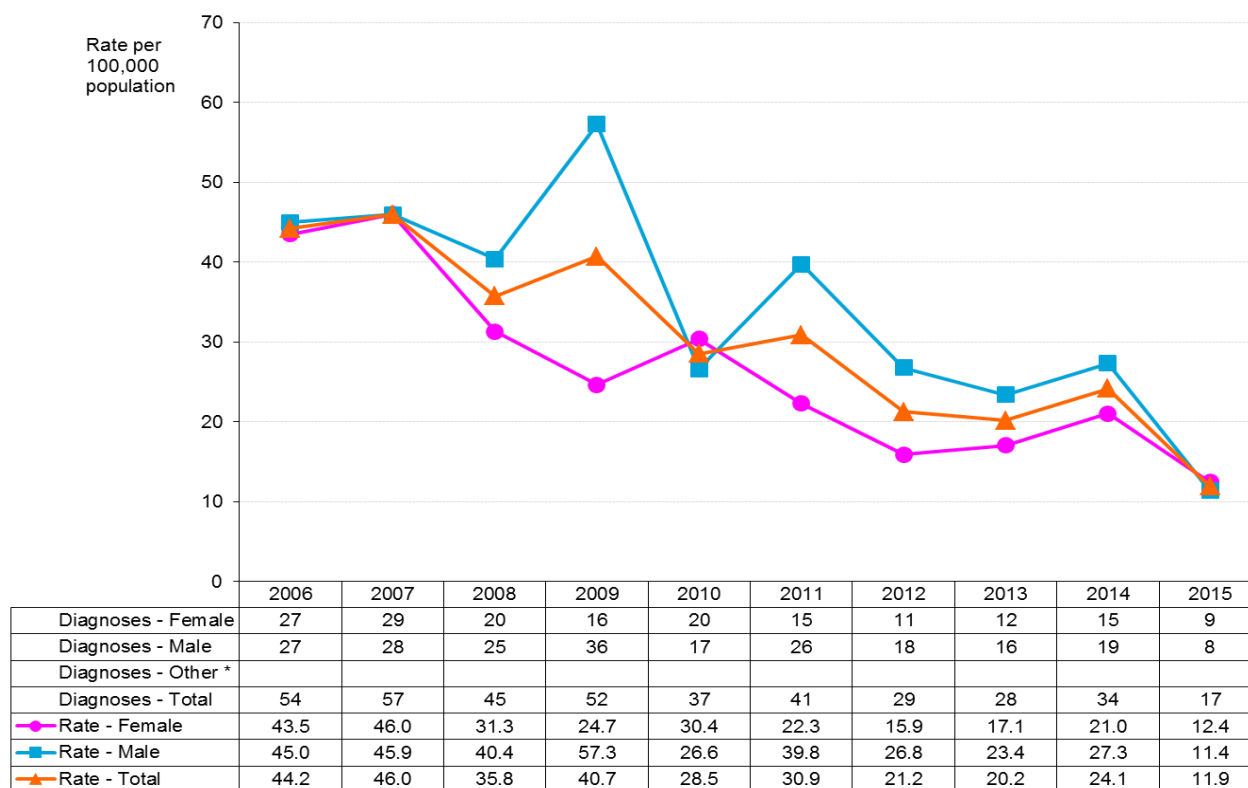
Statistics can help us understand the impact of HIV among Aboriginal peoples in BC but they tell only part of the story. Behind each individual with HIV counted in this report is a family, a community, and a broader social and economic context. The new HIV diagnoses among Aboriginal peoples in this report include only those who have been tested – as with all HIV cases in this report – and only those who self-identify as Aboriginal. Among the nearly 200,000 Aboriginal persons living in BC, approximately 66% are First Nations, 30% are Métis, and fewer than 5% are Inuit or of other Aboriginal identity.³

There are multiple social, economic, and contextual factors that contribute to the increased risk of HIV among Aboriginal peoples – such as colonization, the intergenerational trauma of Indian Residential Schools, loss of language and culture, and ongoing discrimination – which have contributed to inequities in health.⁴ Although this surveillance report will focus on simple statistics, we acknowledge the complex factors that determine health and recognize that Aboriginal peoples and communities hold many strengths to draw on to address HIV prevention, care, treatment, and support.⁵

Between 2006 and 2015, there were 17-57 new HIV diagnoses reported each year among First Nations people (17 cases in 2015). During the same time period, six or fewer new HIV diagnoses were reported each year among Métis and Inuit people in BC. Because of the small number of diagnoses among Métis and Inuit people and the availability of population estimates for status First Nations people (needed for rate calculations), the remainder of this section focuses on new HIV diagnoses among people who identify as First Nations.

The number and rate of new HIV diagnoses among First Nations people have decreased over the past 10 years (Figure 12). In 2015, the rate of new HIV diagnoses among First Nations people was 11.9 (17 cases) per 100,000 population, the lowest rate reported in the last decade.

12. New HIV diagnoses among First Nations people in BC by gender, 2006 to 2015



* Other - transgender and gender unknown

Rates based on First Nations population estimates from Aboriginal Affairs and Northern Development Canada (AANDC)

In 2015, as in previous years, the majority of new HIV diagnoses among First Nations people were in Vancouver Coastal, Fraser, and Northern Health Authorities.

The rate of new HIV diagnoses in First Nations men is comparable to the rate in women (Figure 12). This contrasts with gender-stratified rates among the general BC population in which rates are five-to-ten fold higher among men (Figure 4). This difference could reflect the fact that most new HIV diagnoses among First Nations people are attributed to people who inject drugs (PWID) and heterosexual (HET) exposure categories which include more women, whereas most new HIV diagnoses among the total population are attributed to the men who have sex with men (MSM) exposure category. Rates in both First Nations women and men exceed the provincial rates among women and men (12.4 versus 1.6 per 100,000 population for women and 11.4 versus 8.7 per 100,000 population for men in 2015).

In 2015, the highest rates of new HIV diagnoses for First Nations men were in those 25-39 years old and for First Nations women were in those 30-39 years old.

HIV by Exposure Category

Gay, bisexual, and other men who have sex with men (MSM) continue to comprise the greatest number of new HIV diagnoses in BC. The overall trend in new HIV diagnoses among MSM is elevated compared with other exposure categories but has been decreasing slightly over the past 10 years. The number of new HIV diagnoses among MSM decreased to 136 cases (56.9%) in 2015 from 153 cases (58.6%) in 2014. In 2015, the number of new HIV diagnoses in BC among people who inject drugs (PWID) decreased to 17 cases (7.1%) from 26 cases (10.0%) in 2014. The number of new HIV diagnoses due to heterosexual contact demonstrated a slight increase to 68 (28.5%) in 2015 from 65 cases (24.9%) in 2014 (Figure 14). Trends in these three main exposure categories in BC are explored in more detail in the following sections.

At the time of this report, the exposure category of 15 (6.3%) individuals newly diagnosed with HIV in 2015 are not identified or are unknown. The final number of individuals in each exposure category for 2015 may change slightly if further information on these individuals is received.

13. New HIV diagnoses in BC by exposure category and health authority, 2006 to 2015

Health Authority	Exposure Category	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Interior	MSM	8	4	10	4	4	3	4	3	9	10
	PWID	7	9	6	1	2	1	4	0	4	1
	HET	1	4	9	11	5	5	4	8	4	7
	Other	1	0	1	2	0	1	0	0	0	0
	NIR/UNK	0	0	0	0	0	1	0	2	0	1
Fraser	MSM	27	30	30	27	22	24	22	34	27	29
	PWID	22	16	8	18	11	5	5	9	7	1
	HET	24	33	27	35	30	22	15	16	24	29
	Other	2	1	3	4	4	3	1	3	1	0
	NIR/UNK	0	1	2	3	5	0	2	2	0	3
Vancouver Coastal	MSM	113	128	121	104	112	132	105	99	103	86
	PWID	37	41	27	20	21	13	11	11	10	11
	HET	30	39	28	29	33	31	23	24	21	23
	Other	4	1	2	5	1	2	0	1	4	2
	NIR/UNK	1	0	8	6	0	0	2	5	7	6
Vancouver Island	MSM	8	9	18	16	13	8	16	14	10	11
	PWID	32	30	11	10	9	3	3	1	3	2
	HET	7	10	9	8	10	9	6	10	10	7
	Other	3	4	0	1	1	1	1	1	0	1
	NIR/UNK	1	0	1	4	0	0	0	3	2	3
Northern	MSM	3	0	2	1	1	3	1	3	2	0
	PWID	15	22	13	15	9	12	6	4	2	2
	HET	9	4	8	9	5	8	4	9	6	2
	Other	2	1	1	0	0	0	0	1	2	0
	NIR/UNK	0	1	1	2	1	1	1	0	1	2
BC	MSM	160	173	181	153	153	170	149	154	153	136
	PWID	115	118	66	64	52	34	29	25	26	17
	HET	72	90	81	92	83	75	52	68	65	68
	Other	12	7	7	12	6	7	2	6	7	3
	NIR/UNK	2	3	12	16	6	2	5	12	10	15

MSM - men who have sex with men

PWID - people who inject drugs

HET - heterosexual contact

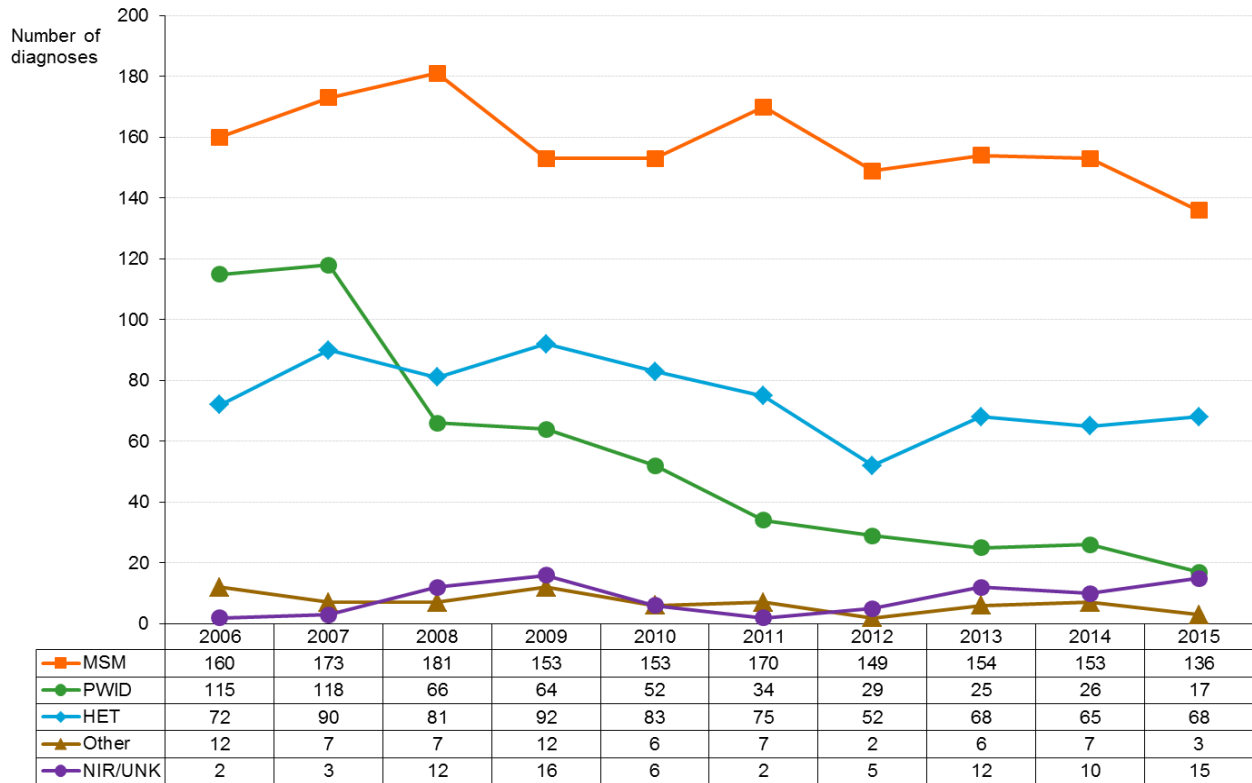
Other - blood/blood products and occupational/perinatal/other exposures

NIR - no identified risk

UNK - exposure unknown

BC is the sum of new HIV diagnoses from all health authorities, unknown health authority, and non-BC

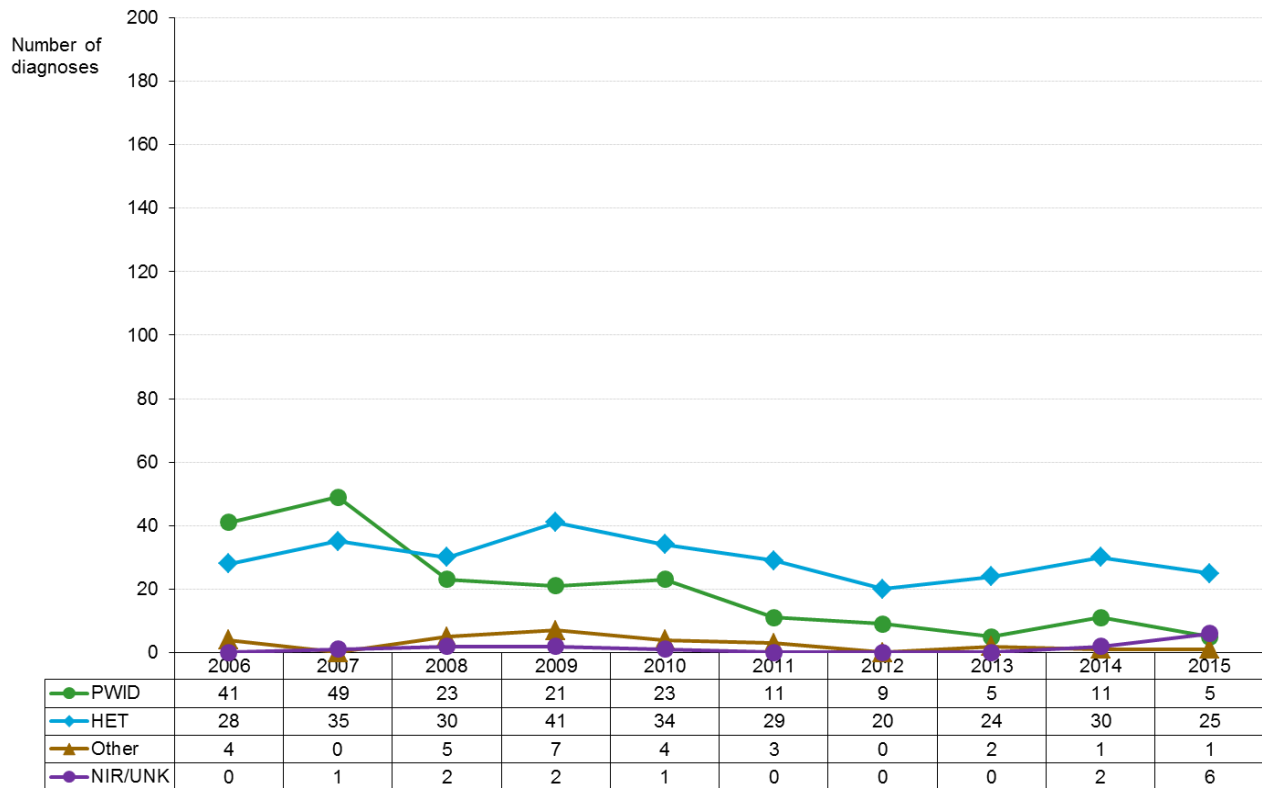
14. New HIV diagnoses in BC by exposure category - total, 2006 to 2015



MSM - men who have sex with men PWID - people who inject drugs HET - heterosexual contact
 NIR - no identified risk UNK - exposure unknown

