BRITISH COLUMBIA
CENTRE *for* EXCELLENCE
in HIV/AIDS

HIV MONITORING QUARTERLY REPORT

FOR BRITISH COLUMBIA

THIRD QUARTER 2016

Foreword

As part of the BC Centre for Excellence (BC-CFE) in HIV/AIDS's mandate to evaluate the outcomes of STOP HIV/AIDS programming in BC, we have developed quarterly HIV/AIDS monitoring reports. These reports provide up-to-date data on a variety of key HIV-related surveillance and treatment indicators. Selection of these indicators was achieved through a collaborative process with various Health Authority (HA) representatives. There are six reports in total, one for each HA and one for the province of BC as a whole. In addition, there is a technical report which explains how each HIV indicator is calculated. Data used in these reports come from the British Columbia Centre for Disease Control (BCCDC), MSP billings, hospitalization data from the Discharge Abstract Database, the Sunquest Laboratory database at the Provincial Public Health Microbiology and Reference Laboratory, Providence Health Care laboratory, BC Vital Statistics, and the BC-CFE Drug Treatment Program (DTP) Database.

The objectives of these reports are to:

1. Provide timely HA-specific information on key HIV indicators which will guide and inform HIV leaders and innovators in the development of future HIV interventions and programs which will ultimately lead to decreasing the burden of HIV in BC. The indicators will reflect ongoing or past successful public health interventions and highlight areas in the HIV care spectrum which require further attention and support.
2. Highlight limitations in our current data due to incomplete or time lagged data and to develop future strategies to improve complete and timely data capture.

These reports are produced for the benefit of individual HA's. As such, we are enthusiastic about your involvement and cooperation regarding the development of these monitoring reports. Please forward your comments and queries to Irene Day, Director of Operations at the BC-CFE at iday@cfenet.ubc.ca.

List of Indicators

Table of Contents

Acknowledgements and Contributions

BRITISH COLUMBIA
CENTRE *for* EXCELLENCE
in HIV/AIDS

British Columbia Centre for Excellence in HIV/AIDS (BC-CFE): The BC-CFE is responsible for the conception, preparation and ongoing review of this quarterly report. The BC-CFE provides the data and outputs for Indicators 5 (HIV Cascade of Care), 6 (Programmatic Compliance Score), 7 (New Antiretroviral Starts), 8 (CD4 Cell Count at ART Initiation), 9 (Active and Inactive Drug Treatment Program Participants), 10 (Antiretroviral Adherence Level), 11 (Resistance Testing Results by Resistance Category), 12 (AIDS-Defining Illness), and 13 (HIV-Related Mortality). The BC-CFE database provides PVL and CD4 cell count testing data, as well as ART use. All PVL measurements in BC are performed at the St Paul's Hospital virology laboratory, thus PVL data capture is 100%. An estimated 80% of all CD4 count measurements performed in the province are captured in the BC-CFE data holdings. The STOP HIV/AIDS Technical Monitoring Committee–BC-CFE is responsible for oversight of the monitoring report. James Nakagawa is responsible for compiling and publishing this report. Lilith Swetland is the editor of this report. Paul Sereda, Dr. Viviane Lima and Nada Gataric perform analysis of Indicators 5–13. This report was conceived and guided by Dr. Julio Montaner.

BC Centre for Disease Control
An agency of the Provincial Health Services Authority

British Columbia Centre for Disease Control (BCCDC): The BCCDC provides the data and outputs for Indicator 1 (HIV Testing Episodes), Indicator 2 (HIV Testing Rate), Indicator 3 (New HIV Diagnoses), Indicator 4 (Stage of HIV at Diagnosis) and Indicator 12 (AIDS-Defining Illness). The BCCDC is the single provincial agency that centralizes all HIV surveillance through the Public Health Microbiology and Reference Laboratory, which does more than 90% of all HIV screening tests in BC and all confirmatory testing. Olga Mazo, Theodora Consolacion and Dr. Jason Wong are responsible for outputs for Indicators 1–4.

Other Data Sources:

The above databases were supplemented with:

(I) The BC Vital Statistics database which was used to calculate Indicator 5. The HIV Cascade of Care and Indicator 13. HIV-Related Mortality.

(II) Linkage and preparation of the de-identified individual-level database used for calculating Indicator 5. The HIV Cascade of Care was facilitated by the British Columbia Ministry of Health.

(III) The Statistics Canada database: BC and HIV-positive population counts were acquired through the statistics Canada website to calculate HIV-specific mortality rates for Indicator 13. HIV-Related Mortality.

Membership of the STOP HIV/AIDS Technical Monitoring Committee–BC-CfE

Dr. Rolando Barrios, *Chair*, BC-CFE

Dr. Kate Heath, BC-CFE

Dr. Bohdan Nosyk, BC-CFE

Dr. Viviane Dias Lima, BC-CFE

Irene Day, BC-CFE

Dr. Jean Shoveller, BC-CFE

Dr. Jason Wong, BCCDC

Dr. Mel Krajden, BCCDC

Salman Klar, FHA

Jennifer May-Hadford, IHA

Kari Harder, NHA

Dr. Neora Pick, PHSA

Dr. Reka Gustafson, VCHA

Dr. Melanie Rusch, VIHA

The Seek and Treat for Optimal Prevention (STOP) HIV/AIDS BC Provincial Program: A Note on Monitoring and Interpreting HIV Indicators

The Seek and Treat for Optimal Prevention (STOP) of HIV/AIDS programme is a provincial initiative to improve HIV diagnosis and care delivery in BC through increased HIV-specific funding to all Health Service Delivery Areas (HSDA's) across BC. The STOP provincial programme is an expansion of a four-year STOP pilot project which was implemented in two Health Service Delivery Areas in March 2010; the Vancouver HSDA which bears the largest burden of the HIV epidemic in the province and the Northern Interior HSDA which bears a high burden of HIV-related mortality. The STOP pilot project demonstrated the urgent need for improved efforts in early diagnosis of HIV and timely initiation of antiretroviral therapy (ART) initiation.

The expansion to a province-wide programme was announced on November 30th, 2013 by the BC Ministry of Health with roll out of funding beginning on April 1st, 2013. This funding is intended to be used in the implementation and evaluation of HIV-related diagnosis and care initiatives within individual HA's. Goals of the project include: 1. A reduction in the number of new HIV infections in BC; 2. Improvements in the quality, effectiveness, and reach of HIV prevention services; 3. An increase in early diagnosis of HIV; 4. A reduction in AIDS cases and HIV-related mortality.

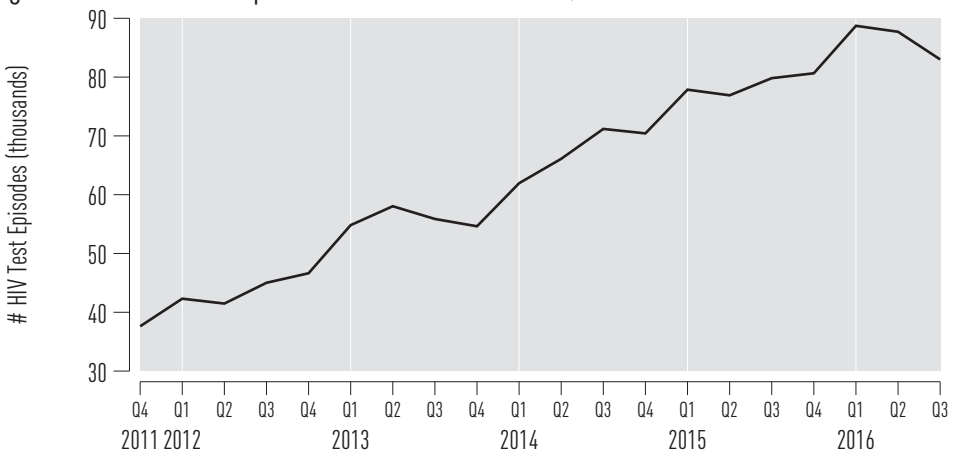
The goals of HA-led STOP-funded initiatives are to work toward achieving these goals. To these ends some outcome measures or indicators of progress have been drafted that should be considered in the design and implementation phases of these initiatives.

HIV Testing Episodes and Rates

In this section, the number of HIV test episodes and point of care (POC) HIV tests conducted each quarter in BC is shown. In general terms the goal is to increase the number of tests performed and to maximize testing efficiency. Test episodes are allocated by region according to where the test is performed.

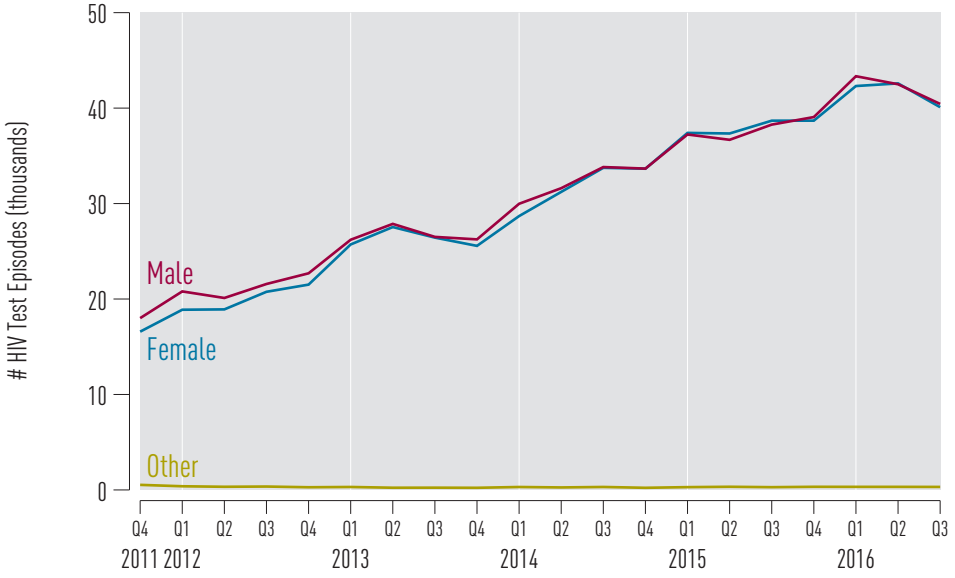
Indicator 1. HIV Testing Episodes

Figure 1.1 HIV Test Episodes for British Columbia, 2011 Q4–2016 Q3



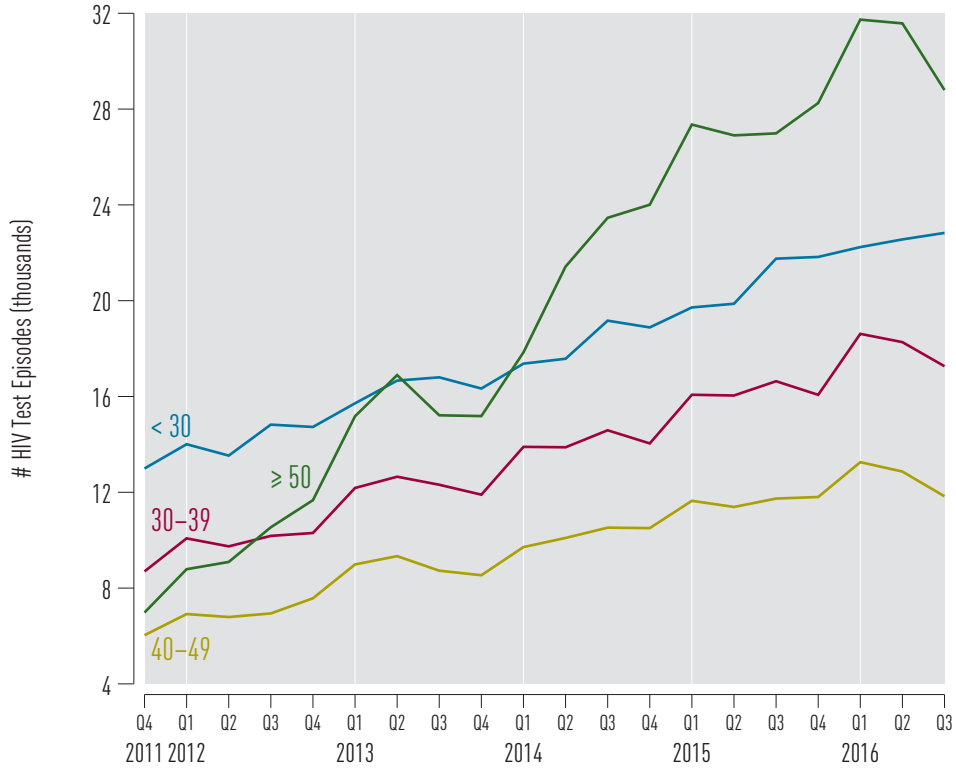
British Columbia	37.6	42.3	41.5	45.0	46.6	54.8	58.0	55.9	54.6	61.9	66.1	71.2	70.4	77.9	76.9	79.8	80.6	88.7	87.7	83.0

