BC Centre for Disease Control
Provincial Health Services Authority

Gender Differences in HIV Diagnoses in BC, 2010-2019

Theodora Consolacion[1], Mark Hull[2], Robin Yates[3], Troy Grennan[1], Bonnie Henry[3], Mel Krajden[4] and Jason Wong[1]

[1] British Columbia Centre for Disease Control, Vancouver, BC; [2]British Columbia Centre for Excellence in HIV, Vancouver, BC; [3]Minitistry of Health, Victoria, BC ; [4] British Columbia Centre for Disease Control Public Health Laboratory, Vancouver, Canada;

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Background

In 2014, new testing guidelines for HIV were released in British Columbia. These guidelines recommend providers:

1. Routinely offer HIV tests for 18-70 year olds every 5 years
2. Offer HIV testing at least once for those >70 years when their HIV status is unknown and
3. Offer HIV testing every year for populations with higher burden of HIV (e.g. people who inject drugs [PWID] , men who have sex with men [MSM]).

We sought to understand whether the release of these testing guidelines were associated with earlier diagnosis of HIV. Specifically, we analyzed factors associated with advanced stage of infection, HIV testing in the last year, and no HIV testing.

Methods

All new HIV diagnoses reported in BC among those who identified as a man or woman (2010-2019) were analyzed (N=2,366) (Table 1).

Logistic regression models were developed with the following outcomes among new diagnoses of HIV: advanced stage of infection (CD4+ <200 cells/µL), recent HIV test (within the last year), and no previous HIV test (or last HIV test >5 years ago).

Factors in the multivariate models included gender, exposure, born/lived in an HIV-endemic country, sex trade work (STW), pre-/post release of testing guidelines (2014) and age.

Results

- Diagnosis of HIV in the advanced stage of infection (CD4+ <200 cells/µL) was associated with the period before the testing guidelines were released. (Table 2)

- MSM, PWID and reporting HIV+ contacts were less likely to be diagnosed in an advanced stage of infection, more likely to have a HIV test in the previous year, and less likely to have no previous negative tests or last negative test was >5 years ago.

- Those from endemic countries were more likely to have an advanced stage diagnosis, less likely to test the previous year and more likely to have no previous negative tests or their last negative test was >5 years.

- Those reporting STW were less likely to have no previous tests or their last negative test was >5 years.

- Women were less likely to have no prior tests or their last negative test >5 years ago. When we excluded exposure category in the models, the effect's direction reversed (aOR=1.4; 95% CI=1.1, 1.9), suggesting that women were more likely to not have a previous HIV tests or their last one was >5 years ago.

Table 1. Demographics of Newly Diagnosed HIV Cases, 2010-2019

		Women (n = 359, 15%)	Men (n=2006, 85%)
Stage of Infection*	Known Stage of Infection	307 (86)	1732 (86)
	Acute	53 (17)	467 (27)
	Advanced (CD4+≤200)	75 (24)	369 (21)
	Other	179 (58)	896 (52)
	Unknown Stage	52 (14)	274 (14)
HIV Testing	Last negative HIV test ≤1 year ago	60 (17)	527 (26)
	Last negative HIV test 1-5 years ago	84 (23)	457 (23)
	Last negative HIV test ≥5 years ago	83 (23)	284 (14)
	Diagnosed on first HIV test	132 (37)	738 (37)
Exposure	Men who have Sex with Men (MSM)	--	2360 (68)
	People Who Inject Drugs (PWID)	90 (25)	163 (8)
	Heterosexual	229 (64)	337 (17)
	Other/Unknown	40 (11)	146 (7)
Endemic country	Born or resided in endemic country	45 (13)	74 (4)
	Not born or resided in endemic country	296 (82)	1825 (91)
	Unknown	18 (5)	107 (5)
Sex Trade Work	Yes	35 (10)	47 (2)
	No	306 (85)	1852 (92)
	Unknown	18 (5)	107 (5)
Contact HIV+	Yes	96 (27)	374 (19)
	No	247 (69)	1537 (77)
	Unknown	16 (4)	95 (5)
Test Guide-lines	<2014	163 (45)	923 (46)
	≥2014	196 (55)	1083 (54)
Age	**Mean (SD)**	39 (12)	40 (13)