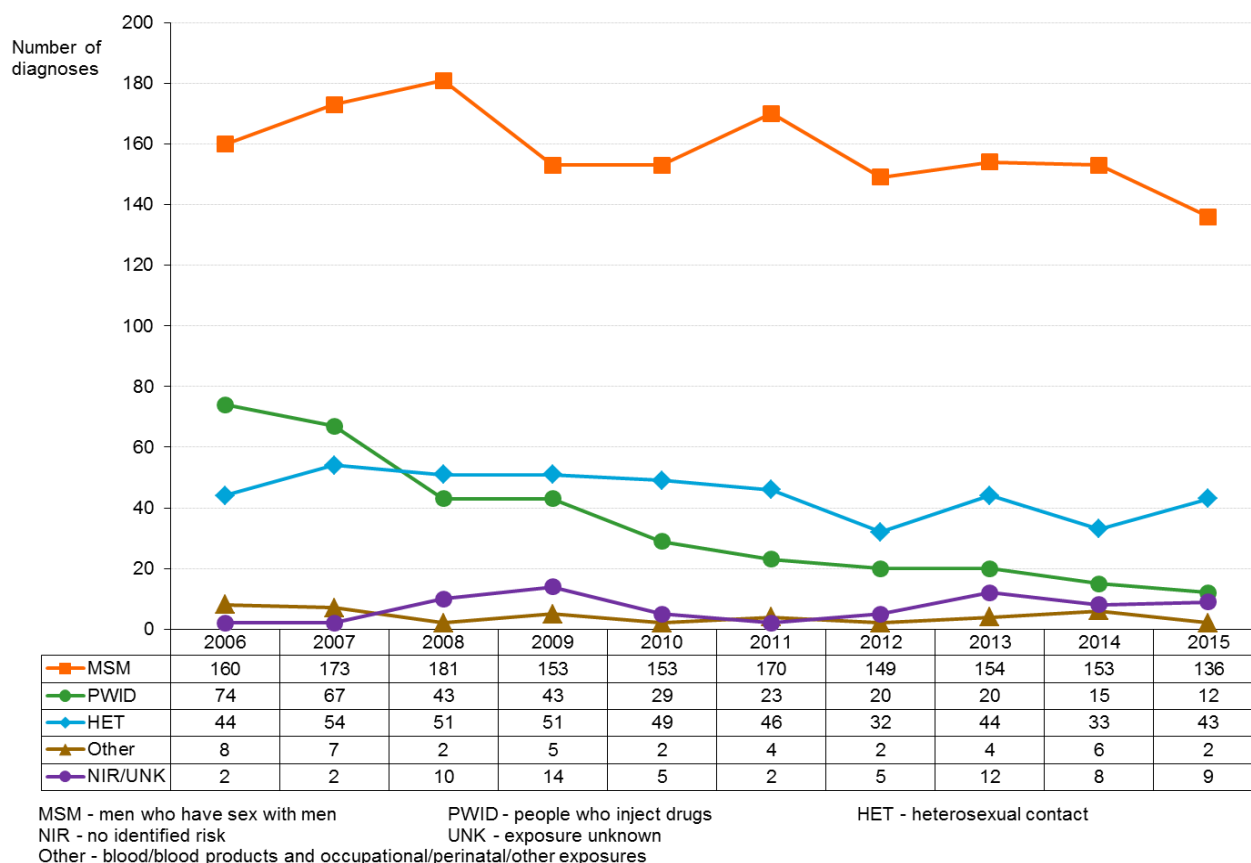
Other - blood/blood products and occupational/perinatal/other exposures

15. New HIV diagnoses in BC by exposure category - female, 2006 to 2015



PWID - people who inject drugs HET - heterosexual contact NIR - no identified risk
 UNK - exposure unknown Other - blood/blood products and occupational/perinatal/other exposures

16. New HIV diagnoses in BC by exposure category - male, 2006 to 2015



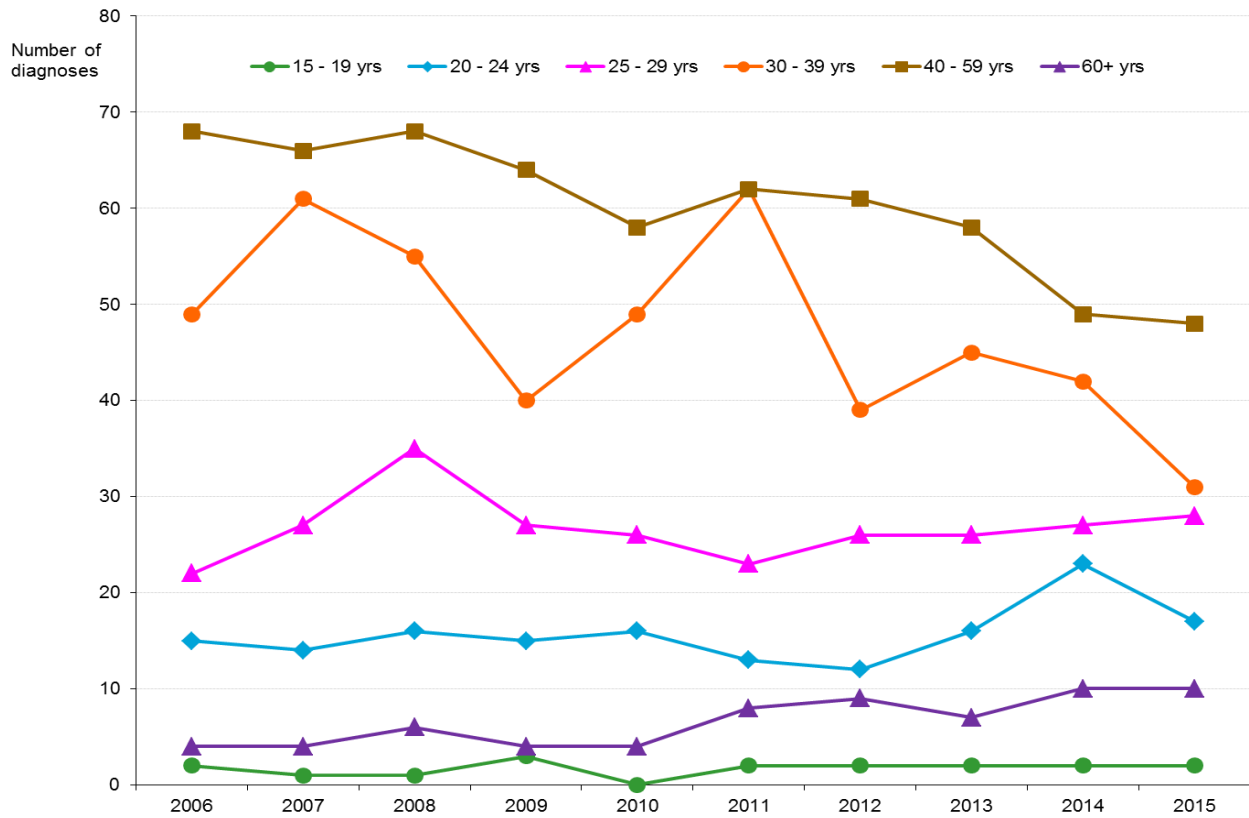
New HIV Diagnoses among Men who have Sex with Men

Gay, bisexual, and other men who have sex with men (MSM) were the population first affected by HIV in BC and remain the population most affected by HIV in BC, as in many other regions of North America. The Public Health Agency of Canada estimated that in 2014, 49% of the 12,100 people with prevalent HIV infections in BC (i.e., living with HIV) were MSM (Table 35) as were 62% of the estimated 305 people with incident (new) HIV infections (Table 34). Community surveys of MSM in venues have found an HIV prevalence of 14% in Victoria (2007)⁶ and 18% in Vancouver (2008).⁷ It is clear that MSM are disproportionately represented among new HIV diagnoses in BC compared to other males. Estimates to the size of the MSM population in BC provide context to the HIV trends observed among MSM. Recent work estimates the MSM population in BC to be 50,900.^{8, 9}

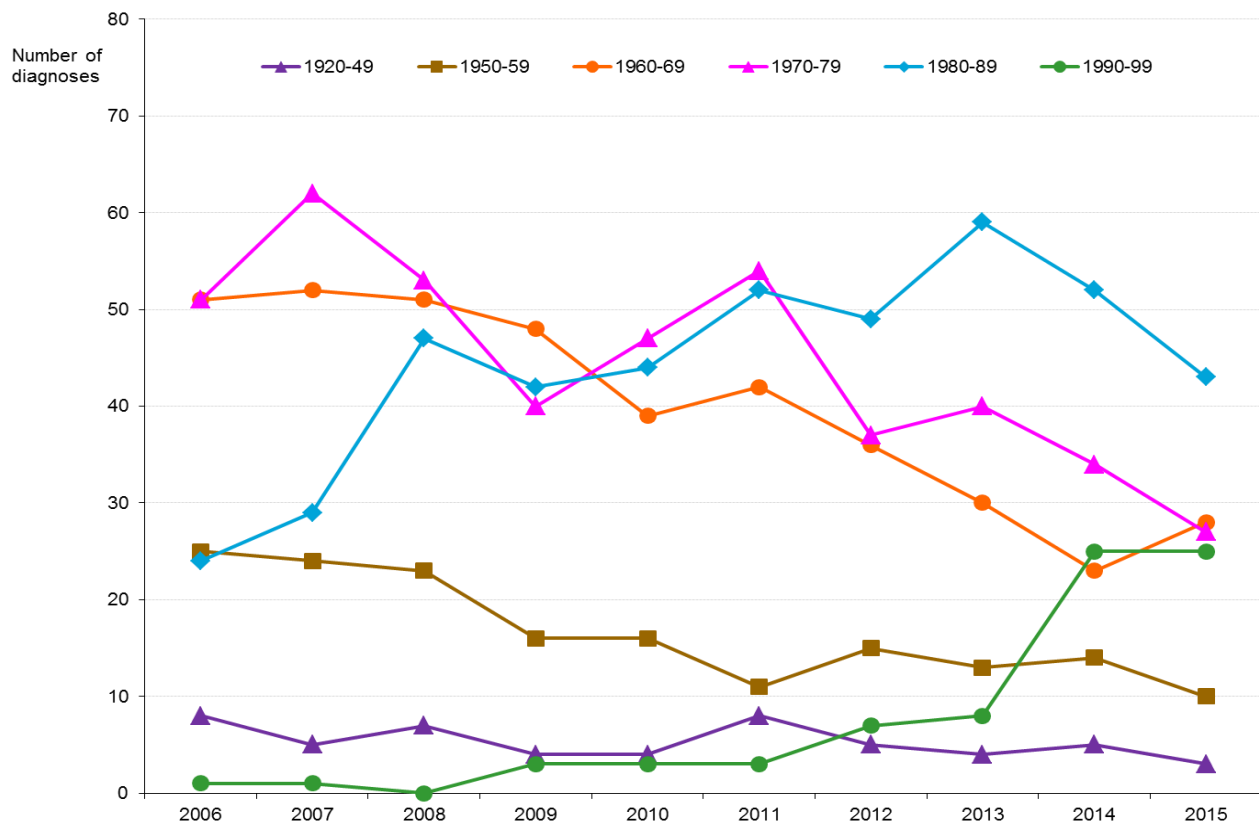
There are many factors that have led to the current epidemic of HIV among MSM in BC, ranging from social factors (such as stigma and discrimination related to sexual orientation), to community factors (such as secure access to food, access to stable housing and to appropriate, safe health services), to individual factors (such as changes in uptake of HIV medications, sexual behaviours, and use of prevention measures including condoms).¹⁰ The recognition of the complexity of the epidemic among MSM has led internationally to an increased emphasis on renewing the public health response to HIV among MSM by adopting broader approaches to HIV prevention, including sexual health and determinants-based approaches.^{11, 12}

Overall, the trend in new HIV diagnoses among MSM appears to be declining slightly but not to the same extent as in other exposure categories (Figure 16). Accordingly, MSM comprise a greater proportion of all new HIV diagnoses in BC. In 2015, 56.9% (136 cases) of all new HIV diagnoses were among MSM and 2.9% (4 cases) of these MSM were identified as having injected drugs as well (MSM/PWID) (Table 19).

17. New HIV diagnoses among MSM in BC by age group, 2006 to 2015



18. New HIV diagnoses among MSM in BC by birth cohort, 2006 to 2015



19. Percentage of new HIV diagnoses among MSM who inject drugs in BC, 2006 to 2015

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
<i>No. of MSM Diagnoses</i>	160	173	181	153	153	170	149	154	153	136
MSM/PWID	9.4	5.8	3.3	8.5	4.6	7.1	2.7	4.5	1.3	2.9

Of the 136 new HIV diagnoses among MSM in 2015, 34.6% (47 cases) were under the age of 30 years, 22.8% (31 cases) were aged 30-39 years, 35.3% (48 cases) were aged 40-59 years, and 7.4% (10 cases) were aged 60 years or older. It is important to consider that different generations of MSM in Vancouver have different experiences of the HIV epidemic due in part to the achievement of milestones such as the development of HIV treatment (i.e., antiretroviral therapy or ART), shifting community norms among gay/bisexual men, and broader socio-cultural and political factors which have reduced the stigma attached to being gay and to living with HIV.

When looking at new HIV diagnoses by different birth cohorts, new HIV diagnoses have increased substantially in recent years among MSM born between 1990-99 (Figure 18). Notably, this birth cohort, as well as the 1980-89 birth cohort, entered adolescence/adulthood in the post-ART era and hence the first to not witness first-hand the effects of AIDS – and its related mortality – experienced by the gay community in the 1980s and early 1990s. These changes in new HIV diagnoses among generations of MSM probably reflect population dynamics and sexual activity, as younger men “age in” to the epidemic.

The proportion of new HIV diagnoses among MSM aged 20-29 years increased to 33.1% (45 cases) in 2015 from 32.7% (50 cases) in 2014 (Figure 17). Similarly, increases in new HIV infections among young MSM have been reported in the US^{13, 14}, and Europe^{15, 16}. One reason for this may be the greater use of technology and the Internet to facilitate sexual encounters; studies have found elevated levels of sexual risk behaviours (i.e., unprotected anal intercourse, multiple anal intercourse partners, older sexual partners, and engaging in sexual activity at sex clubs or bathhouses) among young MSM who seek and meet sexual partners through the Internet.^{17, 18}

There is some indication that the profile of MSM by ethnicity is also shifting with the percentage of new diagnoses among Caucasian MSM gradually decreasing. In 2015, 55.1% (75 cases) of MSM newly diagnosed with HIV were Caucasian, 9.6% (13 cases) were Asian, 4.4% (6 cases) were of other ethnicity, and 3.7% (5 cases) were Hispanic males (Table 20).

At the time of this report, the ethnicity of 32 (23.5%) MSM newly diagnosed with HIV in 2015 is unknown.

20. Percentage of new HIV diagnoses among MSM in BC by ethnicity, 2006 to 2015

Ethnicity	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
<i>No. of Diagnoses</i>	160	173	181	153	153	170	149	154	153	136
Caucasian	79.4	76.9	62.4	58.2	74.5	61.2	64.4	63.6	55.6	55.1
Aboriginal	6.9	2.3	5.5	8.5	2.0	5.9	3.4	3.2	4.6	0.7
Asian	5.6	6.4	11.6	12.4	13.1	15.3	18.1	11.7	11.1	9.6
South Asian	0.0	2.3	2.2	0.7	1.3	2.4	2.7	1.9	7.8	0.7
Hispanic	6.9	7.5	11.0	11.8	5.2	5.9	4.7	5.8	8.5	3.7
Black	0.6	1.2	1.1	2.6	0.0	2.9	1.3	2.6	2.0	2.2
Other *	0.6	1.7	3.3	2.6	2.6	1.2	2.7	1.3	2.0	4.4
Unknown	0.0	1.7	2.8	3.3	1.3	5.3	2.7	9.7	8.5	23.5

* Other - Arab/West Asian and other/mixed ethnicity

New HIV Diagnoses among People who Inject Drugs

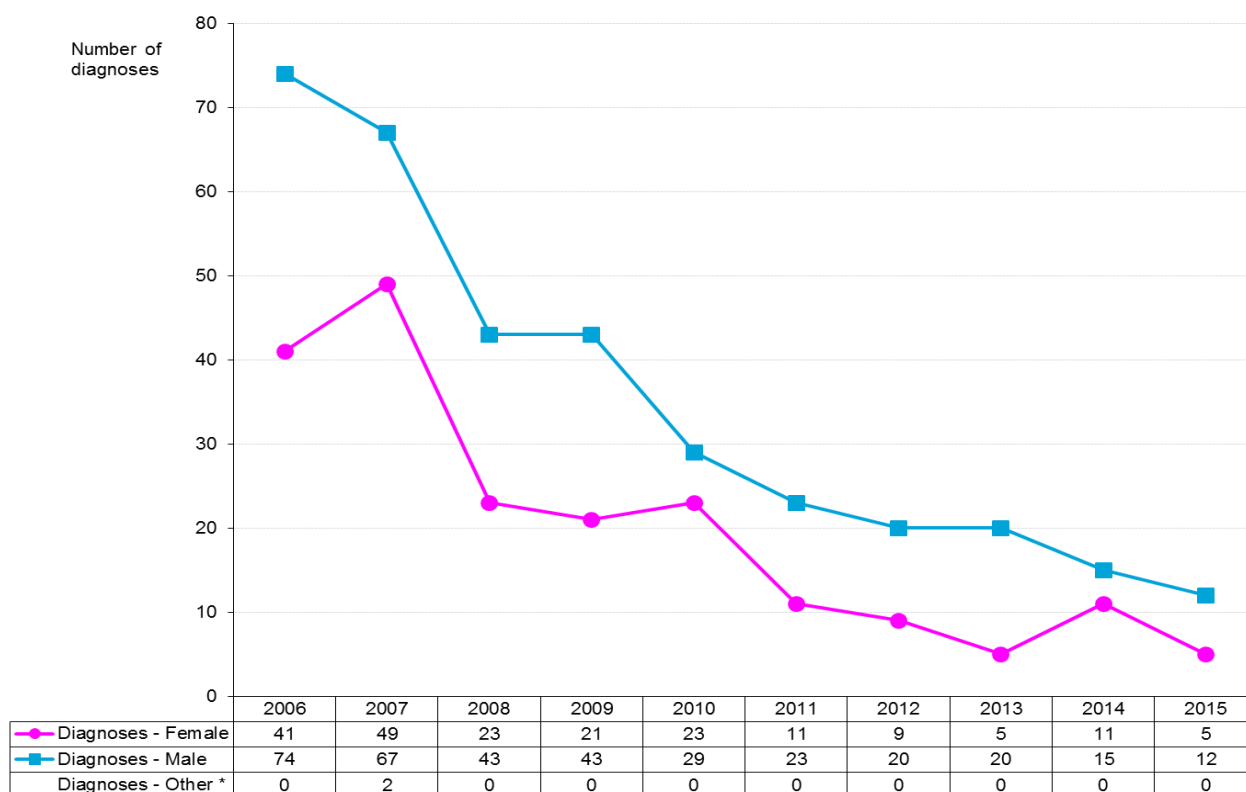
The overall decrease in HIV diagnoses in BC is largely due to the dramatic decrease in the number of new HIV diagnoses among people who inject drugs (PWID) in BC starting in 2008 (Figure 14). In the years prior to the decrease, PWID comprised approximately 30% of all new HIV diagnoses in the province. In 2015, 7.1% (17 cases) of all new HIV diagnoses were among PWID.