Figure 1.2 HIV Test Episodes by Gender for BC [1]



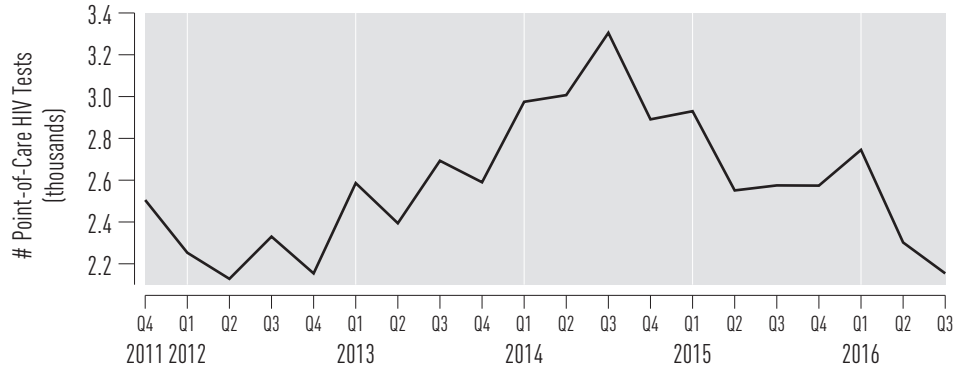
Female	16.6	18.9	18.9	20.8	21.5	25.7	27.5	26.4	25.6	28.7	31.2	33.7	33.7	37.4	37.3	38.7	38.7	42.3	42.6	40.1
Male	18.0	20.8	20.1	21.6	22.7	26.2	27.9	26.5	26.2	30.0	31.6	33.8	33.7	37.2	36.7	38.3	39.1	43.3	42.5	40.4
Other	0.5	0.4	0.3	0.4	0.3	0.3	0.2	0.2	0.2	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3

Figure 1.3 HIV Test Episodes by Age Category for BC [1,2]



	2011 Q4	2012 Q1	Q2	Q3	Q4	2013 Q1	Q2	Q3	Q4	2014 Q1	Q2	Q3	Q4	2015 Q1	Q2	Q3	Q4	2016 Q1	Q2	Q3
< 30	13.0	14.0	13.5	14.8	14.7	15.7	16.7	16.8	16.3	17.4	17.6	19.2	18.9	19.7	19.9	21.8	21.8	22.2	22.6	22.8
30–39	8.7	10.1	9.7	10.2	10.3	12.2	12.7	12.3	11.9	13.9	13.9	14.6	14.0	16.1	16.0	16.6	16.1	18.6	18.3	17.3
40–49	6.0	6.9	6.8	6.9	7.6	9.0	9.3	8.7	8.5	9.7	10.1	10.5	10.5	11.6	11.4	11.7	11.8	13.3	12.9	11.8
≥ 50	7.0	8.8	9.1	10.5	11.7	15.2	16.9	15.2	15.2	17.8	21.4	23.5	24.0	27.4	26.9	27.0	28.3	31.7	31.6	28.8

Figure 1.4 Point-of-Care HIV Tests for BC



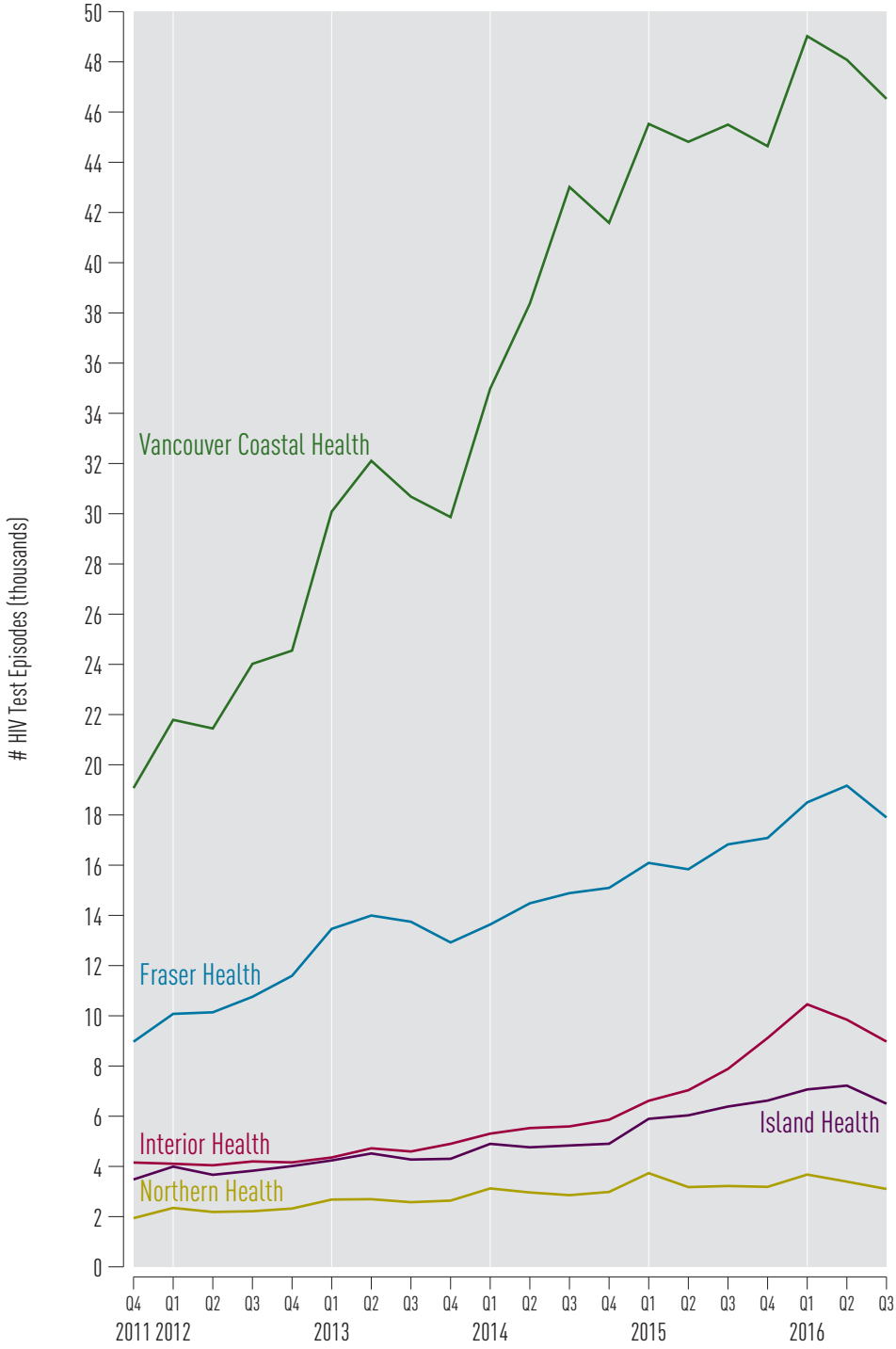
	2011 Q4	2012 Q1	Q2	Q3	Q4	2013 Q1	Q2	Q3	Q4	2014 Q1	Q2	Q3	Q4	2015 Q1	Q2	Q3	Q4	2016 Q1	Q2	Q3
British Columbia	2.5	2.3	2.1	2.3	2.2	2.6	2.4	2.7	2.6	3.0	3.0	3.3	2.9	2.9	2.6	2.6	2.6	2.7	2.3	2.2

1 *Data Source: The BC Public Health Microbiology and Reference Laboratory (BCPHMRL) courtesy of the BC Centre for Disease Control (BCCDC). HIV screening tests conducted by the VIHA Laboratory are not included.*

Limitation: Repeat tests in individuals who test using various identifiers may not be identified and these individuals may be counted more than once.

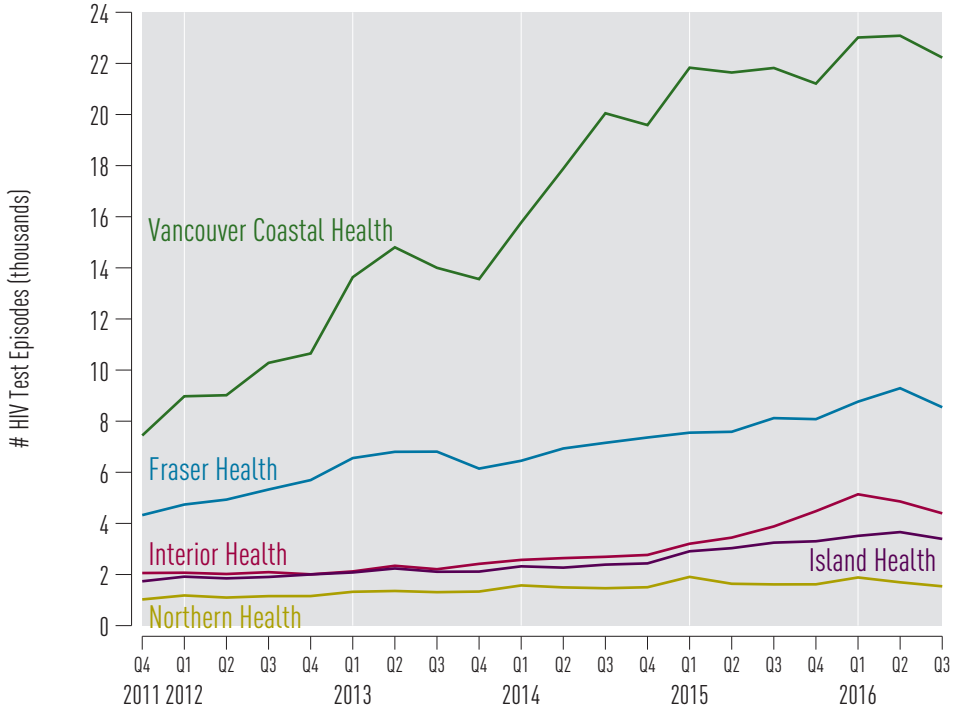
2 *Testing does not include point of care tests.*

Figure 1.5 HIV Test Episodes for British Columbia by Health Authority, 2011 Q4–2016 Q3 [1]



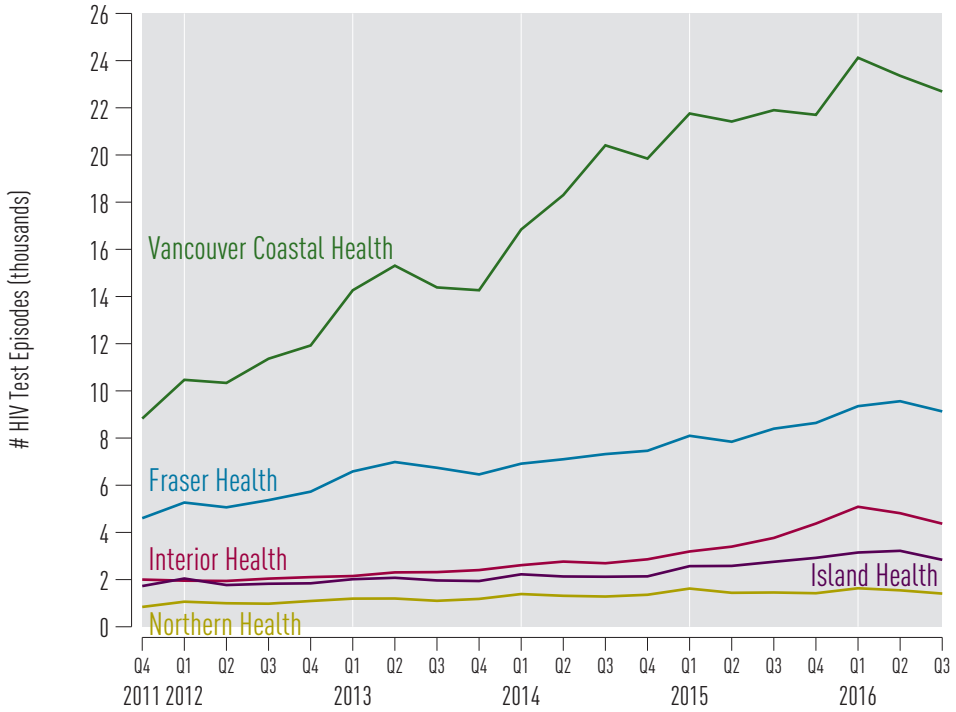
Fraser Health	9.0	10.1	10.1	10.8	11.6	13.5	14.0	13.7	12.9	13.6	14.5	14.9	15.1	16.1	15.8	16.8	17.1	18.5	19.2	17.9
Interior Health	4.2	4.1	4.0	4.2	4.2	4.4	4.7	4.6	4.9	5.3	5.5	5.6	5.9	6.6	7.0	7.9	9.1	10.5	9.8	9.0
Northern Health	1.9	2.3	2.2	2.2	2.3	2.7	2.7	2.6	2.6	3.1	3.0	2.9	3.0	3.7	3.2	3.2	3.2	3.7	3.4	3.1
Vancouver Coastal Health	19.1	21.8	21.4	24.0	24.5	30.1	32.1	30.7	29.9	35.0	38.4	43.0	41.6	45.5	44.8	45.5	44.6	49.0	48.1	46.5
Island Health	3.5	4.0	3.7	3.8	4.0	4.2	4.5	4.3	4.3	4.9	4.8	4.8	4.9	5.9	6.0	6.4	6.6	7.1	7.2	6.5