*Percentages of Acute, Advanced and Other Stage Known based on total in Known Stage

Table 2. Factors Predicting Stage of Infection and Testing Frequency

Outcome	Predictors		aORs	CIs	p-value
Advance Stage (CD4+<200 cells/µL)	Gender (ref=Men)	Women	0.6	0.4, 1.1	
	Exposure (ref=Heterosexual)	MSM	0.2	0.1, 0.2	*p<.001*
		PWID	0.3	0.2, 0.5	*p<.05*
		Other+	0.9	0.3, 2.2	*p<.05*
	Contact HIV+ (ref=No)	Yes	0.4	0.3, 0.6	*p<.001*
	Street Trade Work (ref=No)	Yes	1.3	0.6, 3.1	
	Endemic Country (ref=No)	Yes	4.4	1.9, 10.1	*p<.001*
	Testing guidelines release (ref= '<2014')	≥2014	0.6	0.4, 0.8	*p<.01*
	Age		1.1	1.1, 1.1	*p<.001*
Tested in the Last Year (or not)	Gender (ref=Men)	Women	1.1	0.7, 1.6	
	Exposure (ref=Heterosexual)	MSM	3.4	2.4, 4.8	*p<.001*
		PWID	3.0	2.0, 4.4	*p<.001*
		Other	0.6	0.3, 1.5	
	Contact HIV+ (ref=No)	Yes	1.4	1.1, 1.8	*p<.01*
	Street Trade Work (ref=No)	Yes	1.1	0.7, 1.9	
	Endemic Country (ref=No)	Yes	0.4	0.2, 0.7	*p<.01*
	Testing guidelines release (ref= '<2014')	Yes	1.0	0.8, 1.3	
	Age		1.0	1.0, 1.0	*p<.001*
No Previous Negative Or Last Negative Test >5 years ago	Gender (ref=Men)	Women	0.7	0.5, 1.0	*p<.05*
	Exposure (ref=Heterosexual)	MSM	0.3	0.2, 0.3	*p<.001*
		PWID	0.3	0.2, 0.4	*p<.001*
		Other+	0.8	0.5, 1.4	*p<.01*
	Contact HIV+ (ref=No)	Yes	0.7	0.6, 0.9	*p<.01*
	Street Trade Work (ref=No)	Yes	0.4	0.2, 0.7	*p<.001*
	Endemic Country (ref=No)	Yes	2.2	1.4, 3.5	*p<.01*
	Testing guidelines release (ref= '<2014')	Yes	1.1	0.9, 1.3	
	Age		1.0	1.0, 1.0	*p<.001*

Discussion

Since the release of the HIV Testing guidelines in 2014, MSM and PWID were less likely to be diagnosed with HIV in the advanced stage.

- The finding suggest programs and testing guidelines aimed toward populations with a higher burden of HIV have increased the frequency of testing and resulted in diagnoses of HIV at earlier stages of infection.

New diagnoses of HIV among people who lived or resided in an HIV endemic country were associated with being diagnosed with HIV in the advanced stage stage.

- More work is needed to determine the timing of HIV diagnosis relative to immigration to Canada to better target strategies to improve diagnoses of HIV at earlier stages of infection.

Women newly diagnosed with HIV who did not report PWID were less likely to have an HIV test within the last 5 years.

- A more granular analysis of this subgroup of women can help identify opportunities to increase HIV testing.

Limitations

The current analyses relies on newly reported cases of HIV in British Columbia and may be biased towards those who are most likely connected to care. Our analyses do not include those who are living with HIV but are unaware of their status.

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For more information, please contact theodora.consolacion@bccdc.ca

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