Estimates to the size of the PWID population in BC provide context to the HIV trends observed among PWID. Recent work estimates the PWID population in BC to be 42,200.^{19,20}

There are several possible explanations for this decrease which are likely acting in concert to result in a net overall decrease in new diagnoses among PWID. The increasing uptake and duration of antiretroviral therapy (ART) as well as provincial harm reduction programs (such as needle distribution programs, supervised injection sites, and other prevention programs) have helped lead to declines in HIV transmission among PWID. Survey data among drug users in Vancouver and Victoria also demonstrated shifts in drug using behaviour during this period, from injecting to smoking drugs which has likely been a significant factor. The continued decline in new HIV diagnoses among PWID is encouraging, and efforts to maintain and enhance current prevention programs for PWID are needed.²¹

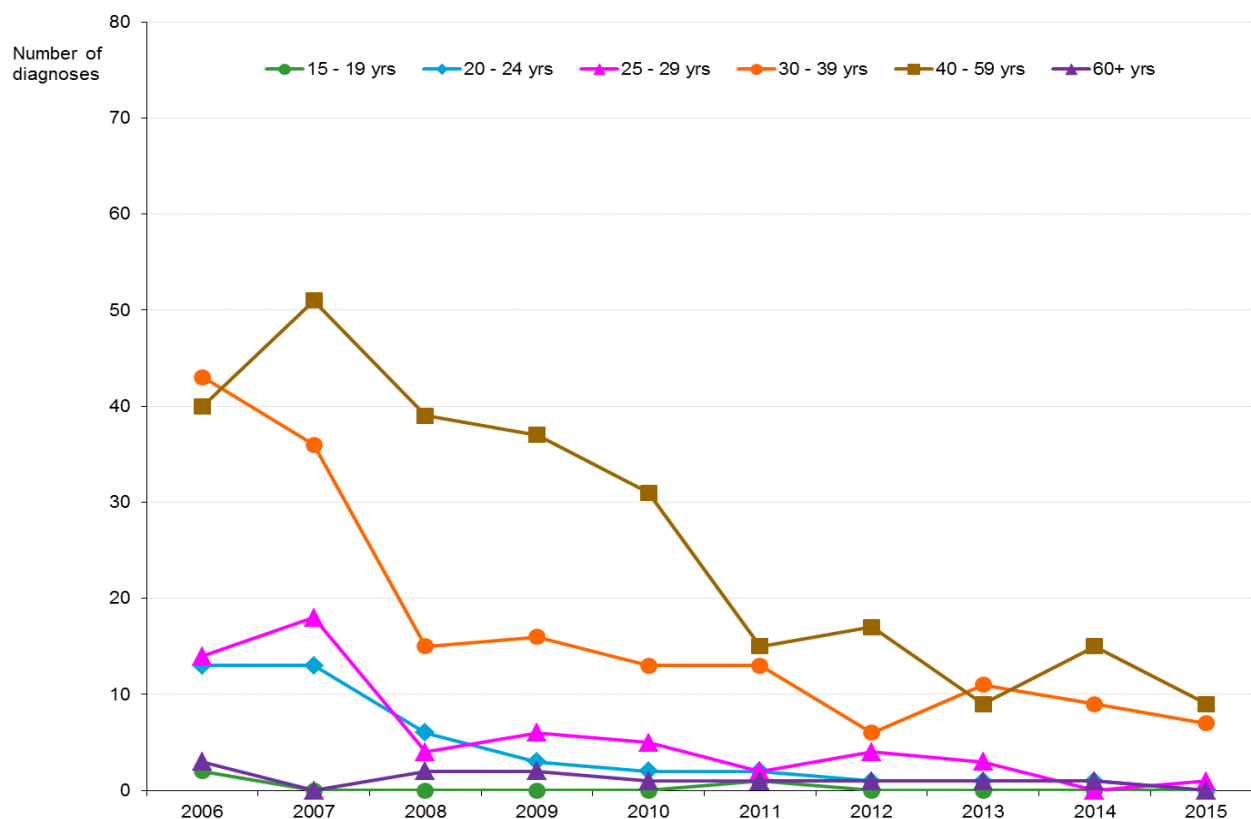
New HIV diagnoses among PWID continued to decrease in both males and females. In 2015, most of the new HIV diagnoses among PWID continue to be male (12 cases, 70.6%) (Figure 21) while the greatest number of new HIV diagnoses are in those between 30-59 years of age (16 cases, 94.1%) (Figure 22).

21. New HIV diagnoses among PWID in BC by gender, 2006 to 2015



* Other - transgender and gender unknown

22. New HIV diagnoses among PWID in BC by age group, 2006 to 2015



In 2015, the majority of new HIV diagnoses among PWID are among people of Caucasian ethnicity (7 cases, 41.2%) and Aboriginal peoples (5 cases, 29.4%) (Table 23).

23. Percentage of new HIV diagnoses among PWID in BC by ethnicity, 2006 to 2015

Ethnicity	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
<i>No. of Diagnoses</i>	115	118	66	64	52	34	29	25	26	17
Caucasian	56.5	50.0	57.6	53.1	65.4	44.1	55.2	56.0	30.8	41.2
Aboriginal	27.0	36.4	31.8	34.4	28.8	47.1	41.4	20.0	50.0	29.4
Asian	2.6	0.0	1.5	1.6	1.9	2.9	0.0	4.0	0.0	0.0
South Asian	1.7	1.7	0.0	1.6	0.0	0.0	0.0	0.0	0.0	0.0
Hispanic	1.7	1.7	0.0	0.0	0.0	2.9	0.0	4.0	0.0	0.0
Black	0.0	0.0	1.5	1.6	1.9	0.0	0.0	0.0	0.0	0.0
Other *	0.9	1.7	3.0	0.0	1.9	0.0	0.0	0.0	0.0	0.0
Unknown	9.6	8.5	4.5	7.8	0.0	2.9	3.4	16.0	19.2	29.4

* Other - Arab/West Asian and other/mixed ethnicity

New HIV Diagnoses among People who acquire HIV through Heterosexual Contact

People who have acquired HIV through heterosexual contact (HET) represent the exposure category with the second greatest number of new HIV diagnoses in BC in 2015 (68 cases, 28.5%) (Figure 14). This population is heterogeneous, including for example immigrants from HIV endemic countries with a new HIV diagnosis in BC. It is also possible that this population includes individuals where risk factors for acquisition of HIV through other routes of exposure exists but was not identified during follow-up.

The number of new HIV diagnoses among people who have acquired HIV through heterosexual contact increased in 2015 to 68 cases from 65 cases in 2014. In 2015, the number of new HIV diagnoses among heterosexual males increased to 43 cases (63.2%) from 33 cases (50.8%) in 2014. The number of new diagnoses decreased among heterosexual females in 2015 to 25 cases (36.8%) from 30 cases (46.2%) in 2014 (Figure 24). Since 2006, the majority of new HIV diagnoses are observed in individuals between 40-59 years of age (Figure 25). In 2015, new HIV diagnoses among individuals aged 40-59 years increased to 35 cases (51.5%) from 23 cases (35.4%) in 2014 while new HIV diagnoses among individuals aged 30-39 years of age decreased to 18 cases (26.5%) in 2015 from 24 cases (36.9%) in 2014.

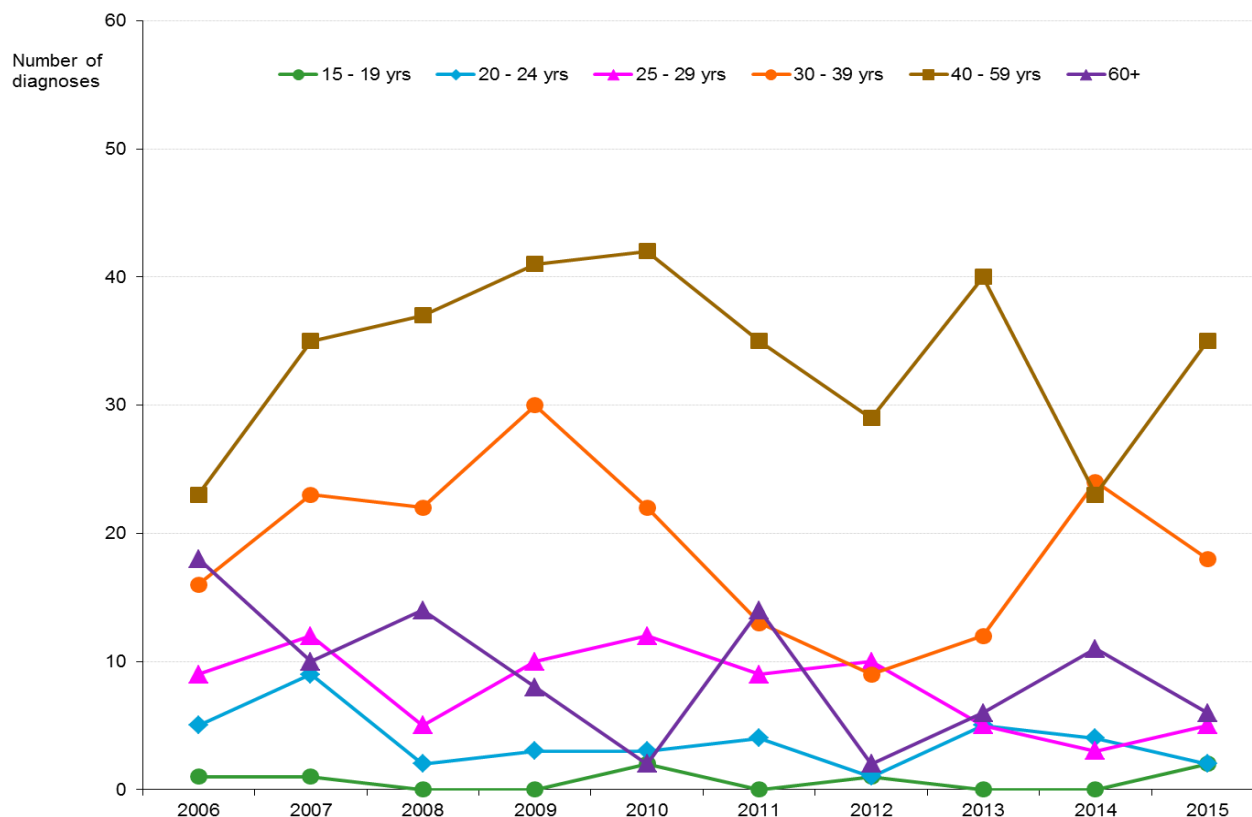
People from non Caucasian ethnicity comprise a greater proportion of new HIV diagnoses among people who have acquired HIV through heterosexual contact compared to other exposure categories. Similar to previous years, in 2015, most of the new HIV diagnoses in heterosexuals are among Caucasians (24 cases, 35.3%) followed by both Aboriginal peoples (11 cases, 16.2%) and Asians (11 cases, 16.2%) (Table 26).

24. New HIV diagnoses among HET in BC by gender, 2006 to 2015



* Other - transgender and gender unknown

25. New HIV diagnoses among HET in BC by age group, 2006 to 2015



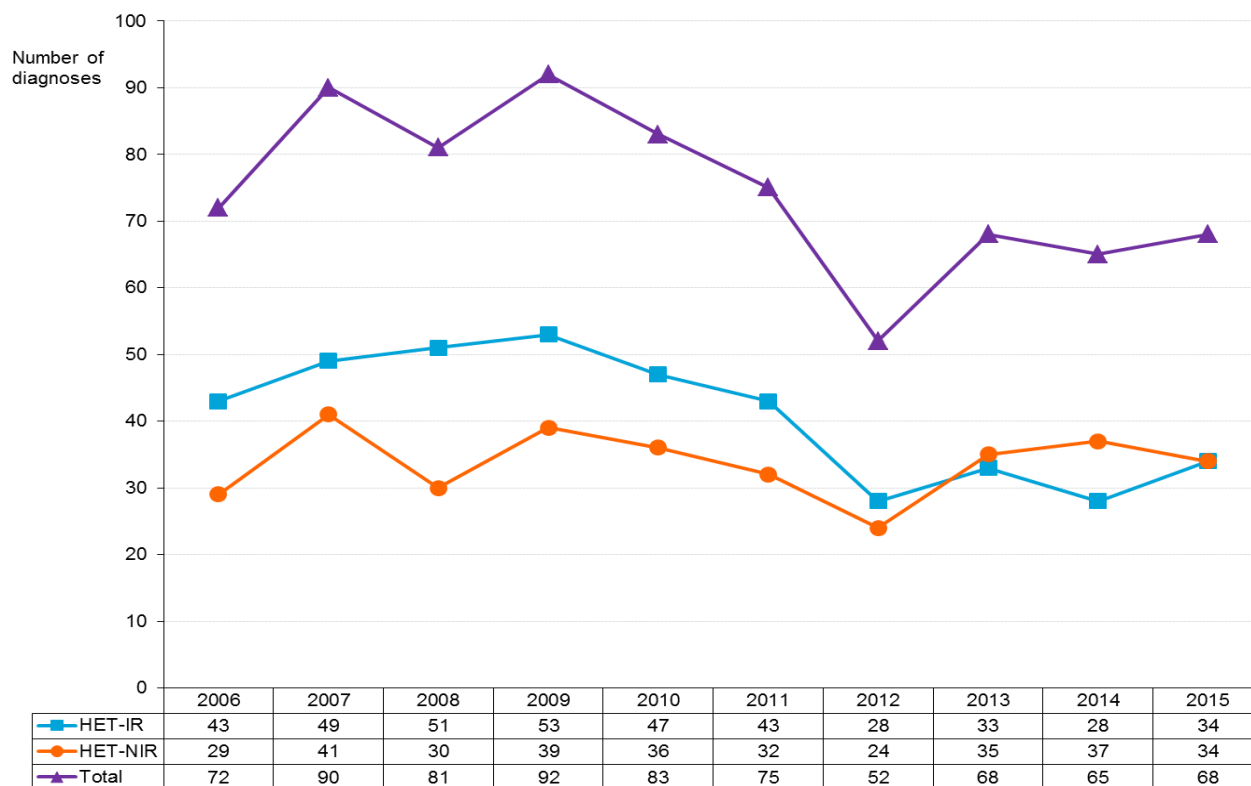
26. Percentage of new HIV diagnoses among HET in BC by ethnicity, 2006 to 2015

Ethnicity	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
<i>No. of Diagnoses</i>	72	90	81	92	83	75	52	68	65	68
Caucasian	43.1	52.2	48.1	51.1	34.9	42.7	44.2	52.9	35.4	35.3
Aboriginal	18.1	15.6	17.3	17.4	24.1	21.3	25.0	23.5	18.5	16.2
Asian	6.9	5.6	8.6	6.5	8.4	8.0	5.8	7.4	13.8	16.2
South Asian	9.7	6.7	3.7	5.4	7.2	13.3	5.8	7.4	15.4	5.9
Hispanic	1.4	4.4	3.7	2.2	2.4	1.3	5.8	0.0	0.0	0.0
Black	16.7	8.9	13.6	13.0	14.5	8.0	9.6	4.4	9.2	8.8
Other *	1.4	1.1	1.2	1.1	2.4	2.7	3.8	0.0	0.0	0.0
Unknown	2.8	5.6	3.7	3.3	6.0	2.7	0.0	4.4	7.7	17.6

* Other - Arab/West Asian and other/mixed ethnicity

Over the past ten years, most new diagnoses in this population each year are in people who on follow-up are found to have at least one identified risk factor (e.g., born/residing in an HIV endemic country or having a sexual partner living with HIV). In 2015, 50.0% (34 cases) of new diagnoses among people who acquired HIV through heterosexual contact had at least one identified risk factor (Figure 27).