Figure 1.6 HIV Test Episodes for Non-prenatal Females in BC by Health Authority [1]



	Q4 2011	Q1 2012	Q2	Q3	Q4 2012	Q1 2013	Q2	Q3	Q4 2013	Q1 2014	Q2	Q3	Q4 2014	Q1 2015	Q2	Q3	Q4 2015	Q1 2016	Q2	Q3
Fraser Health	4.3	4.7	4.9	5.3	5.7	6.6	6.8	6.8	6.1	6.5	6.9	7.2	7.4	7.5	7.6	8.1	8.1	8.8	9.3	8.5
Interior Health	2.1	2.1	2.0	2.1	2.0	2.1	2.3	2.2	2.4	2.6	2.6	2.7	2.8	3.2	3.4	3.9	4.5	5.1	4.9	4.4
Northern Health	1.0	1.2	1.1	1.2	1.2	1.3	1.4	1.3	1.3	1.6	1.5	1.5	1.5	1.9	1.6	1.6	1.6	1.9	1.7	1.5
Vancouver Coastal Health	7.4	9.0	9.0	10.3	10.6	13.6	14.8	14.0	13.6	15.8	17.9	20.0	19.6	21.8	21.6	21.8	21.2	23.0	23.1	22.2
Island Health	1.7	1.9	1.8	1.9	2.0	2.1	2.2	2.1	2.1	2.3	2.3	2.4	2.4	2.9	3.0	3.2	3.3	3.5	3.7	3.4

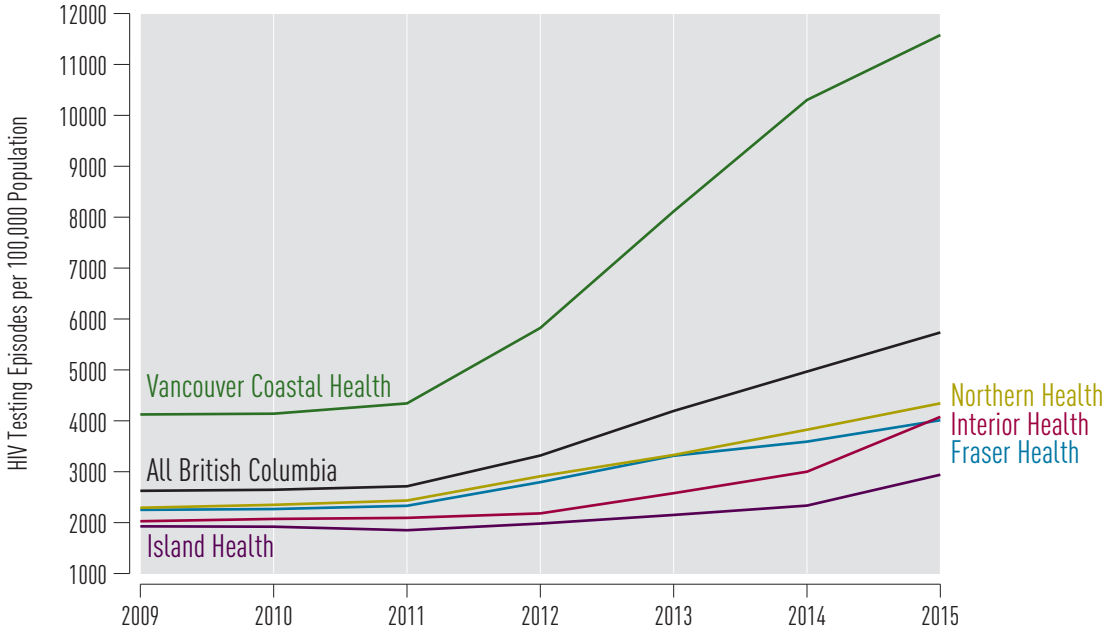
Figure 1.7 HIV Test Episodes for Males in BC by Health Authority [1]



	Q4 2011	Q1 2012	Q2	Q3	Q4 2012	Q1 2013	Q2	Q3	Q4 2013	Q1 2014	Q2	Q3	Q4 2014	Q1 2015	Q2	Q3	Q4 2015	Q1 2016	Q2	Q3
Fraser Health	4.6	5.3	5.1	5.4	5.7	6.6	7.0	6.7	6.5	6.9	7.1	7.3	7.5	8.1	7.8	8.4	8.6	9.4	9.6	9.1
Interior Health	2.0	2.0	1.9	2.0	2.1	2.2	2.3	2.3	2.4	2.6	2.8	2.7	2.9	3.2	3.4	3.8	4.4	5.1	4.8	4.4
Northern Health	0.8	1.1	1.0	1.0	1.1	1.2	1.2	1.1	1.2	1.4	1.3	1.3	1.4	1.6	1.4	1.5	1.4	1.6	1.5	1.4
Vancouver Coastal Health	8.8	10.5	10.3	11.4	11.9	14.3	15.3	14.4	14.3	16.8	18.3	20.4	19.8	21.8	21.4	21.9	21.7	24.1	23.4	22.7
Island Health	1.7	2.0	1.8	1.8	1.8	2.0	2.1	2.0	1.9	2.2	2.1	2.1	2.1	2.6	2.6	2.8	2.9	3.1	3.2	2.8

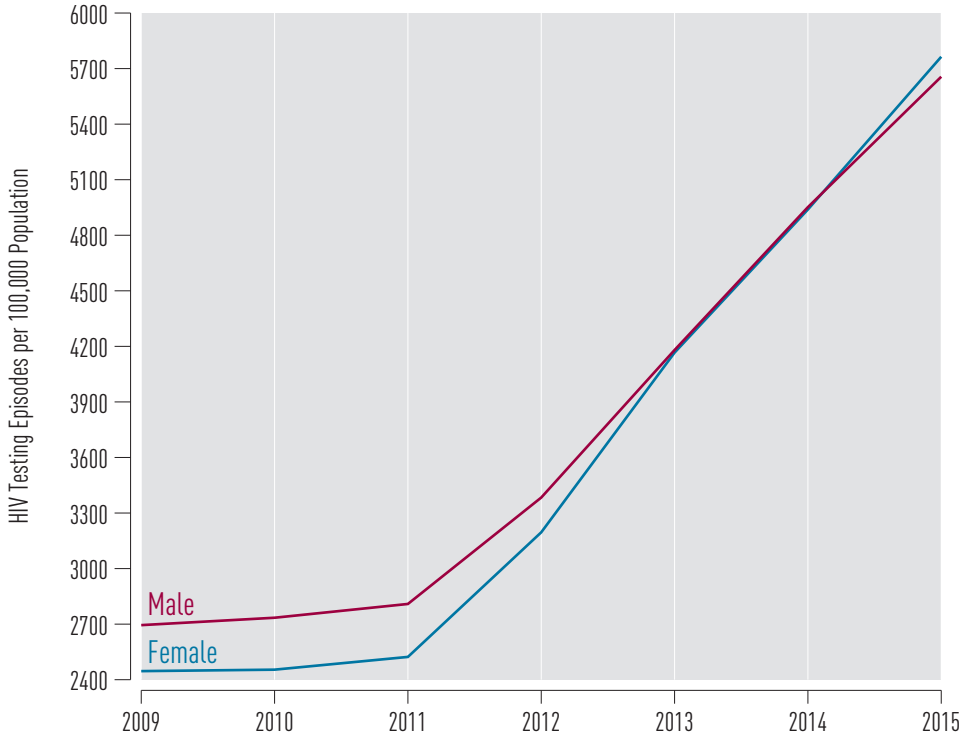
Indicator 2. HIV Testing Rates

Figure 2.1 Rate of HIV Testing for British Columbia and Health Authorities [2]



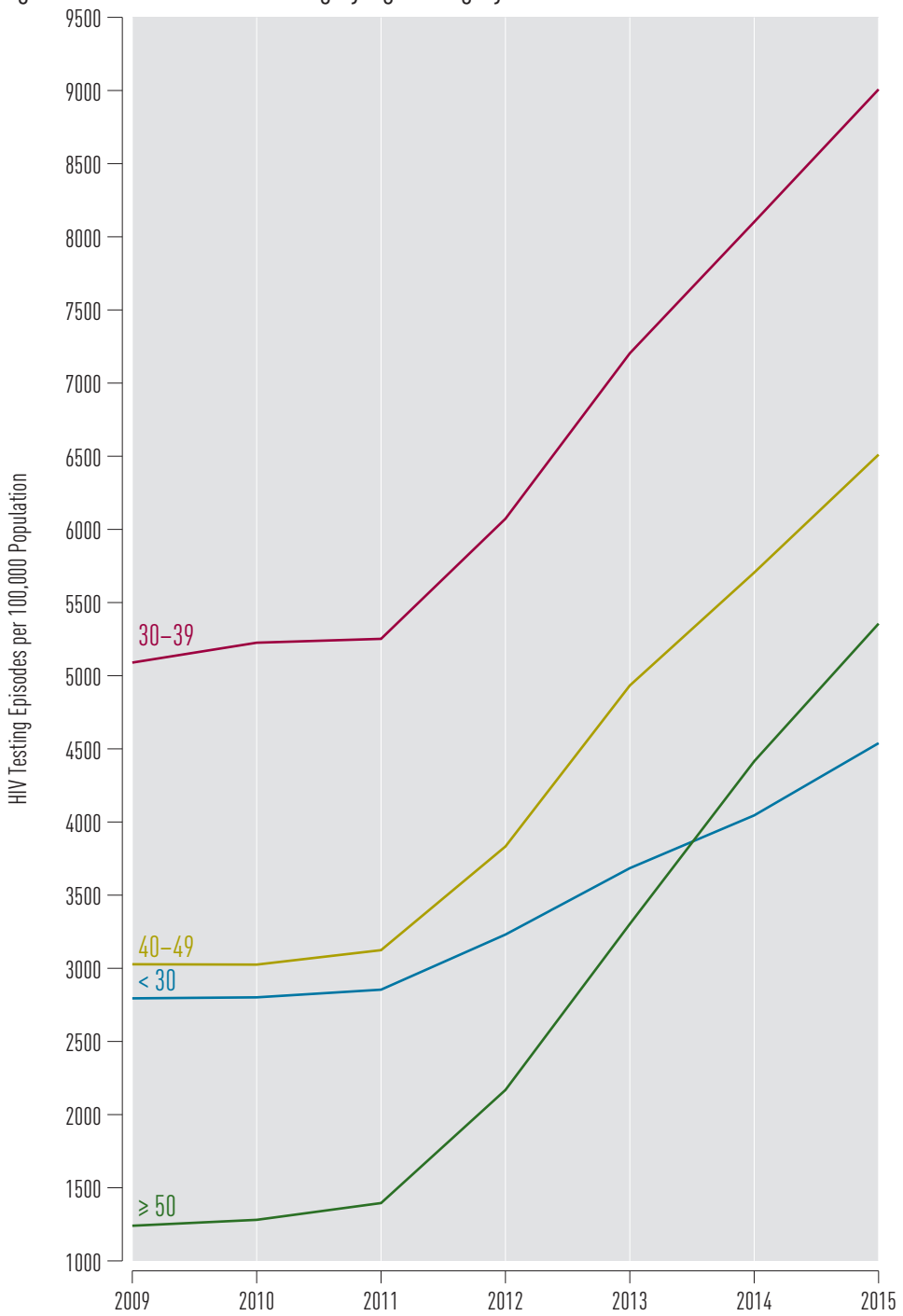
All British Columbia	2624.8	2645.4	2714.0	3318.1	4193.4	4967.4	5735.3
Fraser Health	2251.0	2266.7	2330.8	2794.7	3313.9	3590.9	4011.4
Interior Health	2027.5	2072.6	2093.6	2181.3	2578.2	3000.2	4077.4
Northern Health	2292.1	2349.7	2434.3	2910.9	3328.8	3825.1	4343.4
Vancouver Coastal Health	4124.7	4139.9	4342.3	5824.7	8114.3	10302.2	11577.1
Island Health	1927.0	1920.0	1850.8	1981.8	2151.0	2334.8	2940.8

Figure 2.2 Rate of HIV Testing by Gender for BC [2]



Female	2446.3	2454.2	2523.0	3195.9	4166.3	4939.1	5763.9
Male	2694.7	2734.6	2809.0	3383.6	4180.4	4951.8	5656.1

Figure 2.3 Rate of HIV Testing by Age Category for BC [2]