27. New HIV diagnoses among HET in BC by identified risk factor, 2006 to 2015



HET-IR - heterosexual contact with at least one other risk factor identified
HET-NIR - heterosexual contact with no other risk factor identified

HIV in Pregnancy

In this 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 (OTC). The OTC provides antenatal care directly or indirectly to essentially all pregnant women with HIV infection in BC. There are rare cases that are not reported to the OTC until after delivery and these data are included in this report.

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

- Prenatal HIV tests – The number of women having at least one prenatal HIV test per year are assigned to the year in which the HIV test was performed and these data include all pregnant women (including women who do and do not have a live birth). These data come from laboratory and surveillance data which have established limitations to data quality (see Technical Appendix for details).
- Surveillance data collated by the Oak Tree Clinic – Includes pregnant women accessing care who have a live birth. The year assigned is based on the infant’s year of birth. These data come from clinical data abstraction for women for whom the OTC provides direct or indirect antenatal HIV care or for those that are reported following delivery (estimated at close to complete coverage of all pregnant women with HIV infection in BC).

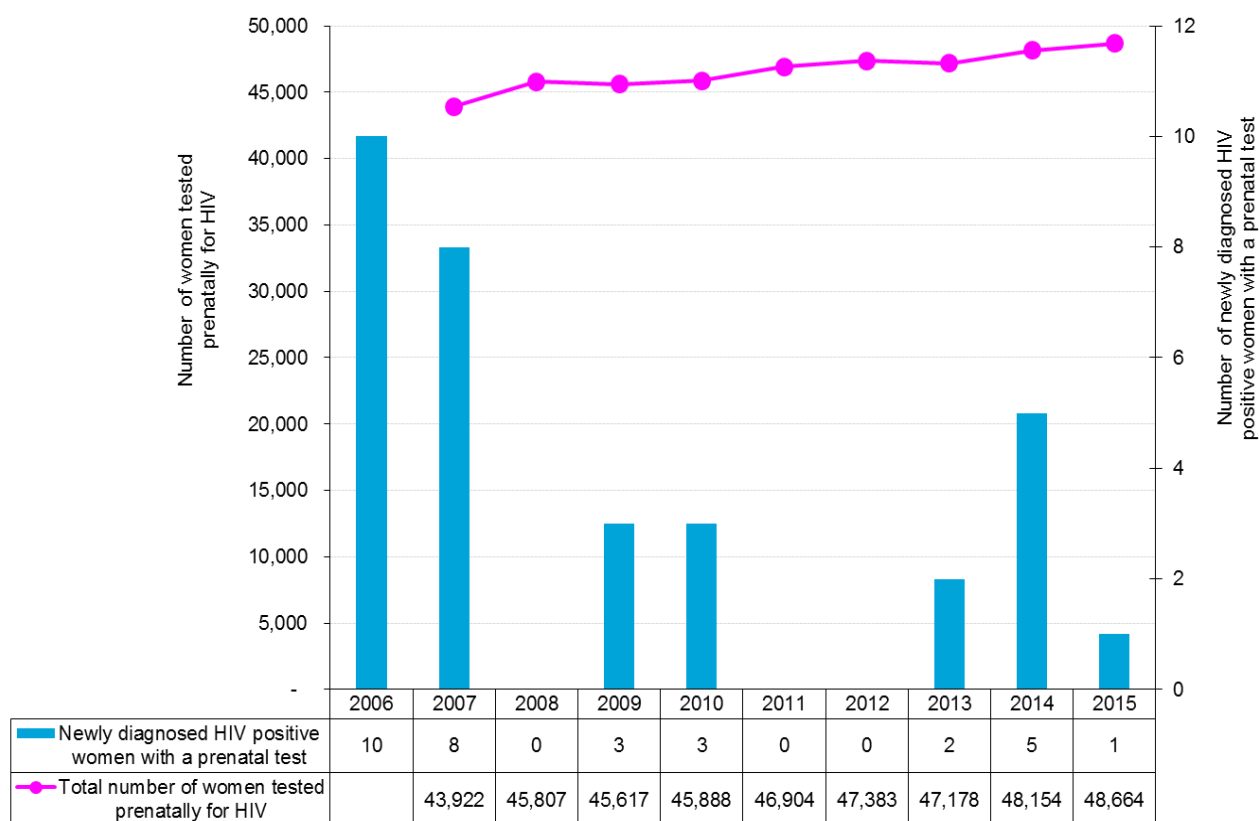
For these reasons, these two data sources are not directly comparable. However, taken together these data provide a more comprehensive overview of HIV in pregnancy in BC.

Prenatal HIV Testing

In 2015, 48,664 women were tested prenatally for HIV. Overall the number of women being tested prenatally each year in BC is increasing slightly.

Between 2006 and 2015, 32 women were newly diagnosed with HIV through prenatal screening. The number of women diagnosed with HIV through prenatal screening decreased after 2007 and remains low (Figure 28).

28. Women newly diagnosed with HIV as part of a prenatal test panel in BC, 2006 to 2015



Information source for the number of women tested prenatally for HIV is the BC Centre for Disease Control Public Health Laboratory (BCCDC PHL). Prenatal test data are not available prior to 2007.

Provincial Surveillance Data Collated by the Oak Tree Clinic

Pregnant Women with HIV

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

It is important that all health care providers who care for pregnant women with HIV inform the OTC to ensure surveillance of HIV among pregnant women in BC is comprehensive.

In the absence of antenatal ART, the transmission rate of HIV to infants born to women living with HIV is estimated at 25%. Between 2006 and 2015, 252 pregnant women living with HIV who had live births accessed care at OTC, ranging from 18 to 30 women per year.

The majority of women were diagnosed with HIV before conception or delivery (250/252, 99.2%). Of these 250 women, 245 (98.0%) received antenatal ART prior to delivery and HIV was not diagnosed in any infants born to these women (transmission rate 0% among women accessing antenatal ART) (Table 29). Since 2010, all pregnant women living with HIV who accessed care at the OTC received antenatal ART.

29. Pregnant women living with HIV who had live births and accessed care at Oak Tree Clinic, 2006 to 2015 (based on infant's year of birth)

Time of HIV diagnosis	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
HIV+ pregnant women with live births accessed care at OTC	28	30	29	21	23	30	24	18	25	24
Diagnosed before delivery, received antenatal ART	26	27	28	20	23	30	24	18	25	24
Diagnosed before delivery, did not receive antenatal ART	1	2	1	1	0	0	0	0	0	0
Diagnosed at or after delivery	1	1	0	0	0	0	0	0	0	0

OTC - Oak Tree Clinic
 ART - antiretroviral therapy

Perinatally Acquired HIV

From 2006 to 2015, perinatally acquired HIV infection was diagnosed in two infants born in BC (2006 and 2008) to women who did not receive antenatal ART prior to delivery.

Stage of Infection at Time of HIV Diagnosis

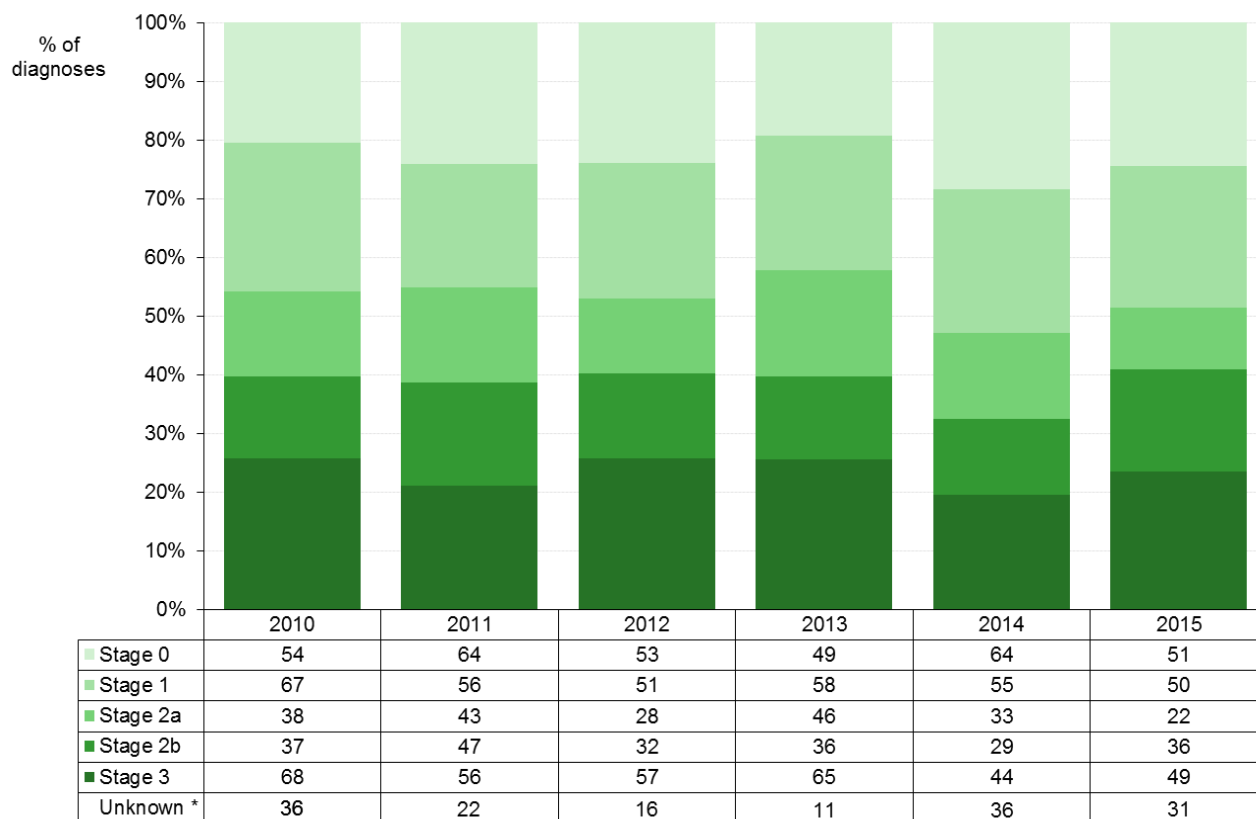
Since HIV is a progressive infection, individuals can be diagnosed weeks to years after infection and thus, can be at different stages of HIV infection at time of diagnosis. Understanding trends in the stage of infection at HIV diagnosis provides insights into the timeliness of engagement in and access to HIV testing following infection. For these reasons, the stage of infection at which individuals living with HIV are diagnosed is a key indicator for monitoring progress of the provincial HIV strategy released in 2012.²² As routine testing is promoted and implemented, a decreasing proportion of individuals diagnosed with advanced stages of HIV infection is anticipated.

Individuals newly diagnosed with HIV are classified into stages of infection based on various laboratory tests for HIV, prior test history, and CD4+ cell count (see Technical Appendix for details).

Early stages of HIV infection (i.e., acute and recent; stages 0 and 1; individuals with high CD4+ counts at time of diagnosis) decreased to 42.3% (101/239 cases) of new HIV diagnoses in 2015 from 45.6% (119/261 cases) in 2014. Late stage HIV infection (i.e., stage 3; individuals with low CD4+ counts) increased to 20.5% (49 cases) of new HIV diagnoses in 2015 from 16.9% (44 cases) in 2014 (Figure 30). Note, at the time of this report, the stage of infection at the time of HIV diagnosis is not known for 31 cases (13.0%) in 2015.

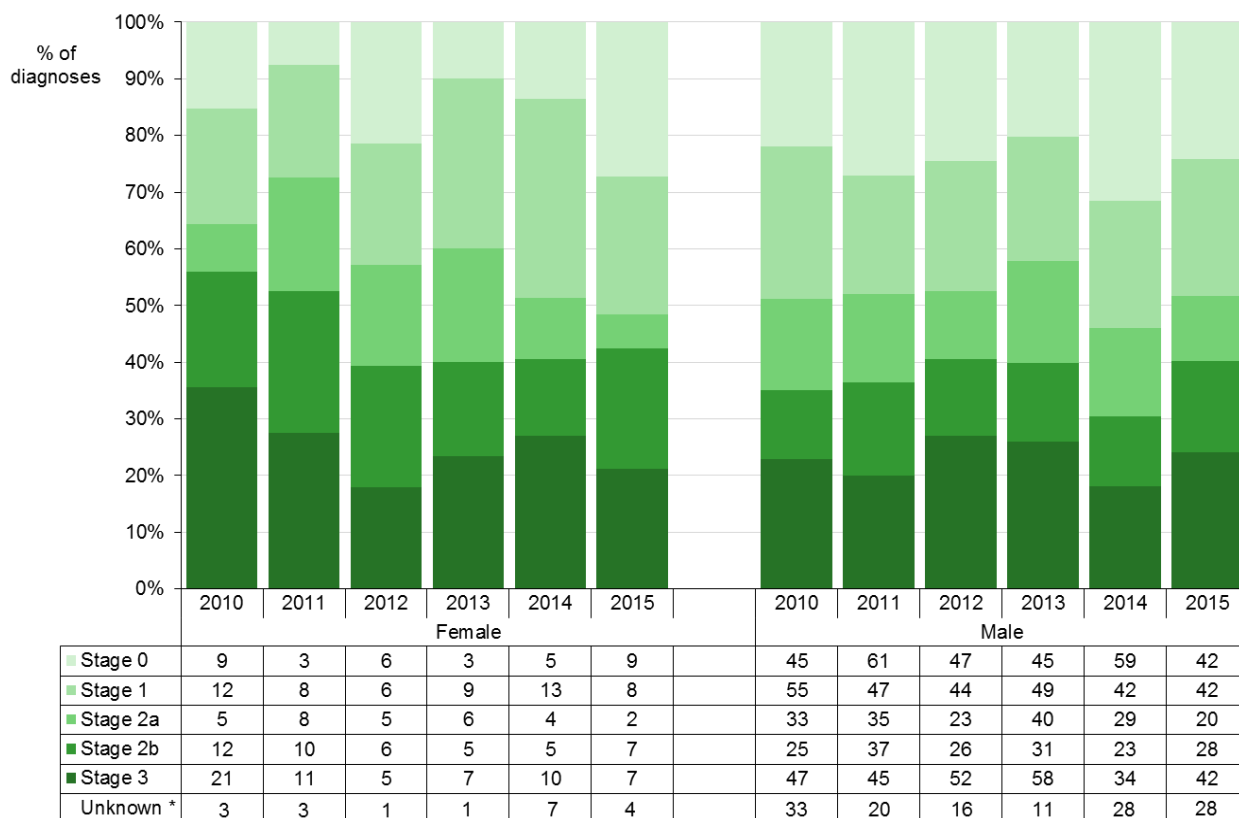
In 2015, the proportion of males newly diagnosed with HIV in early stages of infection decreased to 41.6% (84/202 cases) from 47.0% (101/215 cases) in 2014 whereas the proportion of females newly diagnosed with HIV in early stages of infection increased to 45.9% (17/37 cases) in 2015 from 40.9% (18/44 cases) in 2014 (Figure 31).

30. Stage of infection at time of HIV diagnosis in BC, 2010 to 2015



* Percentage calculations do not include counts with stage unknown

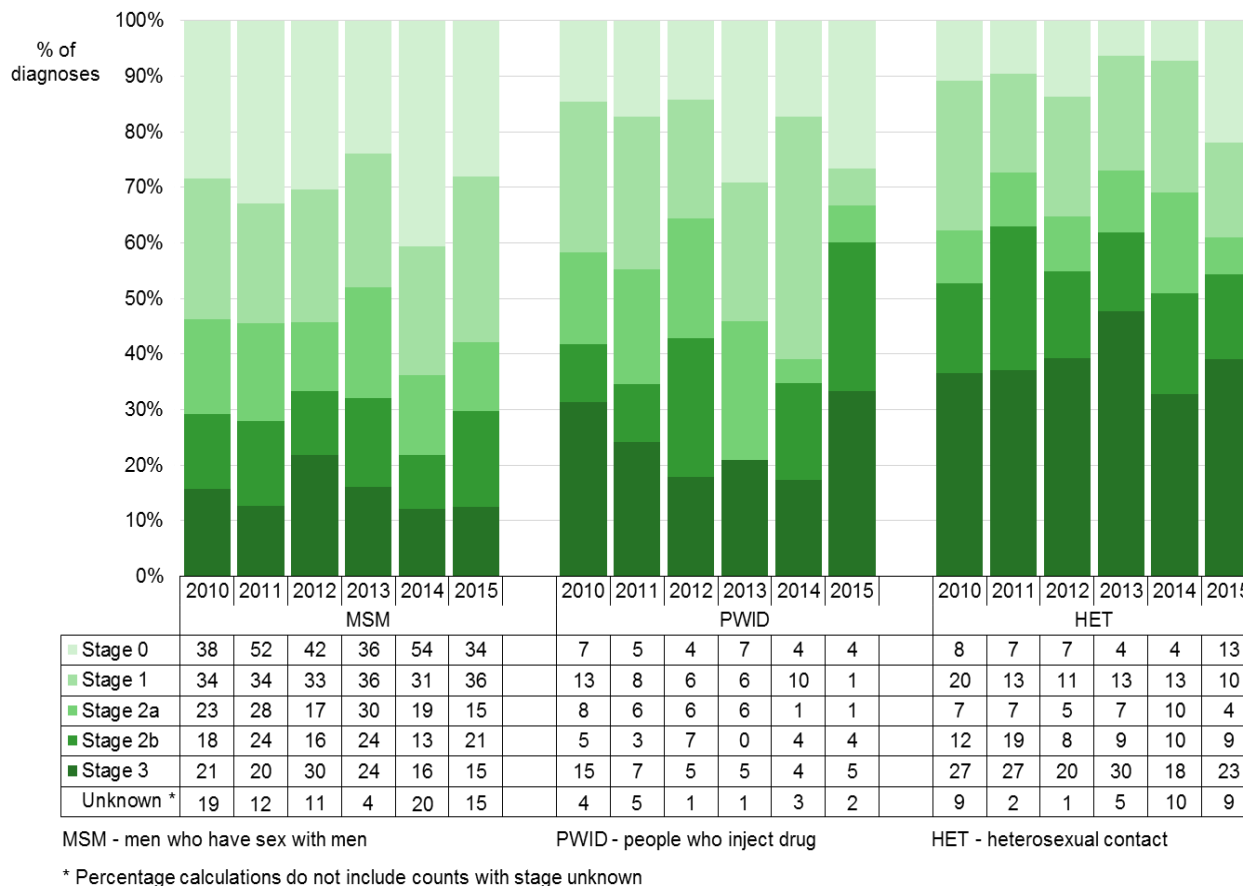
31. Stage of infection at time of HIV diagnosis in BC by gender, 2010 to 2015



* Percentage calculations do not include counts with stage unknown

The proportion of new HIV diagnoses in the early stages of infection among gay, bisexual, and other men who have sex with men (MSM) and among people who inject drugs (PWID) decreased in 2015 compared to 2014 and increased among people who acquired HIV through heterosexual contact (HET). The proportion of new HIV diagnoses in the late stage of infection among these three exposure categories increased in 2015 (Figure 32).

32. Stage of infection at time of HIV diagnosis in BC by exposure category, 2010 to 2015



Inter-Test Intervals and Proportion of Known Previous Negative HIV Tests at Time of HIV Diagnosis

Getting tested for HIV is the first step to being aware of one's HIV status and if positive, preventing transmission of infection to others. In BC, individuals 18-70 years old are recommended to be routinely tested for HIV every 5 years. Individuals belonging to populations with a higher burden of HIV infection are recommended to be routinely tested for HIV every year.²³ Analyzing a newly HIV diagnosed individual's prior testing history can help us understand potential missed opportunities for earlier diagnosis. One way to examine prior testing history is by the inter-test interval (ITI).²⁴ ITI is the time between the first positive HIV test and the most recent negative HIV test in the past ten years. In addition, the proportion of new HIV diagnoses with at least one known previous negative HIV test within the past five years is examined (see Technical Appendix for details). Shorter inter-test intervals and larger proportions of people with known HIV negative test increase the likelihood of providing an early diagnosis and lower the number of people living with HIV who are unaware of their status.

In 2015, females had a median ITI close to 2 years longer than males, 3.2 and 1.3 years respectively. Among the different age groups, the highest median ITI was among those aged 30-39 years at 2.5 years and among ethnicities, the highest median ITI was among Aboriginal peoples at 2.7 years. Cases in the Vancouver Coast Health Authority (VCHA), where a high concentration of new HIV diagnoses occur, had the lowest median ITI for all health authorities at 0.9 years (Table 33).

For exposure categories, individuals who acquired HIV through heterosexual contact had the lowest proportion of known previous negative HIV tests (27.0%) which corresponded with the highest median ITI at 2.9 years. The median ITI was lowest among gay, bisexual, and other men who have sex with men (MSM) who comprise the greatest number of new HIV diagnoses in BC. The median ITI was also the lowest in VCHA, the health authority with the highest number of new HIV diagnoses. This is suggestive that individuals most at risk for acquiring HIV are testing more frequently in BC. Among the heterosexual population, the increase in median ITI and the decrease in proportion known to have a prior negative HIV test.

33. Median years for inter-test intervals* and proportion with known previous negative HIV tests** in BC, 2015

Characteristic	Category	Inter-Test Intervals *		Diagnoses	Previous Negative Test **	
		Median (yrs)	IQR	N	n	%
Total number of new HIV diagnoses in BC		1.4	0.5 - 3.9	239	103	43.1
Health Authority	Interior	3.8	2.8 - 4.3	24	< 5	25.0
	Fraser	2.3	0.8 - 4.3	64	25	39.1
	Vancouver Coastal	0.9	0.4 - 2.5	129	64	49.6
	Vancouver Island	3.3	1.6 - 5.6	24	8	33.3
	Northern	3.3	3.1 - 7.2	6	< 5	33.3
Gender	Female	3.2	0.5 - 5.4	38	15	39.5
	Male	1.3	0.5 - 3.0	200	88	44.0
Age Group	20 - 24 yrs	1.1	0.5 - 2.2	21	11	52.4
	25 - 29 yrs	0.9	0.5 - 2.9	34	22	64.7
	30 - 39 yrs	2.5	0.5 - 5.3	59	26	44.1
	40 - 59 yrs	1.6	0.7 - 3.3	100	36	36.0
	60+ yrs	1.0	0.5 - 2.8	22	8	36.4
Ethnicity	Caucasian	1.3	0.5 - 3.3	104	56	53.8
	Aboriginal	2.7	0.6 - 4.3	18	8	44.4
	Visible minorities	2.0	0.6 - 5.2	48	12	25.0
Exposure Category	MSM	1.0	0.5 - 2.4	128	67	52.3
	PWID	2.5	0.8 - 3.9	16	10	62.5
	HET	2.9	0.5 - 5.7	63	17	27.0

* Most recent negative HIV test in the past 10 years

** Most recent negative HIV test in the past 5 years

IQR - interquartile range measures spread at around the 50th percentile; the two values represent the values at the 25th and 75th percentiles

Due to the small counts for ethnicities other than Caucasian and Aboriginal peoples, these small counts were collapsed under the category "visible minorities" for this analysis

MSM - men who have sex with men

PWID - people who inject drugs

HET - heterosexual contact

Immigration of Individuals living with HIV

In 2002, Immigration, Refugees and Citizenship Canada (IRCC) 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, IRCC notifies Clinical Prevention Services 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 BCCDC through the routine surveillance system.

The number of individuals living with HIV immigrating into BC varies annually and may reflect global migration patterns. In 2015, a total of 59 immigrants (19 females, 40 males) living with HIV arrived in BC, 14 (23.7%) coming from countries where HIV is considered to be endemic (Table 34). The median age of these immigrants was 38 years (IQR: 31-45) at the time IRCC notified BCCDC of their intent to reside in BC.

34. Immigration-related HIV diagnoses from endemic and non-endemic countries, 2006 to 2015

Country of Birth	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
<i>No. of Immigrants</i>	53	43	47	41	20	36	51	49	54	59
Endemic	41.5	23.3	36.2	46.3	25.0	38.9	33.3	22.4	33.3	23.7
Non-Endemic	49.1	62.8	40.4	39.0	50.0	44.4	37.3	30.6	44.4	30.5
Unspecified	9.4	14.0	23.4	14.6	25.0	16.7	29.4	46.9	22.2	45.8

Estimates of HIV Incidence and Prevalence

The HIV surveillance data presented in this report are based on individuals with a new positive HIV test (or new HIV diagnosis). 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 months or years after the time that they became infected with HIV. For these reasons, HIV surveillance data based on new positive HIV tests do 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^{25, 26}, specific estimates for provinces, including BC, are generated and aggregated.

In BC, estimates of the total number of incident or new HIV infections in 2014 was 305 (range 210-400 cases), a decrease from 315 (220-410 cases) in 2011 (Table 35). The estimate of prevalent HIV infections or the total number of people living with HIV in the province at the end of 2014 was 12,100 (range 9,700-14,500 cases), an increase from 11,655 (9,310-14,000 cases) at the end of 2011 (Table 36).

35. Estimated number of incident HIV infections in BC by exposure category, 2011 & 2014

Exposure Category	2011			2014		
	Number	Range	% of Total	Number	Range	% of Total
MSM	175	120 - 230	56%	182	120 - 240	60%
MSM-PWID	10	<20	3%	6	<20	2%
PWID	46	20 - 70	15%	34	20 - 50	11%
HET (non-endemic)	73	50 - 100	23%	71	40 - 100	23%
HET (endemic)	11	< 20	3%	12	<20	4%
Other		<10	---		<10	---
All	315	220 - 410		305	210 - 400	

In 2014, 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 people who inject drugs (PWID) among people living with HIV, and heterosexual persons (from countries where HIV is not endemic) among new HIV infections.²⁷

36. Estimated number of prevalent HIV infections in BC by exposure category, 2011 & 2014

Exposure Category	2011			2014		
	Number	Range	% of Total	Number	Range	% of Total
MSM	5,160	4,120 - 6,200	44%	5,500	4,400 - 6,600	46%
MSM-PWID	375	270 - 480	3%	385	270 - 500	3%
PWID	3,440	2,730 - 4,150	30%	3,400	2,700 - 4,100	28%
HET (non-endemic)	2,100	1,700 - 2,500	18%	2,220	1,740 - 2,700	18%
HET (endemic)	440	330 - 550	4%	470	340 - 600	4%
Other	140	100 - 180	1%	125	80 - 170	1%
All	11,655	9,310 - 14,000		12,100	9,700 - 14,500	

MSM - men who have sex with men

PWID - people who inject drugs

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, or occupational transmission

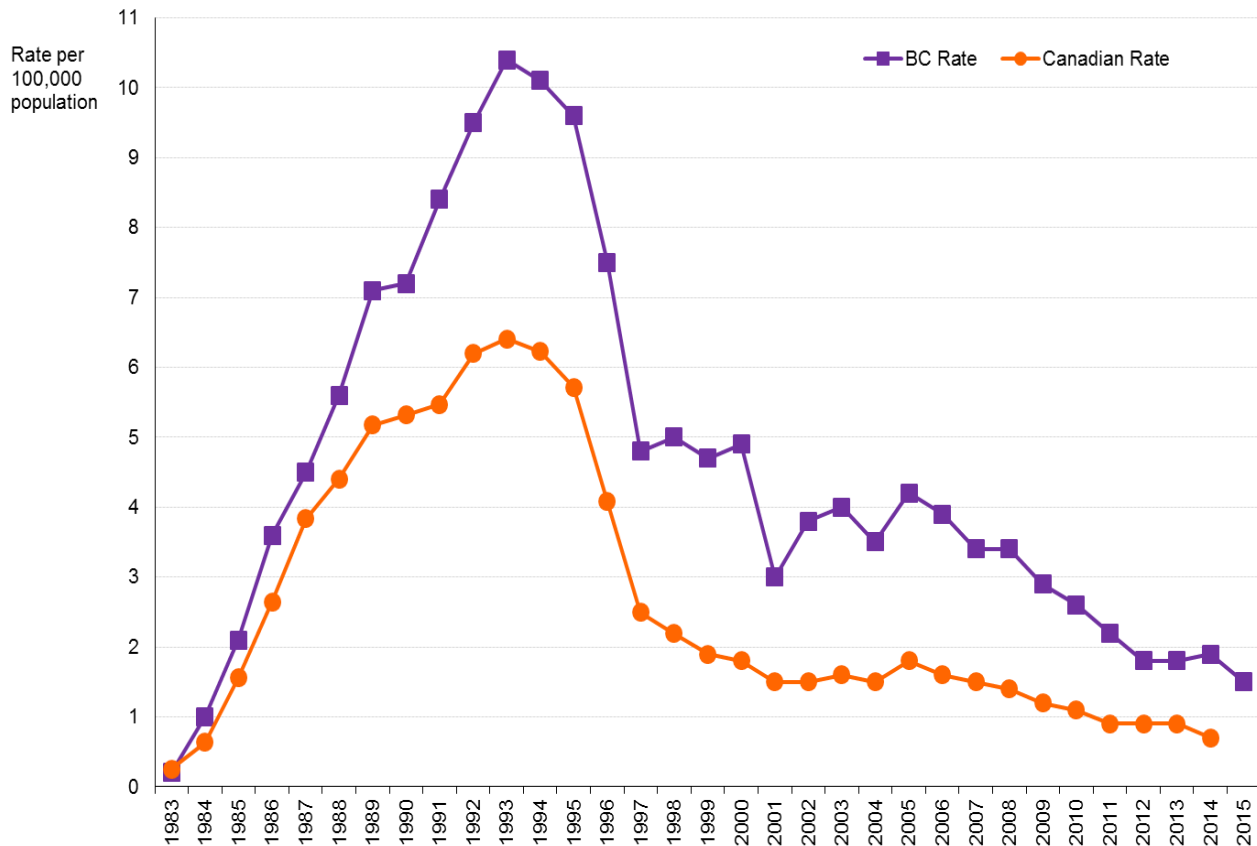
AIDS by Region, Gender, and Age

The AIDS surveillance system relies on clinicians reporting the case to Clinical Prevention Services at BCCDC. In BC, the majority of AIDS cases are reported through the Provincial HIV Treatment Program at the BC Centre for Excellence in HIV/AIDS which has comprehensive clinical data on all individuals accessing antiretroviral therapy (ART) in BC.

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 ART. The rate of AIDS in BC continued to decrease in 2015 to 1.5 (68 cases) from 1.9 (86 cases) per 100,000 population in 2014 and remains twice as high as the Canadian rate (Figure 37). This difference from the national rate may represent greater ascertainment of AIDS cases in BC due to reporting by the Provincial HIV Treatment Program. Rates of AIDS vary by Health Service Delivery Area (HSDA) per year and are influenced by the small number of cases in most regions. In 2015, the highest rates were reported in East Kootenay and Vancouver HSDAs (Figure 38).

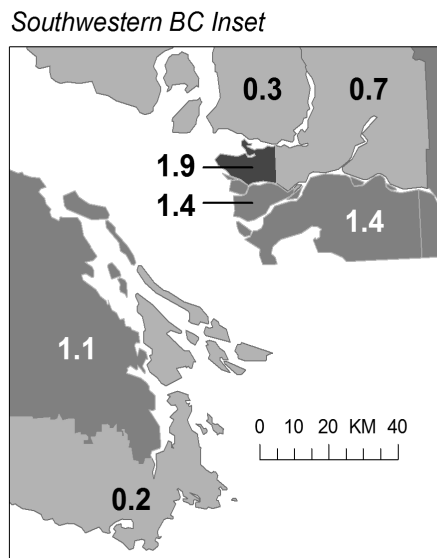
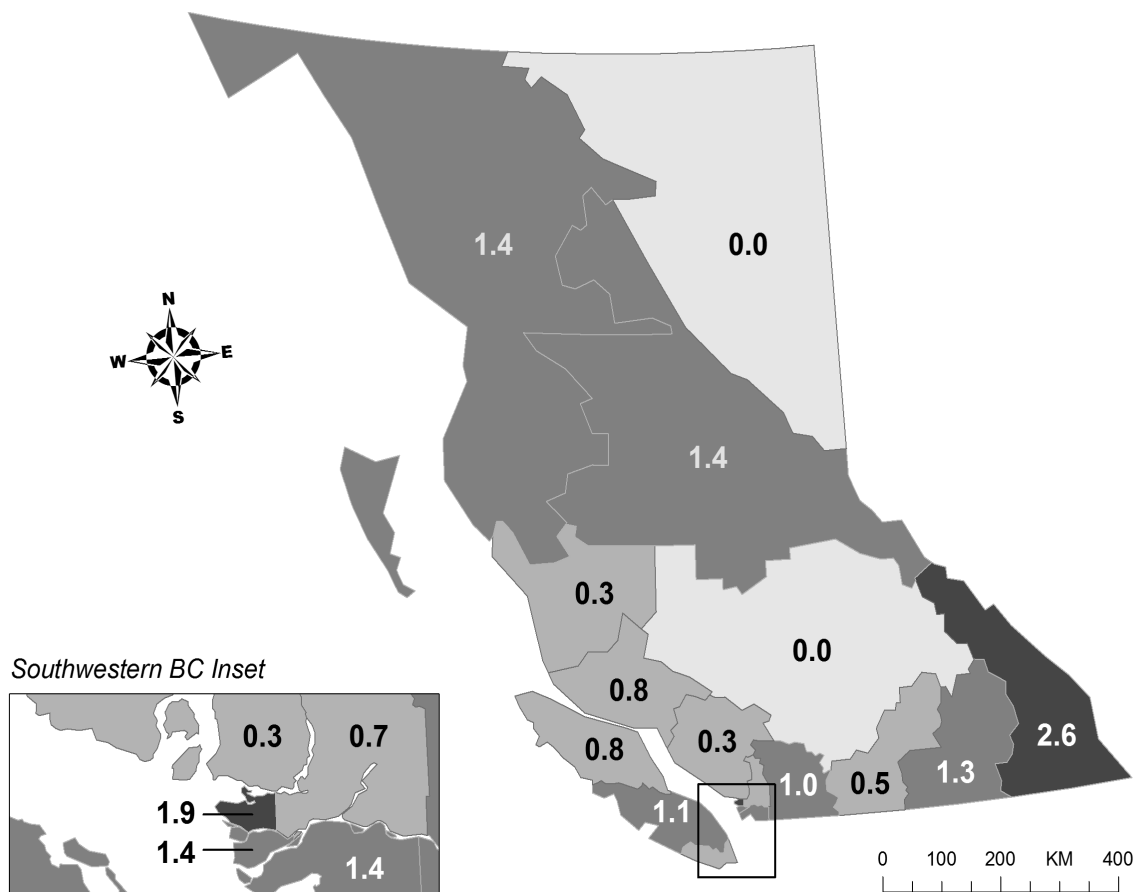
The rate of AIDS among males continues to be greater than the rate among females which likely reflects the distribution of HIV between males and females in BC (Figure 40). Rates among males have been gradually decreasing while rates in females overall appear relatively stable. The majority of new AIDS case reports are in people of Caucasian ethnicity. As with new HIV diagnoses, Aboriginal peoples continue to be disproportionately represented among AIDS cases in BC, comprising 7.4% (5 cases) of new cases in 2015 (Table 45) but only 5% of the total provincial population.²⁸