< 30	2794.6	2801.5	2854.0	3230.7	3684.5	4045.3	4538.8
30–39	5089.6	5225.5	5251.9	6072.8	7203.7	8101.6	9007.5
40–49	3027.6	3025.3	3124.1	3832.7	4933.0	5704.9	6511.0
≥ 50	1240.3	1280.7	1395.4	2168.4	3303.0	4415.0	5355.7

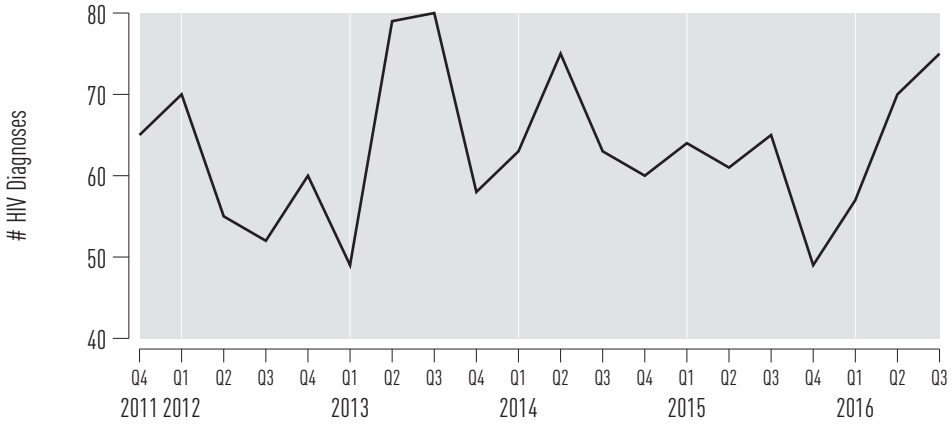
2 *Testing does not include point of care tests.*

New HIV Diagnoses

Trends in HIV diagnoses by gender and exposure category are described. Interpreting HIV diagnoses must be done with consideration that trends are influenced by both changes in testing rate as well as changes in transmission rates. It is important to note that new HIV diagnoses cases and rates are not synonymous with HIV incidence as a person may have become infected with HIV long before they tested positive for HIV. However, as there is no reliable method for measuring HIV incidence, we follow trends in HIV diagnoses.

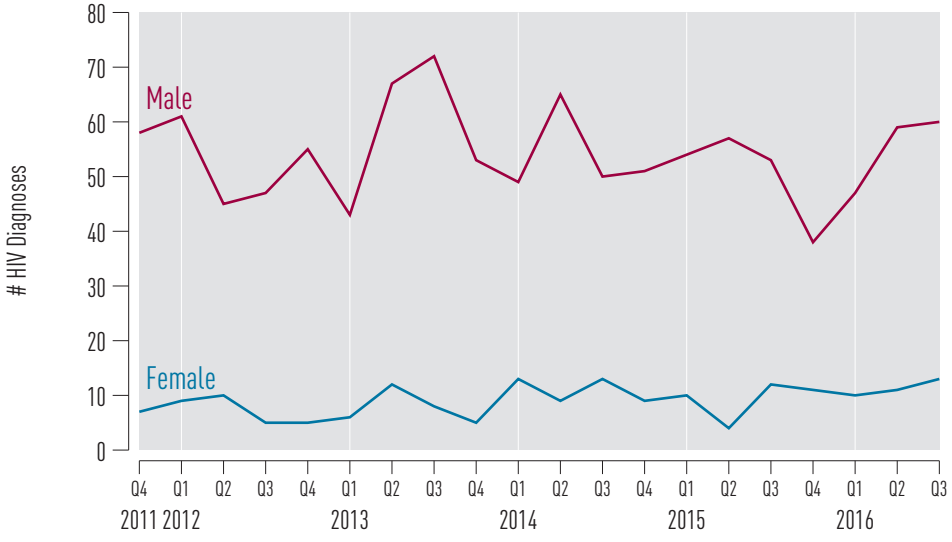
Indicator 3. New HIV Diagnoses

Figure 3.1 New HIV Diagnoses for BC [3]



British Columbia	65	70	55	52	60	49	79	80	58	63	75	63	60	64	61	65	49	57	70	75
By Provider Address	*65*	*70*	*55*	*52*	*60*	*49*	*79*	*80*	*58*	*63*	*75*	*63*	*60*	*64*	*61*	*65*	*49*	*57*	*70*	*75*

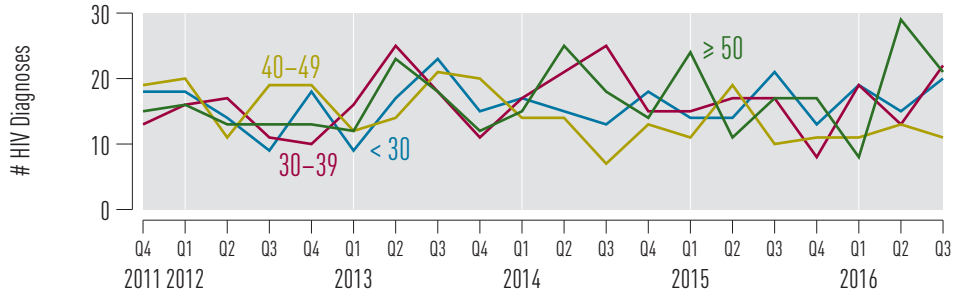
Figure 3.2 New HIV Diagnoses for BC by Gender [3]



Female	7	9	10	5	5	6	12	8	5	13	9	13	9	10	4	12	11	10	11	13
Male	58	61	45	47	55	43	67	72	53	49	65	50	51	54	57	53	38	47	59	60

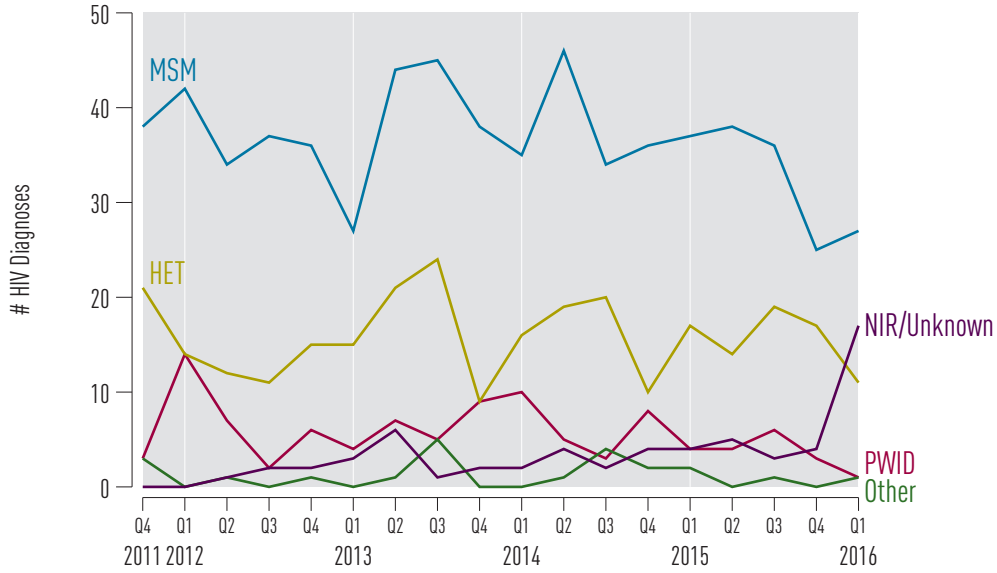
3 *Data Source: BCCDC. When present, "By Provider Address" is graphed as dashed line in same colour.*

Figure 3.3 New HIV Diagnoses for BC by Age Category [3]



< 30	18	18	14	9	18	9	17	23	15	17	15	13	18	14	14	21	13	19	15	20
30–39	13	16	17	11	10	16	25	18	11	17	21	25	15	15	17	17	8	19	13	22
40–49	19	20	11	19	19	12	14	21	20	14	14	7	13	11	19	10	11	11	13	11
≥ 50	15	16	13	13	13	12	23	18	12	15	25	18	14	24	11	17	17	8	29	21

Figure 3.4 New HIV Diagnoses for BC by Exposure Category [3,4]

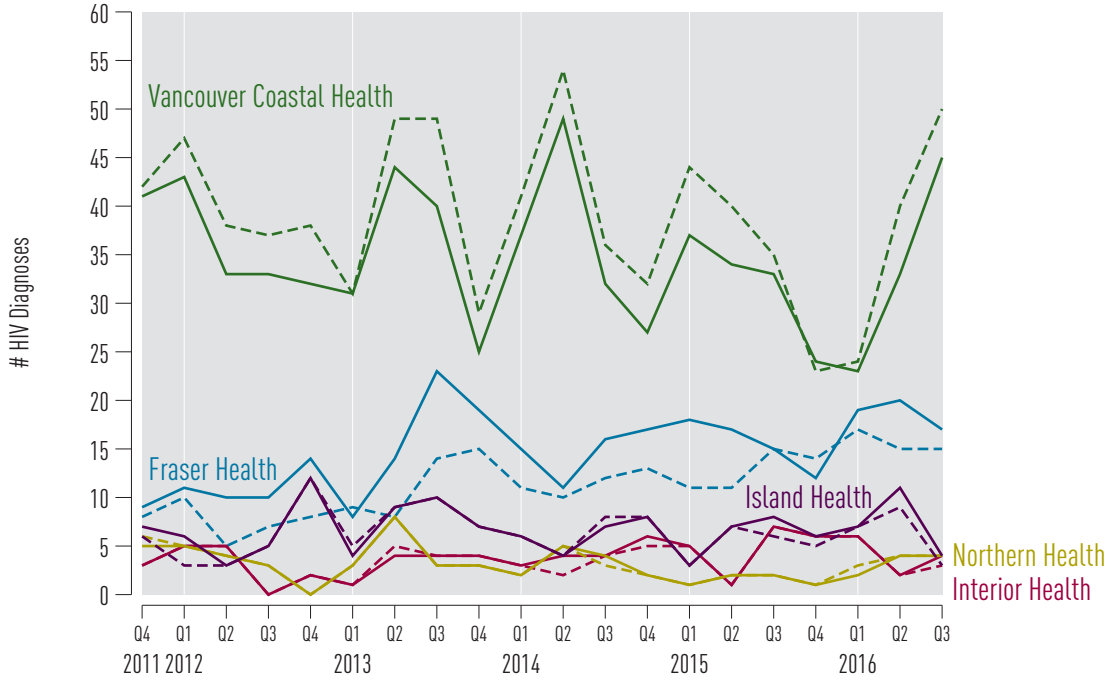


MSM (men who have sex with men)	38	42	34	37	36	27	44	45	38	35	46	34	36	37	38	36	25	27		
PWID (persons who inject drugs)	3	14	7	2	6	4	7	5	9	10	5	3	8	4	4	6	3	1		
HET (heterosexual)	21	14	12	11	15	15	21	24	9	16	19	20	10	17	14	19	17	11		
Other (other exposure identified)	3	0	1	0	1	0	1	5	0	0	1	4	2	2	0	1	0	1		
NIR/Unknown (no identified exposure)	0	0	1	2	2	3	6	1	2	2	4	2	4	4	5	3	4	17		

3 *Data Source: BCCDC. When present, "By Provider Address" is graphed as dashed line in same colour.*

4 *MSM=men who have sex with men; PWID=people who inject drugs; HET=heterosexual. NIR=No identified risk/exposure.*

Figure 3.5 New HIV Diagnoses for British Columbia by Health Authority[3]



Fraser Health	9	11	10	10	14	8	14	23	19	15	11	16	17	18	17	15	12	19	20	17
By Provider Address	*8*	*10*	*5*	*7*	*8*	*9*	*8*	*14*	*15*	*11*	*10*	*12*	*13*	*11*	*11*	*15*	*14*	*17*	*15*	*15*
Interior Health	3	5	5	0	2	1	4	4	4	3	4	4	6	5	1	7	6	6	2	4
By Provider Address	*3*	*5*	*5*	*0*	*2*	*1*	*5*	*4*	*4*	*3*	*2*	*4*	*5*	*5*	*1*	*7*	*6*	*6*	*2*	*3*
Northern Health	5	5	4	3	0	3	8	3	3	2	5	4	2	1	2	2	1	2	4	4
By Provider Address	*6*	*5*	*4*	*3*	*0*	*3*	*8*	*3*	*3*	*2*	*5*	*3*	*2*	*1*	*2*	*2*	*1*	*3*	*4*	*4*
Vancouver Coastal Health	41	43	33	33	32	31	44	40	25	37	49	32	27	37	34	33	24	23	33	45
By Provider Address	*42*	*47*	*38*	*37*	*38*	*31*	*49*	*49*	*29*	*41*	*54*	*36*	*32*	*44*	*40*	*35*	*23*	*24*	*40*	*50*
Island Health	7	6	3	5	12	4	9	10	7	6	4	7	8	3	7	8	6	7	11	4
By Provider Address	*6*	*3*	*3*	*5*	*12*	*5*	*9*	*10*	*7*	*6*	*4*	*8*	*8*	*3*	*7*	*6*	*5*	*7*	*9*	*3*

3 *Data Source: BCCDC. When present, "By Provider Address" is graphed as dashed line in same colour.*

Stage of HIV Infection at Diagnosis

Classification of stage of HIV infection, in the absence of information regarding recent testing history, is reliant on clinical information available at the time of diagnosis, including first CD4+ cell count and laboratory results suggestive of acute HIV infection (Table 1). The benefits of Treatment as Prevention (TasP) are maximized when antiretroviral therapy (ART) is initiated at high CD4 cell counts. Accordingly, it is preferable that individuals newly diagnosed with HIV be in the early stages of HIV infection (stage 0 or 1) to allow for early ART initiation.

N.B. Interpretation of Stage of HIV Infection at Diagnosis should proceed with caution. Early increases in diagnosis at late stage (i.e., low CD4 counts) may represent a "catching up" of previously missed long term infected individuals rather than a trend toward diagnosis at later stage of infection.

Indicator 4. Stage of HIV Infection at Diagnosis

Table 1 Staging Classifications of Infection at Time of HIV Diagnosis Based on CDC HIV Surveillance Case Definitions

Stage	Criteria	
0	Laboratory criteria met for acute HIV infection, or previous negative or indeterminate HIV test within 180 days of first confirmed positive HIV test.	
1	Stage 0 not met *and*	CD4 ≥500
2a		CD4 350–499
2b		CD4 200–349
3		CD4 <200
Unknown		No available CD4

Updated 2016 Q1: AIDS diagnosis date is no longer used in this indicator.

Figure 4.1 Stage of HIV Infection at Diagnosis for BC, 2011–2015 [5]

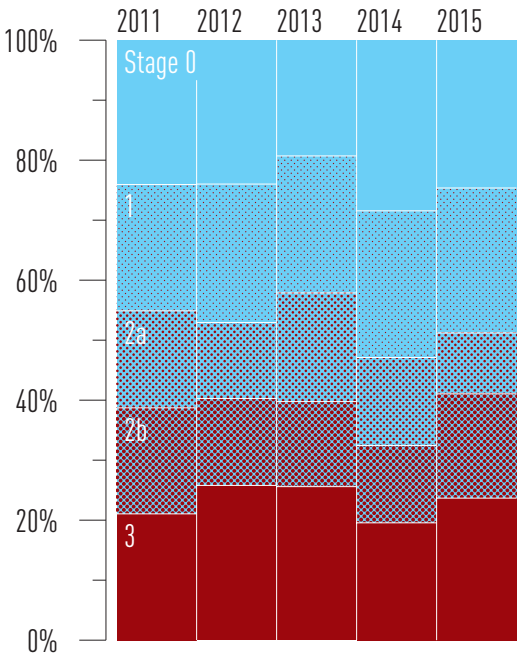
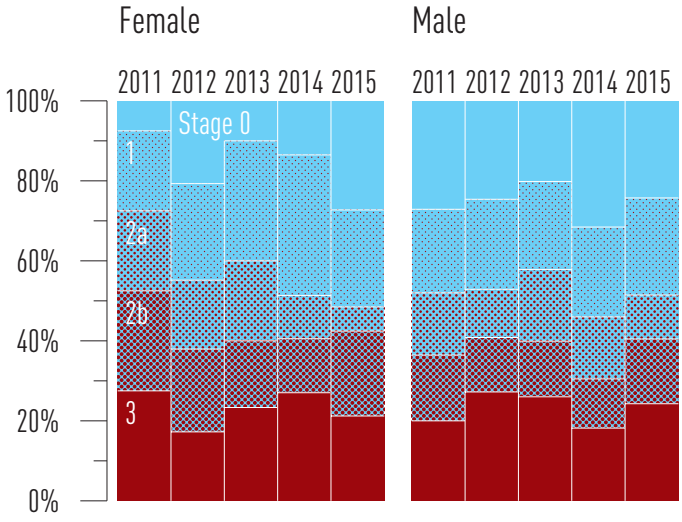


Figure 4.2 Stage of HIV Infection at Diagnosis by Gender for BC, 2011–2015 [5]



	British Columbia					*Female*					*Male*				
	2011	'12	'13	'14	'15	'11	'12	'13	'14	'15	'11	'12	'13	'14	'15
Stage 0	64	53	49	64	51	3	6	3	5	9	61	47	45	59	42
Stage 1	56	51	58	55	50	8	7	9	13	8	47	43	49	42	42
Stage 2a	43	28	46	33	21	8	5	6	4	2	35	23	40	29	19
Stage 2b	47	32	36	29	36	10	6	5	5	7	37	26	31	23	28
Stage 3	56	57	65	44	49	11	5	7	10	7	45	52	58	34	42
Unknown	22	15	11	35	31	3	1	1	8	5	18	14	10	27	26
Total *(n=)*	288	236	265	260	238	43	30	31	45	38	243	205	233	214	199

5 *Data Source: BCCDC*

Figure 4.3 Stage of HIV Infection at Diagnosis by Age Category for BC, 2011–2015 [5]

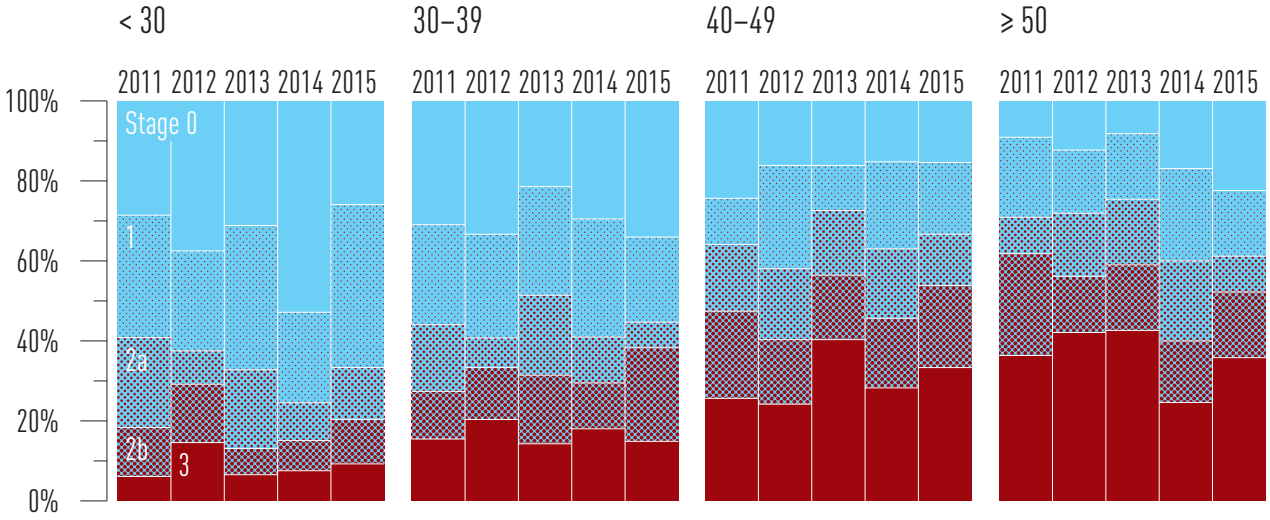
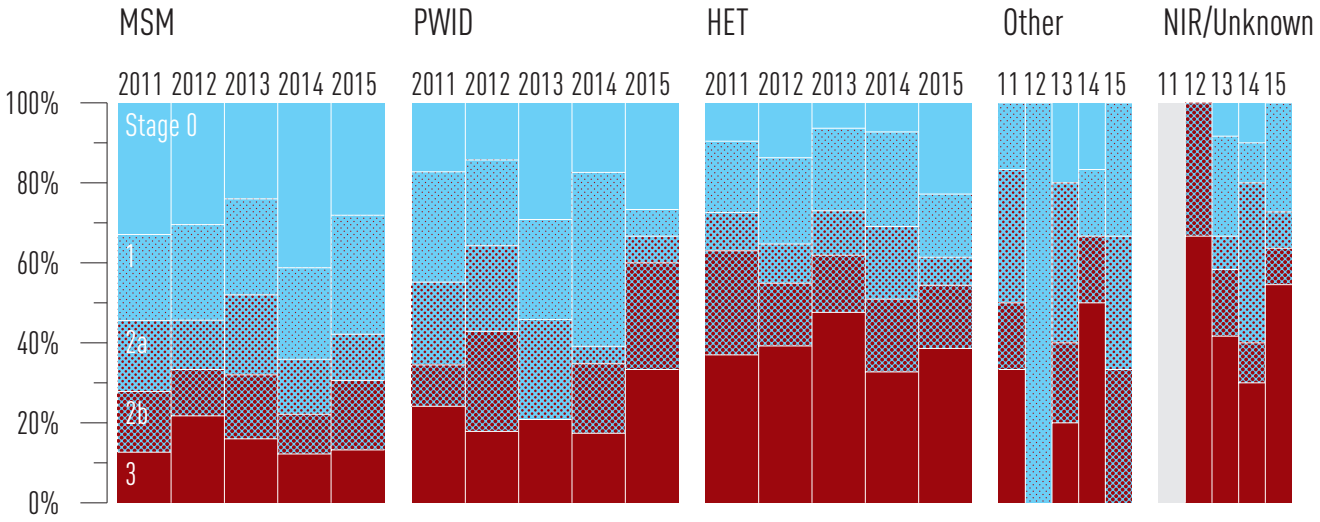


Figure 4.4 Stage of HIV Infection at Diagnosis by Exposure Category for BC, 2011–2015 [5,6]



	< 30 years					*30–39 years*					*40–49 years*					*≥ 50 years*					*MSM*					*PWID*					*Heterosexual*					*Other*					*NIR/Unknown*				
	2011	12	13	14	15	11	12	13	14	15	11	12	13	14	15	11	12	13	14	15	11	12	13	14	15	11	12	13	14	15	11	12	13	14	15	11	12	13	14	15	11	12	13	14	15
Stage 0	14	18	19	28	14	26	18	15	18	16	19	10	10	7	6	5	7	5	11	15	52	42	36	54	34	5	4	7	4	4	7	7	4	4	13	0	0	1	1	0	0	0	1	1	0
Stage 1	15	12	22	12	22	21	14	19	18	10	9	16	7	10	7	11	9	10	15	11	34	33	36	30	36	8	6	6	10	1	13	11	13	13	9	1	1	0	1	1	0	0	3	1	3
Stage 2a	11	4	12	5	7	14	4	14	7	3	13	11	10	8	5	5	9	10	13	6	28	17	30	18	14	6	6	6	1	1	7	5	7	10	4	2	0	2	0	1	0	0	1	4	1
Stage 2b	6	7	4	4	6	10	7	12	7	11	17	10	10	8	8	14	8	10	10	11	24	16	24	13	21	3	7	0	4	4	19	8	9	10	9	1	0	1	1	1	0	1	2	1	1
Stage 3	3	7	4	4	5	13	11	10	11	7	20	15	25	13	13	20	24	26	16	24	20	30	24	16	16	7	5	5	4	5	27	20	30	18	22	2	0	1	3	0	0	2	5	3	6
Unknown	5	7	0	7	4	8	3	2	12	11	4	2	3	9	10	5	3	6	7	6	12	10	4	19	14	5	1	1	3	2	2	1	5	10	10	1	1	1	1	0	2	2	0	2	5
Total *(n=)*	54	55	61	60	58	92	57	72	73	58	82	64	65	55	49	60	60	67	72	73	170	148	154	150	135	34	29	25	26	17	75	52	68	65	67	7	2	6	7	3	2	5	12	12	16

5 *Data Source: BCCDC*

6 *MSM=men who have sex with men; PWID=people who inject drugs; HET=heterosexual. NIR=No identified risk/exposure.*

HIV Cascade of Care

Indicator 5. HIV Cascade of Care

The success of seek, test, treat and retain (STTR) strategies like STOP is reliant on early diagnosis of HIV, linking newly diagnosed HIV-positive persons with ongoing care, retaining persons in HIV-care; initiating ART based on best evidenced practices and maintaining optimal ART adherence to ensure a suppressed viral load. These stages of HIV-care can be summarized as: 1. HIV diagnosis, 2. Linked to HIV care, 3. Retained in HIV care, 4. On ART, 5. Adherent to ART and 6. Achieving a suppressed VL; collectively, they are referred to as the cascade of care. Attrition between any of these stages of HIV-care means a reduction in the potential of ART as a benefit to the HIV-positive individual and as an HIV transmission prevention method on a population level. Thus, when interpreting trends in the cascade of care, we strive to see increases along each step of the cascade of care (i.e. reduced attrition) with the ultimate goal being 100% within each stage of the cascade. Monitoring the Cascade of Care provides a picture as to where deficiencies lie in the delivery and uptake of HIV-care. In this section we present the cascade of care for the period 2015 Q4–2016 Q3 in BC overall and stratified by sex and age for each Health Authority.