37. AIDS case reports in BC and Canada, 1983 to 2015*

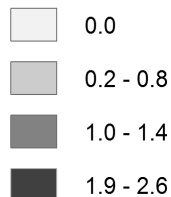


* 2015 Canadian rate is not available

38. AIDS case reports in BC by health service delivery area, 2015



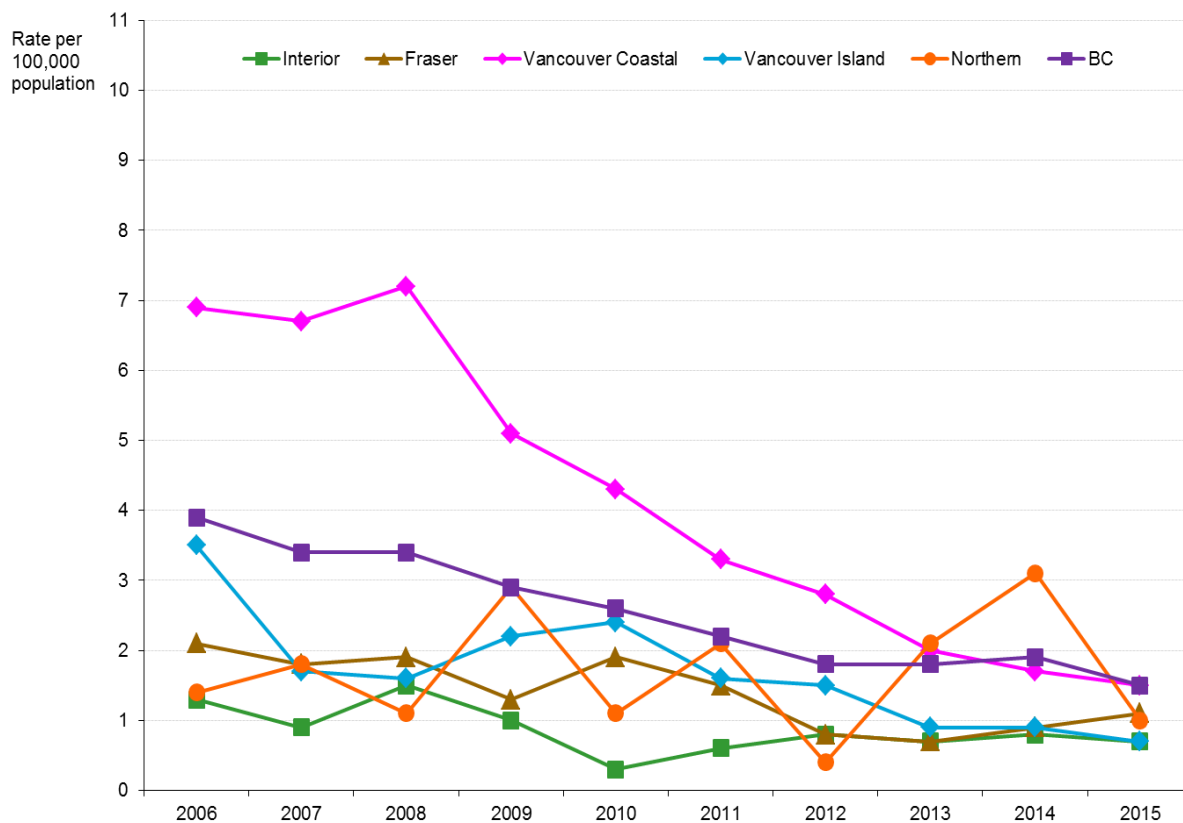
Rate per 100,000 population by HSDA



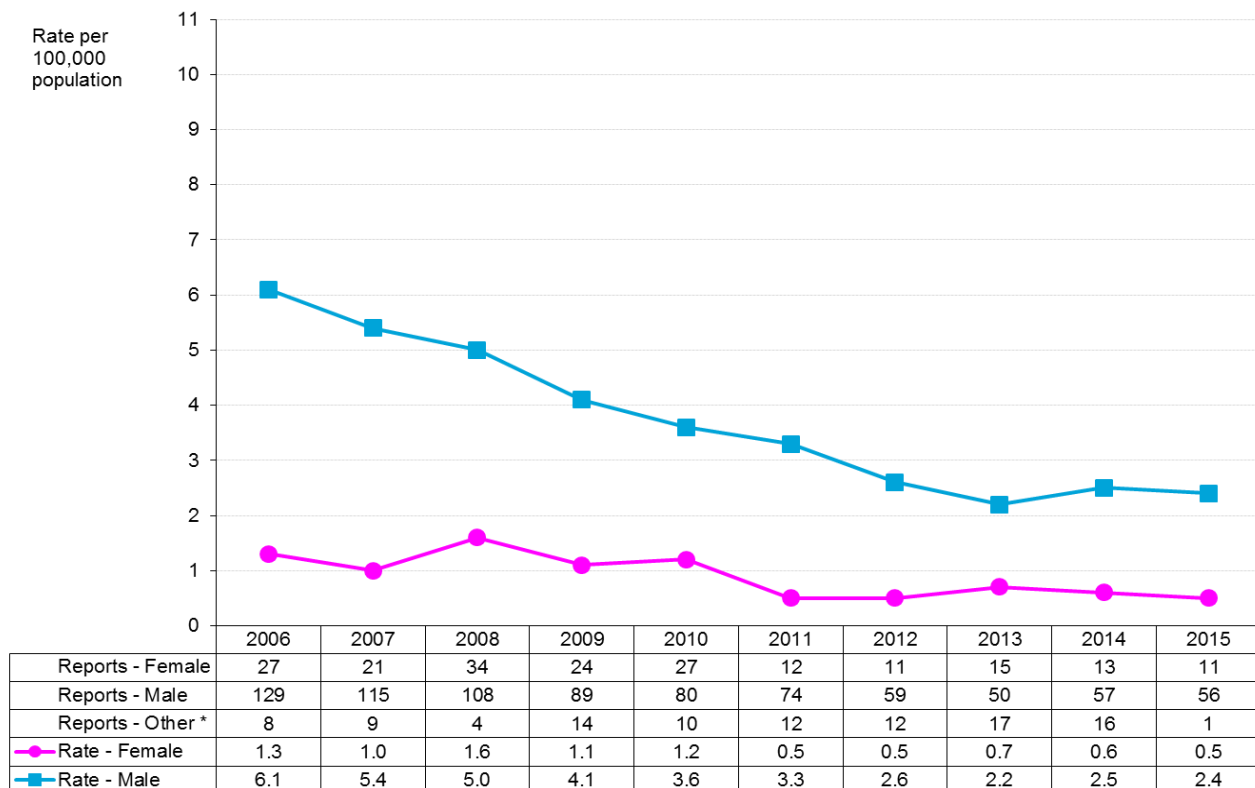
ID	Health Service Delivery Area	Cases	Rate
11	East Kootenay	2	2.6
12	Kootenay Boundary	1	1.3
13	Okanagan	2	0.5
14	Thompson Cariboo Shuswap	0	0.0
21	Fraser East	3	1.0
22	Fraser North	5	0.7
23	Fraser South	11	1.4
31	Richmond	3	1.4
32	Vancouver	13	1.9
33	North Shore/Coast Garibaldi	1	0.3
41	South Vancouver Island	1	0.2
42	Central Vancouver Island	3	1.1
43	North Vancouver Island	1	0.8
51	Northwest	1	1.4
52	Northern Interior	2	1.4
53	Northeast	0	0.0

Rates calculated with population estimates released by BC Stats

39. AIDS case reports in BC by health authority, 2006 to 2015

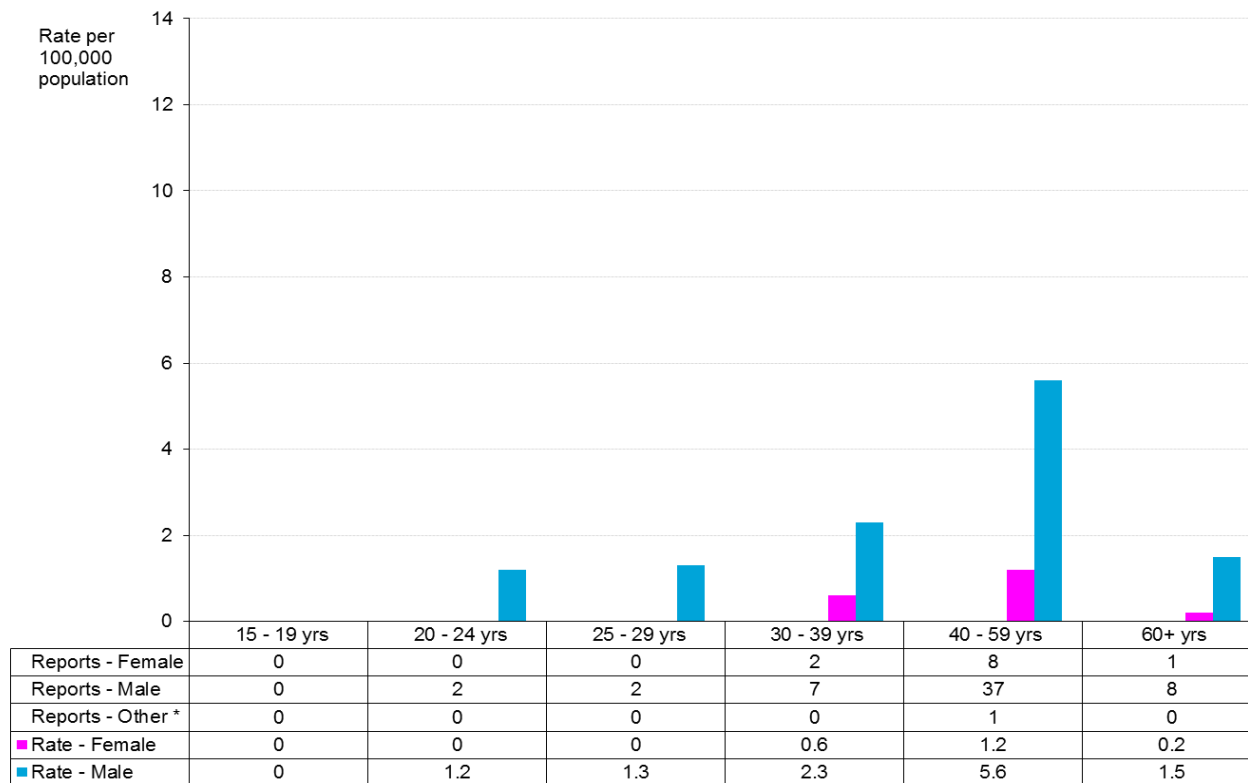


40. AIDS case reports in BC by gender, 2006 to 2015



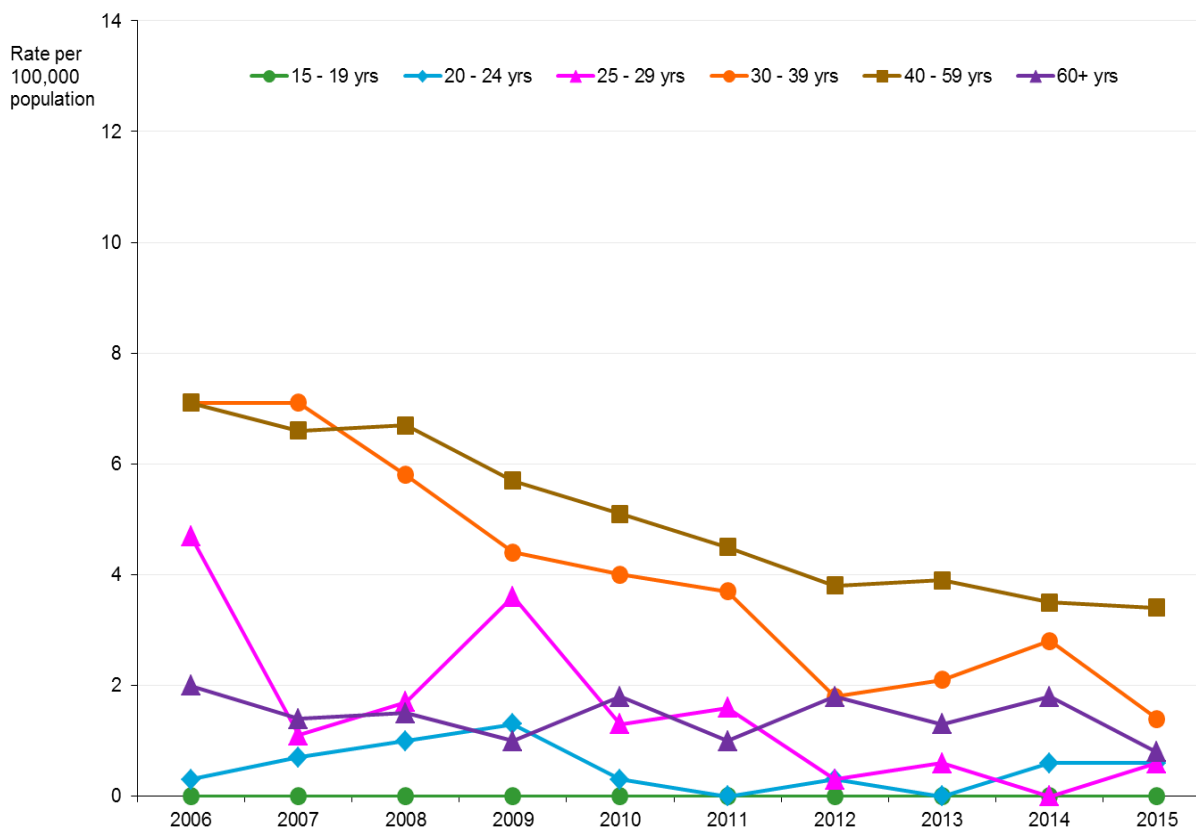
* Other - transgender and gender unknown

41. AIDS case reports in BC by age group and gender, 2015

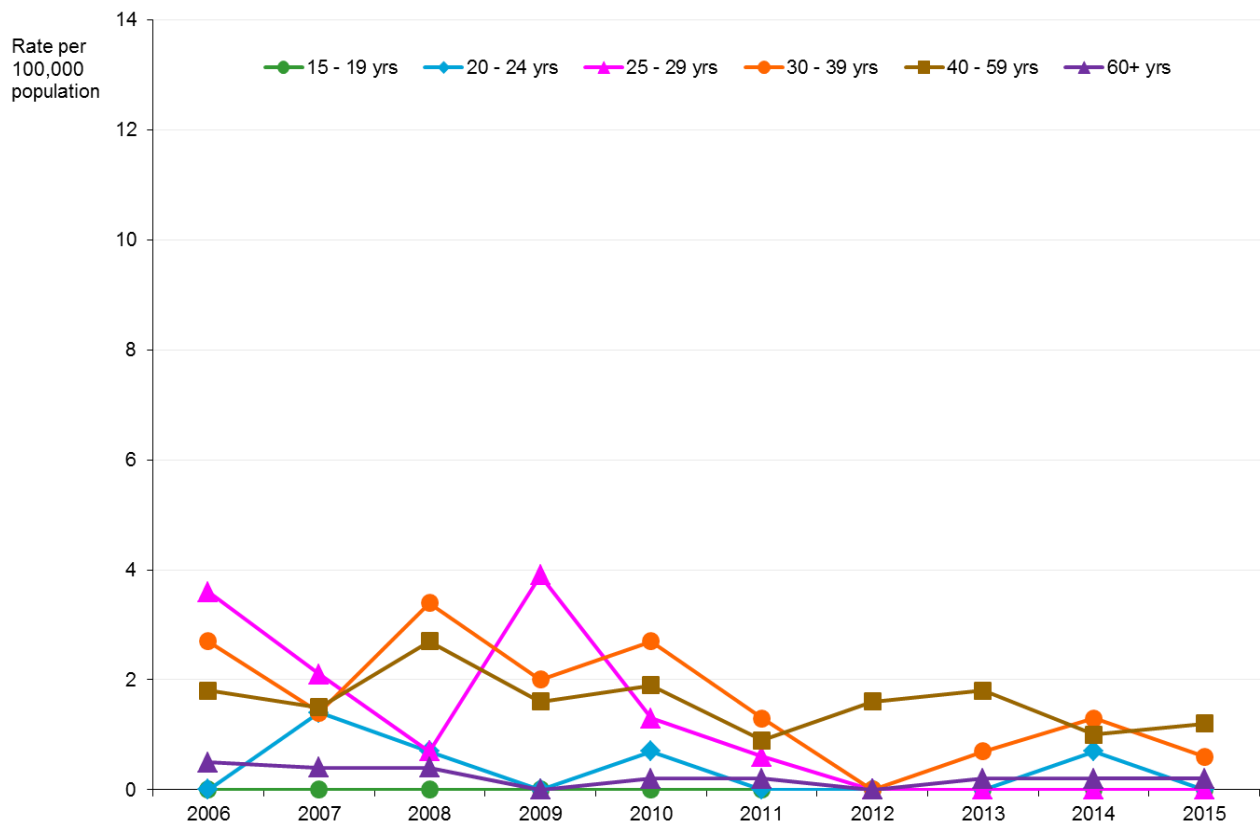


* Other - transgender and gender unknown

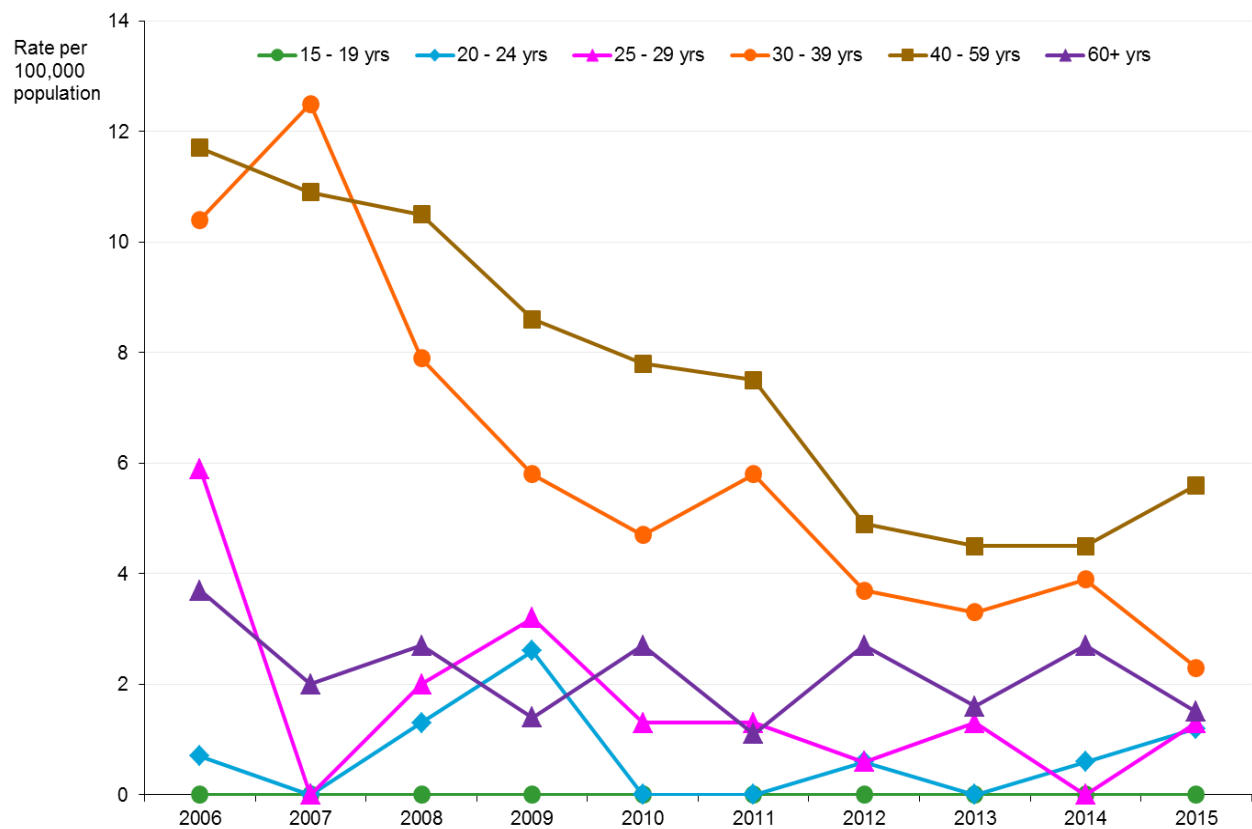
42. AIDS case reports in BC by age group - total, 2006 to 2015



43. AIDS case reports in BC by age group - female, 2006 to 2015



44. AIDS case reports in BC by age group - male, 2006 to 2015



AIDS by Ethnicity

45. Percentage of AIDS case reports in BC by ethnicity - total, 2006 to 2015

Ethnicity	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
<i>No. of Diagnoses</i>	164	145	146	127	117	98	82	82	86	68
Caucasian	47.0	48.3	50.7	47.2	48.7	38.8	42.7	32.9	22.1	27.9
Aboriginal	13.4	14.5	10.3	18.1	15.4	10.2	8.5	8.5	11.6	7.4
Asian	0.6	2.1	2.7	4.7	5.1	7.1	7.3	6.1	7.0	8.8
South Asian	0.6	2.1	2.1	0.8	0.9	5.1	3.7	1.2	2.3	2.9
Hispanic	1.8	2.8	2.7	0.8	0.9	1.0	1.2	2.4	1.2	2.9
Black	3.7	2.1	4.8	1.6	2.6	4.1	1.2	4.9	3.5	2.9
Other *	1.2	0.7	0.7	0.0	0.0	1.0	1.2	1.2	2.3	1.5
Unknown	31.7	27.6	26.0	26.8	26.5	32.7	34.1	42.7	50.0	45.6

* Other - Arab/West Asian and other/mixed ethnicity

46. Percentage of AIDS case reports in BC by ethnicity - female, 2006 to 2015

Ethnicity	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
<i>No. of Diagnoses</i>	27	21	34	24	27	12	11	15	13	11
Caucasian	40.7	42.9	41.2	37.5	44.4	41.7	18.2	40.0	7.7	18.2
Aboriginal	25.9	33.3	17.6	29.2	29.6	25.0	9.1	13.3	53.8	18.2
Asian	0.0	0.0	2.9	0.0	0.0	8.3	0.0	20.0	15.4	0.0
South Asian	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.1
Hispanic	0.0	0.0	0.0	0.0	3.7	0.0	9.1	0.0	0.0	0.0
Black	11.1	9.5	5.9	0.0	3.7	8.3	9.1	0.0	7.7	9.1
Other *	0.0	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Unknown	22.2	9.5	32.4	33.3	18.5	16.7	54.5	26.7	15.4	45.5

* Other - Arab/West Asian and other/mixed ethnicity

47. Percentage of AIDS case reports in BC by ethnicity - male, 2006 to 2015

Ethnicity	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
<i>No. of Diagnoses</i>	129	115	108	89	80	74	59	50	57	56
Caucasian	51.2	53.0	55.6	57.3	56.3	44.6	55.9	42.0	29.8	30.4
Aboriginal	11.6	12.2	8.3	18.0	12.5	9.5	10.2	10.0	5.3	5.4
Asian	0.8	2.6	2.8	6.7	7.5	8.1	10.2	4.0	7.0	10.7
South Asian	0.8	2.6	2.8	1.1	1.3	6.8	5.1	2.0	3.5	1.8
Hispanic	2.3	3.5	3.7	1.1	0.0	1.4	0.0	4.0	1.8	3.6
Black	2.3	0.9	4.6	2.2	2.5	4.1	0.0	8.0	3.5	1.8
Other *	1.6	0.0	0.9	0.0	0.0	1.4	1.7	2.0	3.5	0.0
Unknown	29.5	25.2	21.3	13.5	20.0	24.3	16.9	28.0	45.6	46.4

* Other - Arab/West Asian and other/mixed ethnicity

AIDS Case Reports among Aboriginal Peoples

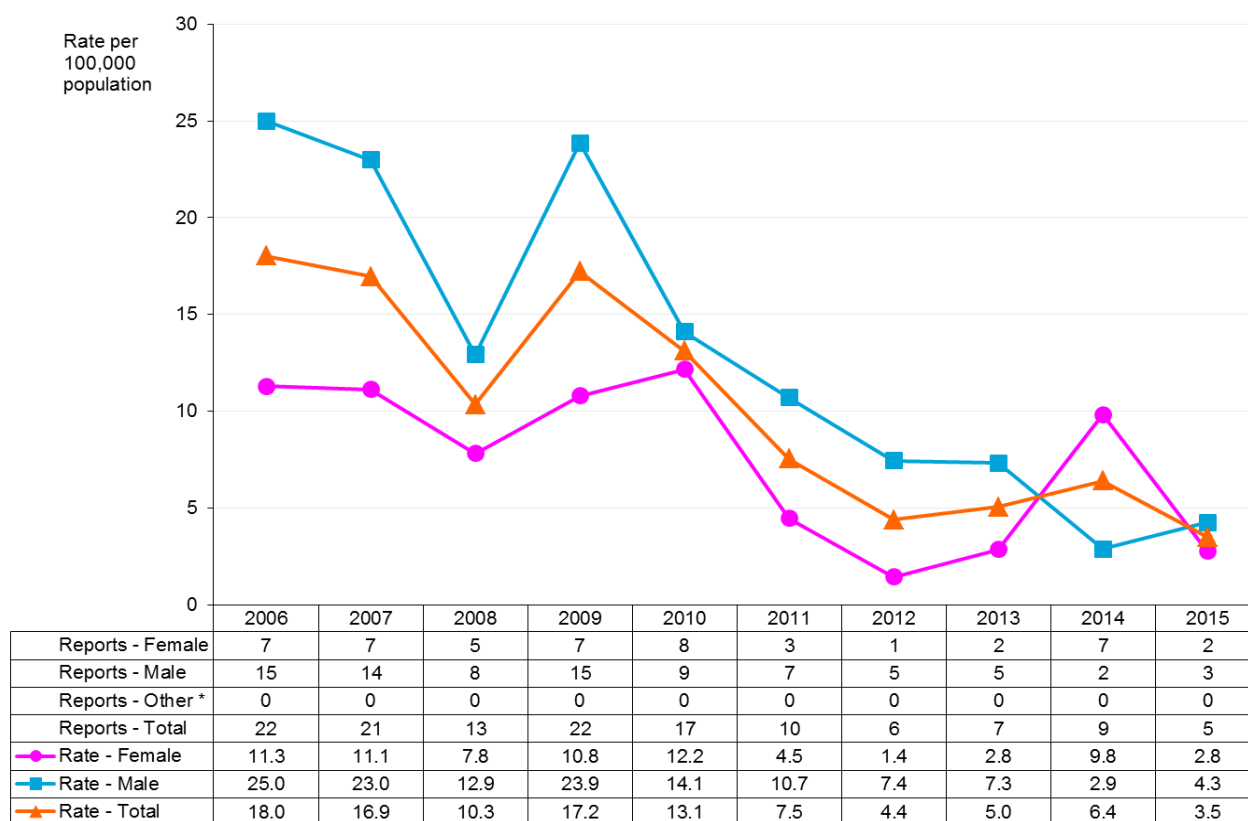
As with new HIV diagnoses, the majority of new AIDS case reports among Aboriginal peoples are in those who identify as First Nations (5 cases in 2015). Two or fewer new AIDS cases were reported per year among Métis and Inuit people between 2006 and 2015.

Mirroring the provincial AIDS rate (Figure 37), the rate of new AIDS case reports among First Nations people has decreased since 2007 (Figure 48). The recent reduction of people living with advanced HIV disease and AIDS highlights the success of improving access to HIV testing, treatment, and care.

Between 2006 and 2015, the rate of reported AIDS cases has been consistently higher among First Nations people in BC compared to the BC population overall. This may be due to systematic barriers for First Nations people to access HIV services including stigma, geographic and social isolation, racism, and poverty.²⁹

The AIDS rate in First Nations men has generally been higher than the rate in women; however, this gap has been narrowing in recent years as the number of reported AIDS cases decreases (Figure 48).

48. AIDS case reports among First Nations people in BC by gender, 2006 to 2015



* Other - transgender and gender unknown

Rates based on First Nations population estimates from Aboriginal Affairs and Northern Development Canada (AANDC)

Endnotes

- 1 In this report, the term “new HIV diagnoses” is used instead of the term “persons testing newly positive for HIV” which was used in previous reports. Both terms are equivalent for surveillance purposes for describing cases.
- 2 BC Stats. Census Statistical Profiles of Aboriginal Peoples, 2006. Retrieved from <http://www.bcstats.gov.bc.ca/statisticsbysubject/AboriginalPeoples/CensusProfiles.aspx>
- 3 See Endnote #2
- 4 For more information about the multiple historic factors which have contributed to inequities in health among Aboriginal Peoples see: BC Provincial Health Officer. (2009). Pathways to Health and Healing: 2nd Report on the Health and Well-being of Aboriginal People in British Columbia. Provincial Health Officer’s Annual Report 2007. Retrieved from <http://www2.gov.bc.ca/assets/gov/government/ministries-organizations/ministries/health/aboriginal-health-directorate/abohlth11-var7.pdf>
- 5 For examples of successful community approaches to address HIV prevention, care, treatment, and support see: Chee Mamuk, BCCDC. (2009). A guide to Wise Practices for HIV/AIDS education and prevention programs. Retrieved from <http://www.bccdc.ca/resource-gallery/Documents/Educational%20Materials/STI/Chee%20Mamuk/CheeMamukWisePracticesGuide.pdf>
- 6 For more information about the community survey of MSM in Victoria that found an HIV prevalence of 14% see: M-Track Victoria, Phase I-Final Report, May 1, 2008. Retrieved from http://www.viha.ca/NR/rdonlyres/FBBE9AFA-313C-46B4-A017-6730FEEA1865/0/MTrack_Victoria_Final_Report_May_2008_Revised.pdf
- 7 Reference to the community survey of MSM in Vancouver that found an HIV prevalence of 18%: Moore DM, Kanters S, Michelow W, Gustafson R, Hogg RS, Kwag M et al. (March/April 2012). Implications for HIV prevention programs from a serobehavioural survey of men who have sex with men in Vancouver, British Columbia: the ManCount study. *Canadian Journal of Public Health*, 103(2), 142-146. Retrieved from <http://journal.cpha.ca/index.php/cjph/article/view/2812/2585>
- 8 Recent work that estimated the size of the MSM population in BC see: The Centre for Global Public Health: University of Manitoba. (October 5, 2016). Estimation of Key Population Size of People who Use Injection Drugs (PWID), Men who Have Sex with Men (MSM) and Sex Workers (SW) who are At Risk of Acquiring HIV and Hepatitis C in the Five Health Regions of the Province of British Columbia. Retrieved from: https://pacificaidnetwork.org/files/2016/04/PSE-Project-FINAL-Report_October-5-2016.pdf
- 9 Recent work that estimated the size of the MSM population in BC see: Pacific AIDS Network website <https://pacificaidnetwork.org/files/2016/04/BC-Summary-Nov-2-2016.pdf>
- 10 For more information about factors that have led to the current epidemic of HIV among MSM in BC see: Provincial Health Officer. (2014). HIV, Stigma and Society: Tackling a Complex Epidemic and Renewing HIV Prevention for Gay and Bisexual Men in British Columbia. Provincial Health Officer’s 2010 Annual Report. Retrieved from <http://www.health.gov.bc.ca/pho/pdf/hiv-stigma-and-society.pdf>
- 11 Reference to broader approaches to HIV prevention in MSM: Wolitski R, Fenton K. (April 2011). Sexual health, HIV, and sexually transmitted infections among gay, bisexual, and other men who have sex with men in the United States. *AIDS and Behavior* 15(Suppl 1), 9-17.
- 12 Reference to broader approaches to HIV prevention in MSM: Mayer KH, Bekker L-G, Stall R, Grulich AE, Colfax G, Lama, JR. (July 28, 2012). Comprehensive clinical care for men who have sex with men: an integrated approach. *The Lancet*, 380(9839), 378-387.
- 13 Reference to the increase in new HIV infections among young MSM in the US: Mustanski BS, Newcomb ME, Du Bois SN, Garcia SC, Grov C. (15 March 2011). HIV in young men who have sex with men: a review of epidemiology, risk and protective factors, and interventions. *The Journal of Sex Research*, 48(2-3), 218-253. Retrieved from: <http://www.tandfonline.com/doi/pdf/10.1080/00224499.2011.558645>
- 14 For more information about the increase in new HIV infections among young MSM in the US see: HIV among Gay and Bisexual Men. CDC Fact Sheet. Retrieved from: <http://www.cdc.gov/nchhstp/newsroom/docs/factsheets/cdc-msm-508.pdf>
- 15 Reference to the increase in new HIV infections among young MSM in Europe: Janiec J, Haar K, Spiteri G, Likatavicius G, Van de Laar M, Amato-Gauci AJ. (28 November 2013). Surveillance of human immunodeficiency virus suggests that younger men who have sex with men are at higher risk of infection, European Union, 2003 to 2012. *Euro Surveillance*, 18 (48). Retrieved from: <http://www.eurosurveillance.org/images/dynamic/EE/V18N48/art20644.pdf>
- 16 Reference to the increase in new HIV infections among young MSM in Europe: Giuliani M, Vescio MF, Latini A,