Figure 5.1 Estimated Cascade of Care for British Columbia, Year Ending 2016 Q3 [7]

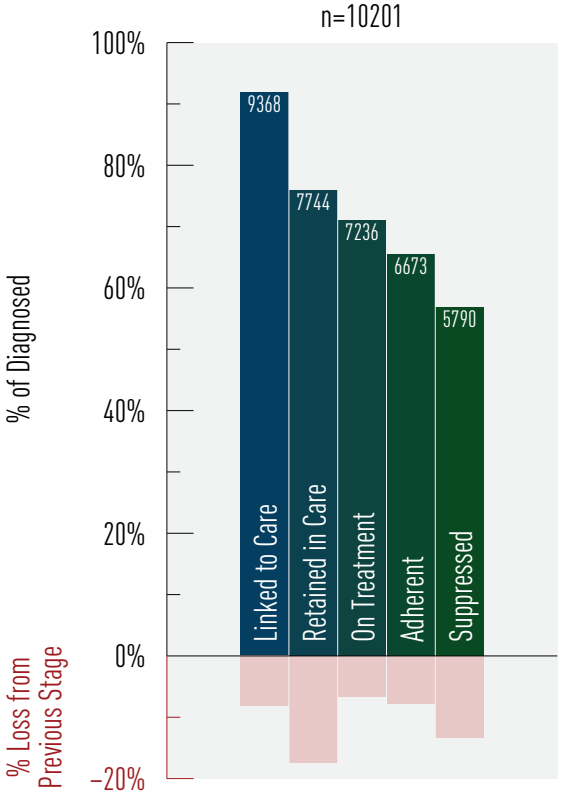
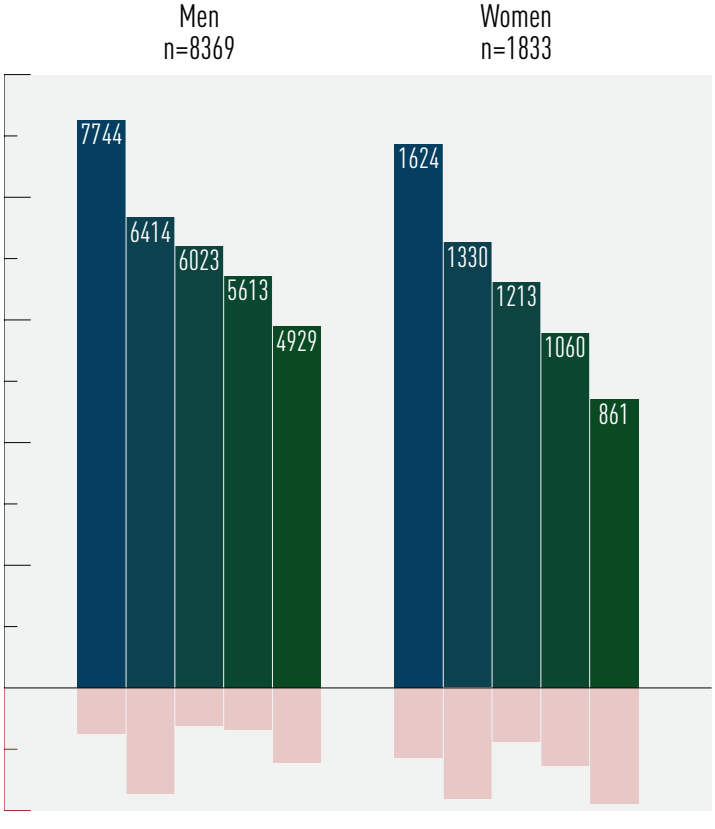


Figure 5.2 Estimated Cascade of Care for British Columbia by Gender, Year Ending 2016 Q3 [7]

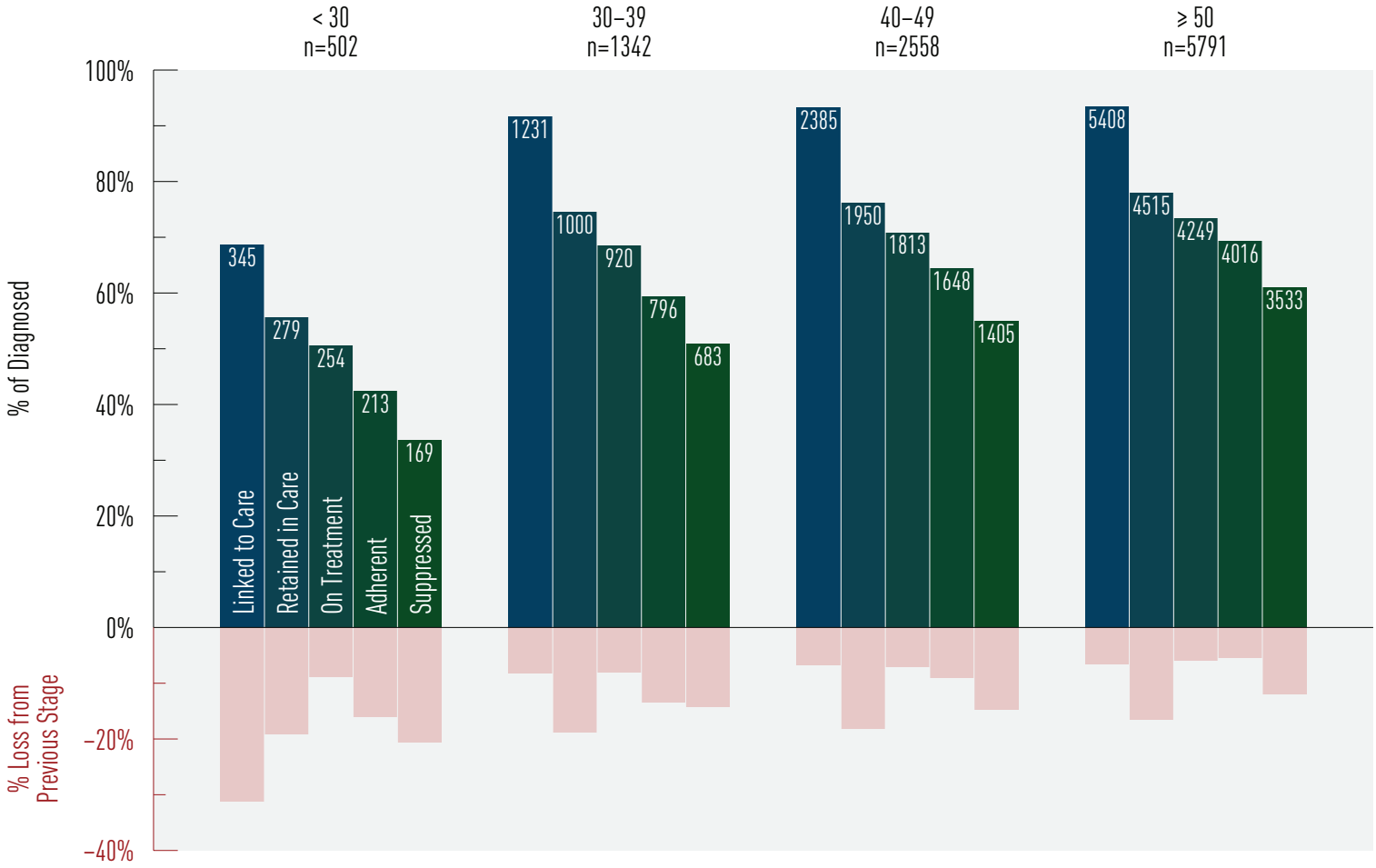


7 *Data is for the period 2015 Q4–2016 Q3.*
Data Sources:
i British Columbia Centre for Excellence Drug Treatment Program (DTP) Database (ARV use, VL and CD4 count).
ii Administrative data (ex. MSP billings; hospitalization data from the Discharge Abstract Database (DAD)).

Limitations: HA assignment is based on the most recent HA of residence of the patient, if not available of the HIV-care provider. If the most recent HA of residence is not updated then the designated HA may be incorrect.

NB: Transgender have been assigned to their biological sex.

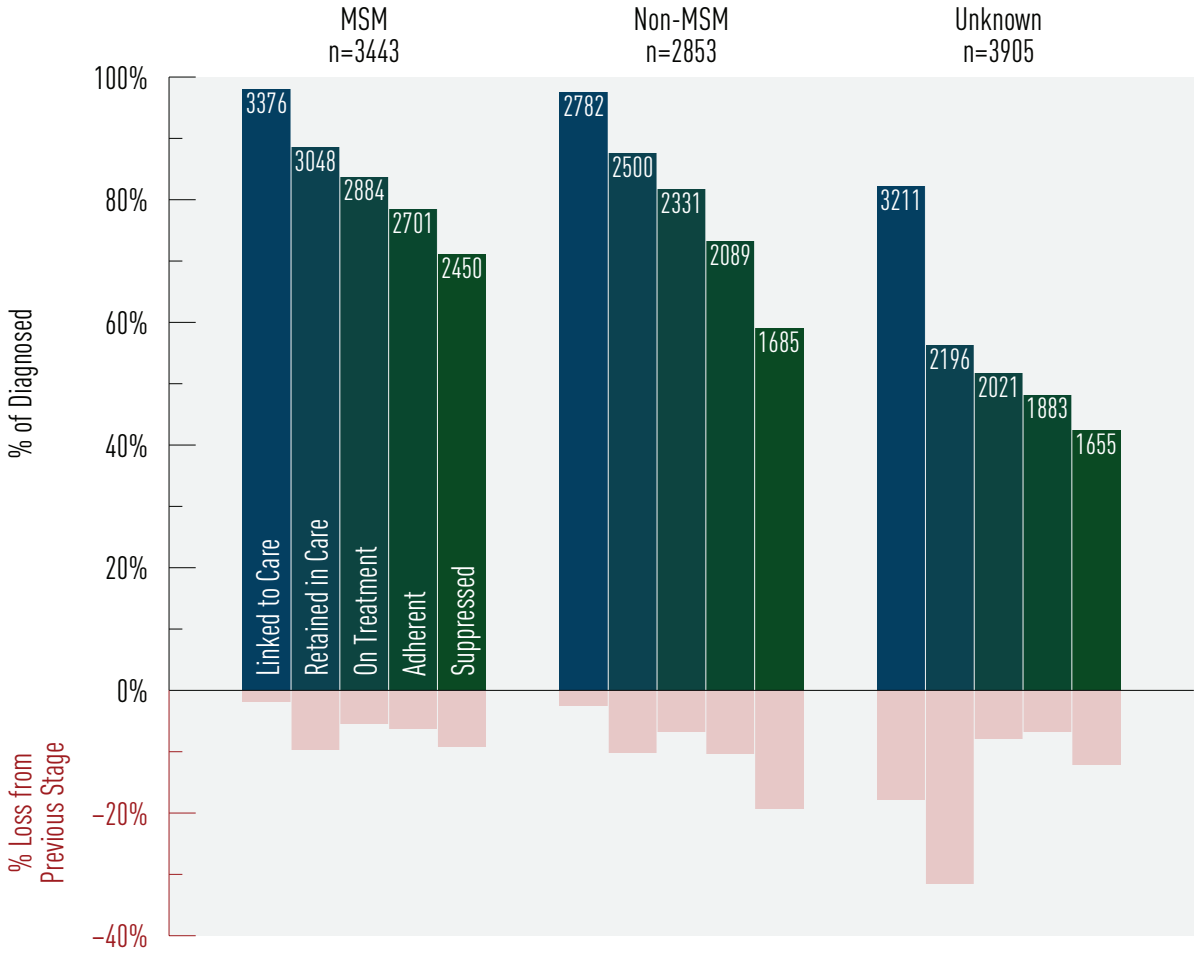
Figure 5.3 Estimated Cascade of Care for British Columbia by Age Category, Year Ending 2016 Q3 [8]



8 *Data is for the period 2015 Q4–2016 Q3.*
Data Sources:
i British Columbia Centre for Excellence Drug Treatment Program (DTP) Database (ARV use, VL and CD4 count).
ii Administrative data (ex. MSP billings; hospitalization data from the Discharge Abstract Database (DAD)).

Limitations: HA assignment is based on the most recent HA of residence of the patient, if not available of the HIV-care provider. If the most recent HA of residence is not updated then the designated HA may be incorrect.