- Palamara G, Pimpinelli F, Donà MG et al. (27 November 2014). Continuous increase in HIV-1 incidence after the year 2000 among men who have sex with men in Rome: insights from a 25-year retrospective cohort study. *Euro Surveill*, 19(47). Retrieved from: <http://www.eurosurveillance.org/images/dynamic/EE/V19N47/art20969.pdf>
- 17 Reference to young MSM who seek and meet sexual partners through the Internet: Garofalo R, Herrick A, Mustanski BS, Donenberg GR. (June 2007). Tip of the iceberg: young men who have sex with men, the Internet, and HIV risk. *American Journal of Public Health*, 97(6), 1113-1117.
- 18 Reference to young MSM who seek and meet sexual partners through the Internet: Landovitz RJ, Tseng C-H, Weissman M, Haymer M, Mandenhall B, Rogers K et al. (August 2013). Epidemiology, sexual risk behavior, and HIV prevention practices of men who have sex with men using GRINDR in Los Angeles, California. *Journal of Urban Health*, 90(4), 729-739. Retrieved from: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3732683/>
- 19 Recent work that estimated the size of the PWID population in BC see Endnote #8
- 20 Recent work that estimated the size of the PWID population in BC see Endnote #9
- 21 For more information on potential explanations for the decrease of new HIV diagnoses among people injecting drugs in BC see: Office of the Provincial Health Officer. (2011, March). Decreasing HIV Infections among People who use Drugs by Injection in British Columbia: Potential Explanations and Recommendations for Further Action. Retrieved from <http://www.health.gov.bc.ca/library/publications/year/2011/decreasing-HIV-in-IDU-population.pdf>
- 22 For more information about the provincial HIV strategy released in 2012 see: British Columbia Ministry of Health. (December 2012). From Hope to Health: Towards an AIDS-free Generation. Retrieved from: <http://www.health.gov.bc.ca/library/publications/year/2012/from-hope-to-health-aids-free.pdf>
- 23 For more information about the recommendation to routinely test for HIV among populations with a higher burden of HIV infection see Endnote #20
- 24 Reference to HIV inter-test interval: Gilbert M, Hottes TS, Lester R, Gustafson R, Kraiden M, Ogilvie G. (January/February 2014). Time since last negative HIV test among men who have sex with men and people who use injection drugs in British Columbia, 2006-2011. *Canadian Journal of Public Health*, 105(1), e63-e68. Retrieved from: <http://journal.cpha.ca/index.php/cjph/article/view/4262/2893>
- 25 For further details on national estimates of HIV incidence and prevalence see: Government of Canada website <https://www.canada.ca/en/public-health/services/publications/diseases-conditions/summary-estimates-hiv-incidence-prevalence-proportion-undiagnosed-canada-2014.html#a2>
- 26 Reference to national estimates of HIV incidence and prevalence: Yang Q, Boulos D, Yan P, Zhang F, Remis RS, Schanzer D et al. (November/December 2010). Estimates of the number of prevalent and incident human immunodeficiency virus (HIV) infections in Canada, 2008. *Canadian Journal of Public Health*, 101(6), 486-490. Retrieved from: <http://journal.cpha.ca/index.php/cjph/article/view/2147/2302>
- 27 HIV incidence and prevalence estimates from 2011 and 2014 provided courtesy of the Surveillance and Epidemiology Division, Centre for Communicable Diseases and Infection Control, Public Health Agency of Canada.
- 28 See Endnote #2
- 29 For more information on the systematic barriers for First Nations people to access HIV services see: National Collaborating Centre for Aboriginal Health. (2011). Access to Health Services as a Social Determinant of First Nations, Inuit and Métis Health. Retrieved from http://www.nccah-ccnsa.ca/docs/fact%20sheets/social%20determinates/Access%20to%20Health%20Services_Eng%202010.pdf
- 30 Reference to earlier diagnosis and start of antiretroviral therapy associated with reduction in morbidity and transmission: Cohen MS, Smith MK, Muessig KE, Hallett TB, Powers KA, Kashuba AD. (November 2013). Antiretroviral treatment of HIV-1 prevents transmission of HIV-1: where do we go from here? *The Lancet*, 382(9903), 1515-1524.
- 31 Reference to earlier diagnosis and start of antiretroviral therapy associated with reduction in morbidity and transmission: Nakagawa F, Lodwick RK, Smith CJ, Smith R, Cambiano V, Lundgren JD et al. (January 28, 2012). Projected life expectancy of people with HIV according to timing of diagnosis. *AIDS*, 26(3), 335-343.
- 32 For a list of the endemic countries maintained by the Public Health Agency of Canada see: Public Health Agency of Canada. (November 2015). HIV and AIDS in Canada: Surveillance Report to December 31, 2014 – Appendix 4. Minister of Public Works and Government Services Canada; 2015. Retrieved from <https://www.canada.ca/content/dam/canada/health-canada/migration/healthy-canadians/publications/diseases-conditions-maladies-affections/hiv-aids-surveillance-2014-vih-sida/alt/hiv-aids-surveillance-2014-vih-sida-eng.pdf>

Contributors

Epidemiology & Surveillance Team Clinical Prevention Services

Dr. Jason Wong, Physician Epidemiologist
Elsie Wong, Federal Field Surveillance Officer (PHAC)
Dr. Theodora Consolacion, Epidemiologist
Venessa Ryan, Epidemiologist
Dr. Mark Gilbert, Medical Director

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 BCCDC Public Health Laboratory (PHL) for the 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 newly positive for HIV.
- Physicians, health care providers, and public health staff in BC for taking the time and effort to complete and submit case report forms.
- Aboriginal Health Physician Advisor from the Office of the Provincial Health Officer at the Ministry of Health and the First Nations Health Authority for providing feedback to sections pertaining to First Nations people.
- BC Centre for Excellence in HIV/AIDS for their continued assistance in the reporting of new AIDS cases.
- Oak Tree Clinic at BC Children's and Women's Hospital for providing provincial surveillance data on pregnant women living with HIV who had live births.
- Surveillance and Epidemiology Division, Centre for Communicable Diseases and Infection Control, Public Health Agency of Canada for providing the national HIV and AIDS rates and the estimates of HIV incidence and prevalence.

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 are extracted from case report forms completed by either health care providers or public health nurses as part of the follow-up process (which includes partner notification, patient education, and referral to appropriate services). There is an expected reporting delay to receipt of these forms. For HIV data this affects the classification of cases by 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 next year's report.
- 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.
- Surveillance data are only reflective of the proportion of the population who test for HIV. Individuals with infections 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 HIV diagnoses 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 (for details see "Interpretation of HIV Data" in the Additional Notes section of this Technical Appendix).
- Rates of new HIV diagnoses or AIDS cases among First Nations people are calculated with the numerator comprised of individuals with HIV or AIDS who self-identify as First Nations and the denominator comprised of individuals who are registered First Nations in BC.

Case Definitions

HIV and AIDS are listed as reportable diseases in the *Communicable Disease Regulation* (Schedule A) of the *Public Health Act*.

Human Immunodeficiency Virus (HIV)

Adults, adolescents, and children \geq 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 (NAAT) on two separate samples collected at different times.

Stage of Infection at Time of HIV Diagnosis

Earlier diagnosis and start of antiretroviral therapy are associated with a reduction in morbidity and transmission while diagnosis in late stages are associated with poorer health outcomes and are potential missed opportunities for earlier engagement into treatment and care.^{30, 31}

In this report, stage of infection has been revised to reflect a new and more accurate method for estimating stages by utilizing case surveillance data, CD4+ counts, and acute status through laboratory results and testing history. The criteria, which are based on case definitions developed by the US Centers for Disease Control, for classifying stage of infection at HIV diagnosis are described in the table below. Currently, CD4+ information is routinely obtained by public health nurses and entered into the provincial HIV/AIDS database. Regular collection of this information, however, is a fairly recent practice thus analysis of stage of infection is only possible for cases diagnosed from 2010 forward which limits annual comparisons of trends to recent years.

Stage	Definition
Stage 0	Laboratory findings suggestive of acute HIV infection (i.e., detection of HIV DNA or RNA by NAAT or detection of p24 antigen in the absence of confirmed detection of HIV antibody) <u>or</u> previous negative or indeterminate HIV test within 180 days of the first confirmed positive HIV test.
Stage 1	Not in Stage 0 <u>and</u> CD4+ \geq 500
Stage 2a	Not in Stage 0 <u>and</u> CD4+ between 350 and 499
Stage 2b	Not in Stage 0 <u>and</u> CD4+ between 200 and 349
Stage 3	CD4+ < 200
Stage unknown	Acute status and CD4+ information are all unknown

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 disease (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)*
- Pneumocystis jirovecii (formerly Pneumocystis carinii) pneumonia (PCP)*
- Progressive multifocal leukoencephalopathy
- Salmonella septicemia (recurrent)
- Toxoplasmosis of brain*
- Wasting syndrome due to HIV

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

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 (may be diagnosed presumptively)

Data Sources

HIV Data - Surveillance

All confirmatory laboratory testing for HIV antibodies is done at the BCCDC Public Health Laboratory (PHL). 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 surveillance forms which are then forwarded to BCCDC where the collected information is entered into the provincial HIV/AIDS database.

Persons testing HIV positive as part of immigration requirements are obtained through two separate sources. As of September 2004, Immigration, Refugees and Citizenship Canada (IRCC) notifies Clinical Prevention Services at BCCDC of individuals who undergo an immigration medical exam (IME) outside of Canada, test positive for HIV, and indicate BC as their intended province of residence. Individuals who undertake their IME within BC (as indicated by reason for testing) and test positive for HIV are reported to BCCDC by BCCDC PHL through routine surveillance.

HIV Data - Testing

HIV testing data presented in this report are based on HIV testing conducted by the BCCDC PHL which is estimated to conduct >95% of all screening tests for HIV in the province. Island Health Laboratories perform HIV screening tests which are currently not captured in this report's HIV testing data. Provincial testing volumes for females undergoing HIV testing as part of prenatal care (i.e., reason for testing is prenatal screening) are available from 2007 onwards and include all prenatal HIV tests conducted by the BCCDC PHL. For this analysis, the number of unique women having a prenatal test per year is reported (i.e., a woman has more than one prenatal test per year is counted once).

AIDS Data

AIDS case reports are allocated according to the year a client is diagnosed with his/her first AIDS defining illness (e.g., a client is diagnosed with his/her first AIDS defining illness in 2005 and a subsequent AIDS defining illness in 2012 – this client's AIDS case report is allocated only to year 2005). Prior to 1997, AIDS case reports were compiled courtesy of the Vancouver Health Department. From 1997 to 2000, Clinical Prevention Services at BCCDC compiled AIDS case reports in collaboration with the Division of HIV/AIDS Surveillance, Bureau of HIV/AIDS and STD, Laboratory Centre for Disease Control, Health Protection Branch, Health Canada.

Since 2000, AIDS case reports have been compiled by Clinical Prevention Services at

BCCDC in collaboration with the BC Centre for Excellence in HIV/AIDS. A twice-yearly review of clinical records maintained by the BC Centre for Excellence in HIV/AIDS is conducted to identify new diagnoses of AIDS defining illness and this information is entered into the provincial HIV/AIDS database. AIDS case report forms are also received from health care providers who have made a diagnosis of an AIDS defining illness in a person living with HIV or from public health nurses if this is elicited during follow-up of a new positive HIV test (e.g., AIDS at the time of HIV diagnosis).

Please note a review of clinical reports from the BC Centre for Excellence in HIV/AIDS in 2013 included additional reports of historic AIDS cases. These cases were identified through a retrospective linkage with both historical discharge diagnoses data from the HIV/AIDS ward at St Paul's Hospital and data from the death registry at BC Vital Statistics Agency.

Population Data

Unless noted otherwise, population data and associated rates were based on the P.E.O.P.L.E. 2015 Population Estimates and Projections released by BC Stats, BC Ministry of Technology, Innovation and Citizens' Services.

First Nations Population Estimates

Population rates for First Nations people are calculated using estimates from Aboriginal Affairs and Northern Development Canada.

These estimates are based on the Indian Registry System (IRS) which includes individuals who have registered for First Nations status under the Indian Act. The IRS is subject to several limitations, including:

- Under-counting due to delayed reporting of infants entitled to be registered, as well as other unregistered individuals who are entitled for status designation
- Over-counting due to individuals remaining on the IRS after they are deceased
- Geographic misclassification because individuals are included in the BC

population according to membership of a BC band rather than current place of residence

- Systematic biases from imbalance in the migration into and out of the BC region (these are difficult to quantify)

For further details about the data source and its limitations, see the report entitled *Registered Indian Population by Sex and Residence, 2014*. Aboriginal Affairs and Northern Development Canada.

Additional Notes

Interpretation of HIV Data

The number of new HIV diagnoses does not reflect the number of new HIV infections per year or HIV incidence as individuals may be diagnosed with HIV years after their initial infection with HIV.

HIV became a reportable disease in BC in 2003 accompanied by more complete follow-up of new HIV diagnoses by designated public health nurses. This change improved the quality of surveillance data through:

- Improved identification and exclusion from surveillance reports of individuals having a first HIV diagnosis in BC who were found to have a previous HIV diagnosis outside BC
- Improved documentation of exposure category and ethnicity resulting in a decrease in the proportion of new HIV diagnoses where exposure or ethnicity is unknown

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 BCCDC PHL 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 then considered to represent a new HIV diagnosis and included in surveillance reporting. The exception is for persons testing as part of immigration

requirements – persons who tested previously positive for non-immigration purposes are classified as persons with a previous positive HIV test thus not included in surveillance reporting but included as immigration-related HIV diagnoses in Figure 34.

Classification of Health Region

Cases are assigned to health regions (i.e., Health Authority or Health Service Delivery Area) by residence. If residence is unknown, the case is then 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.

Ethnicity	Example
Aboriginal	First Nations, Inuit, Métis
Arab/West Asian	Armenian, Egyptian, Iranian, Moroccan, Lebanese, Afghani
Asian	Chinese, Japanese, Vietnamese, Cambodian, Indonesian, Filipino, Korean, Laotian
Black	African, Haitian, Jamaican, Somali
Caucasian (White)	Irish, Scottish, English, Portuguese, Italian, Russian
Hispanic	Mexican, Central/South American
South Asian	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	information about ethnicity is not elicited from case or health care provider

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 injecting drugs and heterosexual

contact). 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. **PWID:** Person who reports current or prior history of injecting drugs.
3. **Heterosexual Contact*:** Male who reports having female sex partner(s) only or female who reports having male with/without female sex partner(s).
 - i) Heterosexual with at least one Identified Risk factor – Person who reports heterosexual contact and one or more of the following:
 - was born/resided in a country where HIV is endemic
 - sexual partner is living with HIV
 - sexual partner is at increased risk for acquiring HIV (e.g., injects drugs, male who has both male and female sex partners, or from an HIV endemic country)
 - sex trade worker
 - patron of sex trade worker
 - ii) Heterosexual with No Identified Risk factor – Person who reports heterosexual contact and no information about place of birth/residence, or about sexual partner(s), or none of the above risk factors.
4. **Blood / Blood Product Recipient:** Person who reports receipt of whole blood or blood product (e.g., packed red cells, plasma, platelets, cryoprecipitate, or pooled concentrates of clotting factor).
5. **Occupational Exposure:** Person who reports exposure to HIV contaminated blood or body fluids or concentrated virus in an occupational setting.
6. **Perinatal Transmission:** Transmission of HIV from a mother living with HIV 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 a donor living with HIV or females reporting female sex partner(s) only.
8. **No Identified Risk Factor (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 HIV diagnosis are categorized into five groups:

- MSM – men who have sex with men
- PWID – people who inject drugs
- HET – heterosexual contact
- Other – blood/blood product recipient, occupational exposure, perinatal transmission, and/or other exposures
- NIR/Unknown – no identified risk/exposure unknown

* A transgender individual may be assigned to either MSM or Heterosexual Contact exposure category depending on how this individual describes their sexual partners.

Endemic Country

Individuals are categorized as being from an endemic country according to the Endemic Countries List³² maintained by the Public Health Agency of Canada.