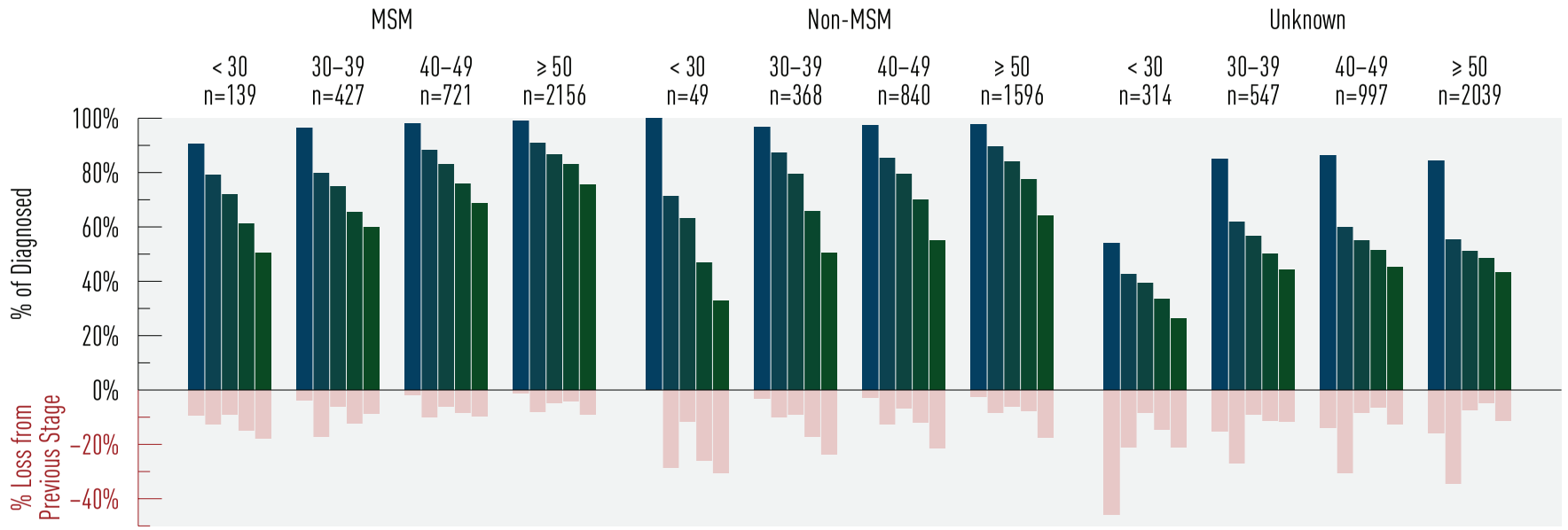
Figure 5.4 Estimated Cascade of Care for British Columbia by MSM Status, Year Ending 2016 Q3 [9]



9 *Data is for the period 2015 Q4–2016 Q3.*
Data Sources:
i British Columbia Centre for Excellence Drug Treatment Program (DTP) Database (ARV use, VL and CD4 count).
ii Administrative data (ex. MSP billings; hospitalization data from the Discharge Abstract Database (DAD)).

Limitations: HA assignment is based on the most recent HA of residence of the patient, if not available of the HIV-care provider. If the most recent HA of residence is not updated then the designated HA may be incorrect.

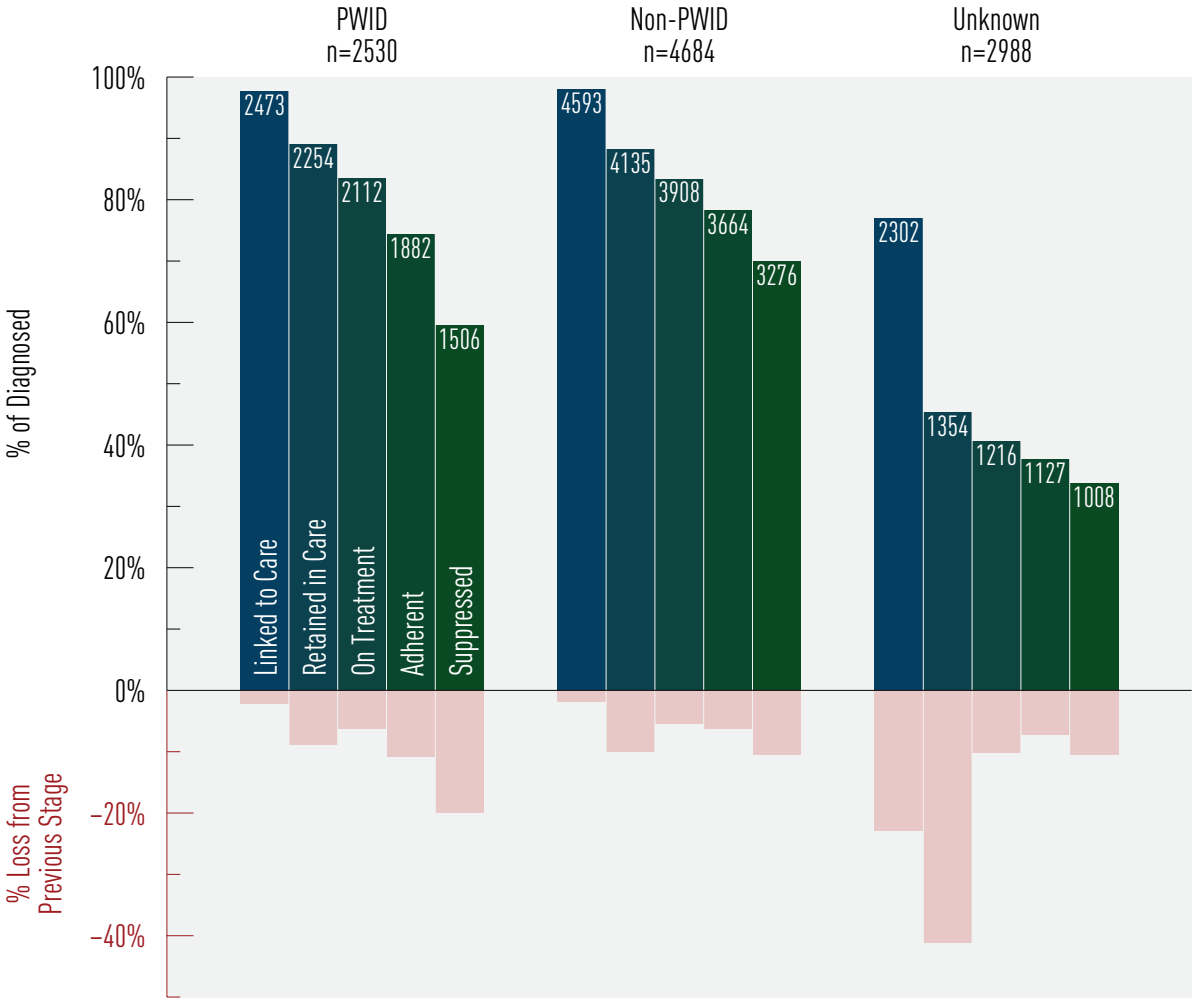
Figure 5.5 Estimated Cascade of Care for British Columbia by Age Category and MSM Status, Year Ending 2016 Q3 [9]



9 *Data is for the period 2015 Q4–2016 Q3.*
Data Sources:
i British Columbia Centre for Excellence Drug Treatment Program (DTP) Database (ARV use, VL and CD4 count).
ii Administrative data (ex. MSP billings; hospitalization data from the Discharge Abstract Database (DAD)).

Limitations: HA assignment is based on the most recent HA of residence of the patient, if not available of the HIV-care provider. If the most recent HA of residence is not updated then the designated HA may be incorrect.

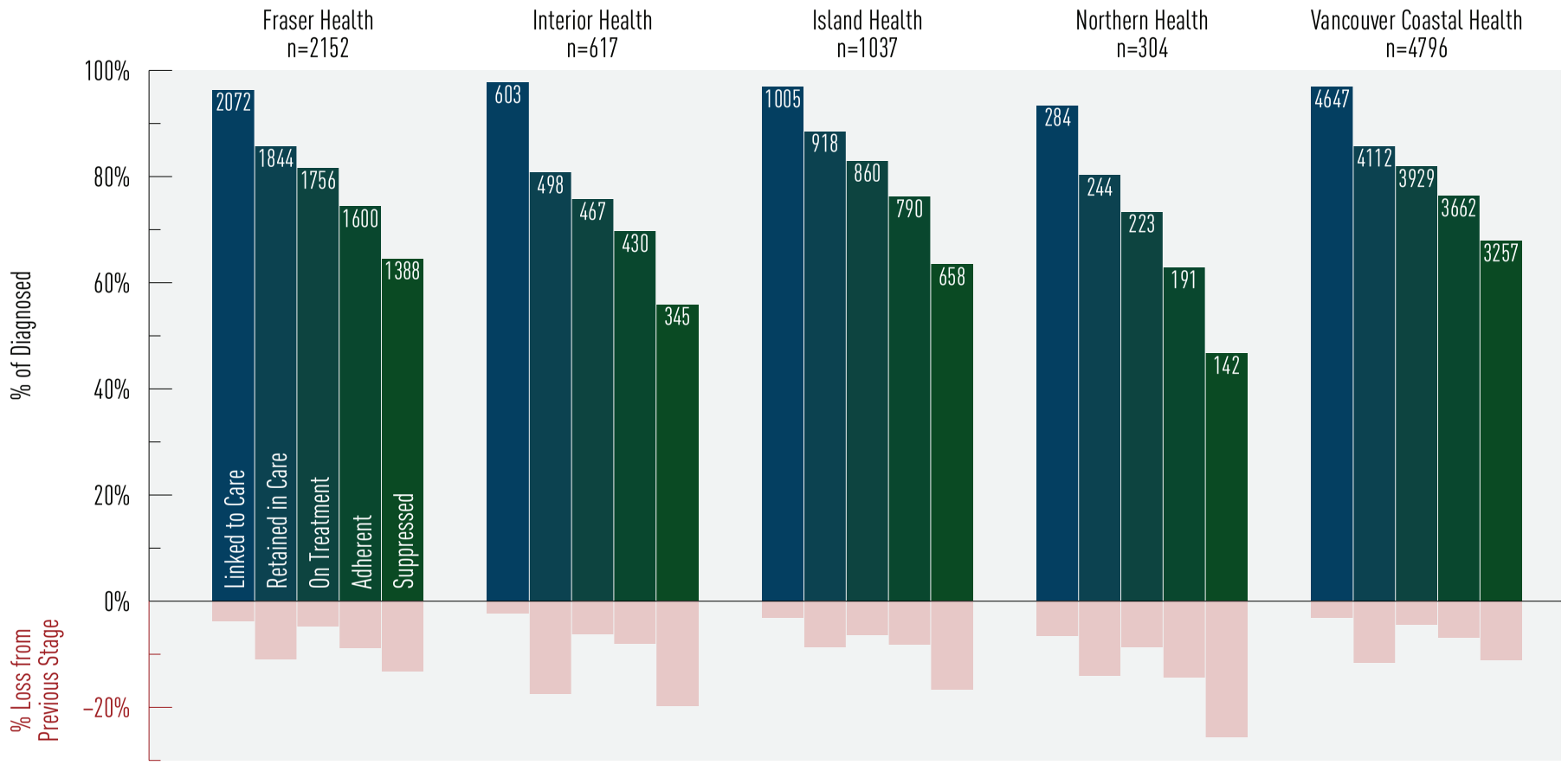
Figure 5.6 Estimated Cascade of Care for British Columbia by PWID Status, Year Ending 2016 Q3 [9]



9 *Data is for the period 2015 Q4–2016 Q3.*
Data Sources:
i British Columbia Centre for Excellence Drug Treatment Program (DTP) Database (ARV use, VL and CD4 count).
ii Administrative data (ex. MSP billings; hospitalization data from the Discharge Abstract Database (DAD)).

Limitations: HA assignment is based on the most recent HA of residence of the patient, if not available of the HIV-care provider. If the most recent HA of residence is not updated then the designated HA may be incorrect.

Figure 5.7 Estimated Cascade of Care for British Columbia by Health Authority, Year Ending 2016 Q3 [9]



9 *Data is for the period 2015 Q4–2016 Q3.*
Data Sources:
i British Columbia Centre for Excellence Drug Treatment Program (DTP) Database (ARV use, VL and CD4 count).
ii Administrative data (ex. MSP billings; hospitalization data from the Discharge Abstract Database (DAD)).

Limitations: HA assignment is based on the most recent HA of residence of the patient, if not available of the HIV-care provider. If the most recent HA of residence is not updated then the designated HA may be incorrect.

Programmatic Compliance Score

Indicator 6. Programmatic Compliance Score (PCS)

The Programmatic Compliance Score (PCS) is a summary measure of risk of future death, immunologic failure and virologic failure from all causes for people who are starting ART for the first time. It is composed of patient- and physician-driven effects. PCS scores range from 0–6 with higher scores indicative of poorer health outcomes and greater risk of death. Table 2 provides mortality, immunologic failure and virologic failure probabilities for given PCS scores. We interpret an individual with a PCS≥4 as being 22 times more likely to die, almost 10 times more likely to have immunologic failure and nearly 4 times as likely to demonstrate virologic failure compared to those individuals with a PCS score of 0. A detailed description of how the PCS score is calculated and its validation can be found in the technical report. In short, PCS scores are calculated by summing the results (yes=1, no=0) of six un-weighted non-performance indicators based on IAS–USA treatment guidelines:

1. having <3 CD4 cell count tests in the first year after starting antiretroviral therapy (ART);
2. having <3 plasma viral load (VL) tests in the first year after starting ART;
3. not having drug resistance testing done prior to starting ART;
4. starting on a non-recommended ART regimen;
5. starting therapy with CD4<200 cells/μL; and
6. not achieving viral suppression within 9 months since ART initiation.

In this section we provide PCS scores and their components over time for the province of BC. A decline to 0%, **(i.e., all individuals having a score of 0)** is the eventual goal.

Table 2. Probability of Mortality, Immunologic Failure and Virologic Failure based on the Programmatic Compliance Score

Programmatic Compliance Score	Mortality Risk Ratio (95% Confidence Interval)	Immunologic Failure Risk Ratio (95% CI)	Virologic Failure Risk Ratio (95% CI)
0 (Best score)	1 (–)	1 (–)	1 (–)
1	3.81 (1.73–8.42)	1.39 (1.04–1.85)	1.32 (1.05–1.67)
2	7.97 (3.70–17.18)	2.17 (1.54–3.04)	1.86 (1.46–2.38)
3	11.51 (5.28–25.08)	2.93 (1.89–4.54)	2.98 (2.16–4.11)
4 or more (Worst score)	22.37 (10.46–47.84)	9.71 (5.72–16.47)	3.80 (2.52–5.73)

Reference: Lima VD, Le A, Nosyk B, Barrios R, Yip B, et al. (2012) Development and Validation of a Composite Programmatic Assessment Tool for HIV Therapy. PLoS ONE 7(11): e47859. doi:10.1371/journal.pone.0047859

Figure 6.1 PCS Components for BC, 2014 Q4–2016 Q3 [10]

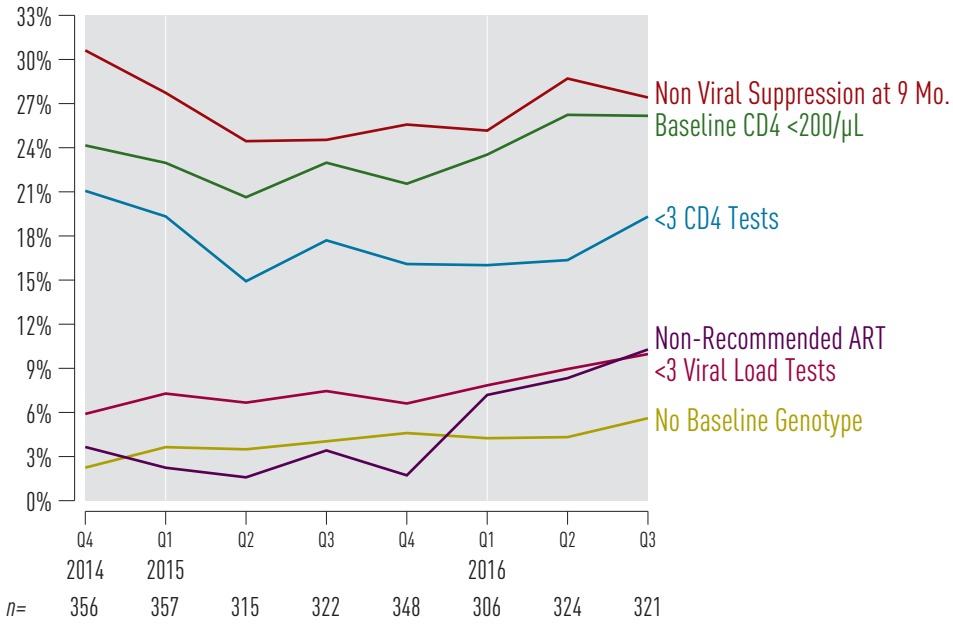
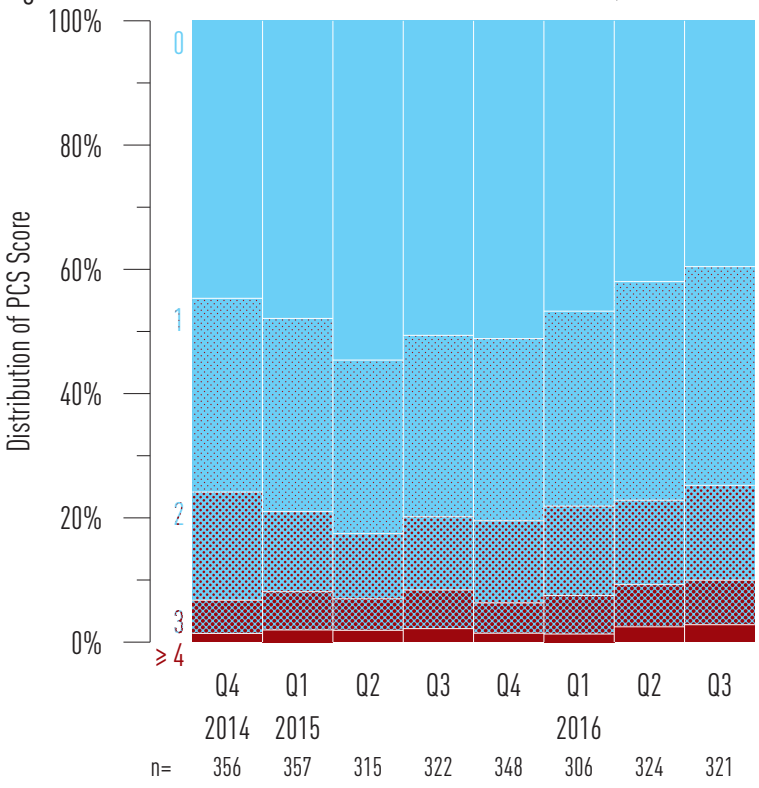


Figure 6.2 Historical Trends for PCS Score for BC, 2014 Q4–2016 Q3 [10,11]



10 *Data Source: British Columbia Centre for Excellence Drug Treatment Program (DTP) Database.*
Limitations: CD4 cell count capture is approximately 80%.

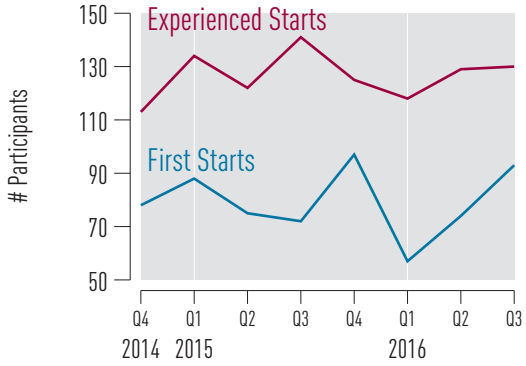
11 *Each quarter's data is calculated as the sum of the 4 quarters leading up to it. e.g. 2013 Q1 is calculated from 2012 Q2 – 2013 Q1.*
NB: A score of 0 is the best score and a score of 4 or more is the worst score.

Antiretroviral Uptake

In this section we present trends in ART uptake, the number and proportion of new HIV treatment initiations and the number of active and inactive DTP participants. Trends in ART uptake should be interpreted under the consideration of changing BC HIV treatment guidelines. BC HIV treatment guidelines are updated regularly by the BC-CFE Therapeutic Guidelines Committee and reflect those of the International AIDS Society. Most recent changes were made in 2012 and HIV treatment is now recommended for all HIV-positive adults regardless of CD4 cell count; as evidence demonstrates that early initiation of HIV treatment maximizes both the individual's health outcomes as well as the potential of ART as a form of HIV transmission prevention at a population level. As such, trends in the number and proportion of persons on ART and new ART starts (in both naïve and experienced persons) are expected to increase over time at higher CD4 cell counts.

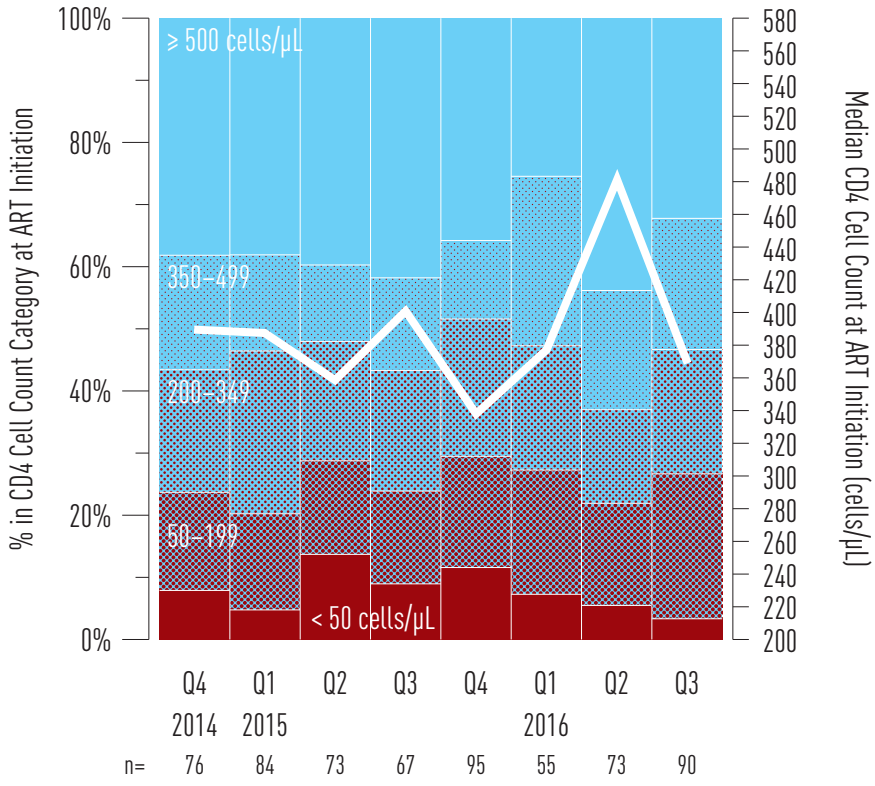
Indicator 7. New Antiretroviral Therapy Starts in BC

Figure 7 BC-CfE Drug Treatment Program Enrollment: New ART Participants in BC, 2014 Q4–2016 Q3 [12]



Indicator 8. CD4 Cell Count at ART Initiation

Figure 8 CD4 Cell Count at ART Initiation of ART-Naïve DTP Participants in BC, 2014 Q4–2016 Q3 [13]



12 *Data Source: Drug Treatment Program Database Limitation: DTP participants are designated to an HA based on most current residence provided by the participant.*

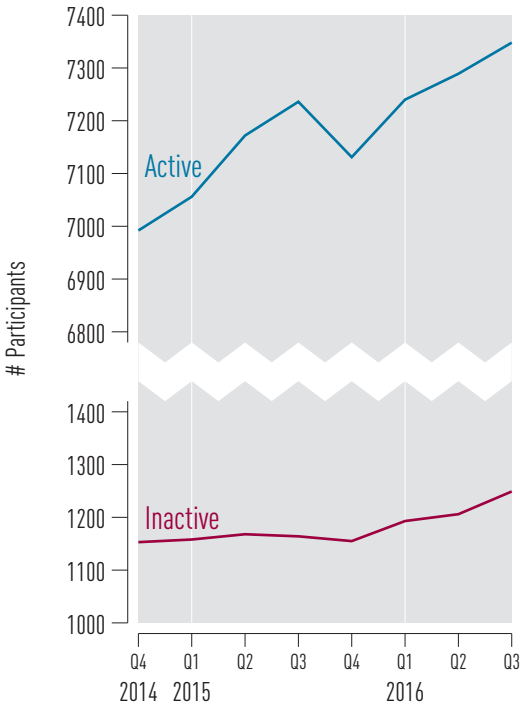
13 *Data Source: Drug Treatment Program Database Limitations: CD4 cell count data is approximately 80% complete.*

Indicator 9. Active and Inactive DTP Participants

Table 3. Distribution of People on ART for BC, 2016 Q3 [14]

		Fraser	Interior	Island	Northern	Vancouver Coastal	Total BC
Age	< 30	83	21	36	8	134	282
	30–39	265	46	94	48	545	999
	40–49	512	102	218	65	1021	1918
	≥ 50	929	300	537	100	2283	4149
Gender	Male	1391	373	721	142	3508	6135
	Female	398	96	164	79	475	1213
Exposure	MSM	582	153	261	34	1919	2949
	PWID	440	146	278	111	1124	2100
Total		1789	469	885	221	3983	7348

Figure 9 Active and Inactive DTP Participants for BC, 2014 Q4–2016 Q3 [15]



14 *Data Source: Drug Treatment Program Database*
Limitation: DTP participants are designated to an HA based on most current residence provided by the participant.

Definition:
'On antiretroviral therapy' defined as being on treatment in the current quarter

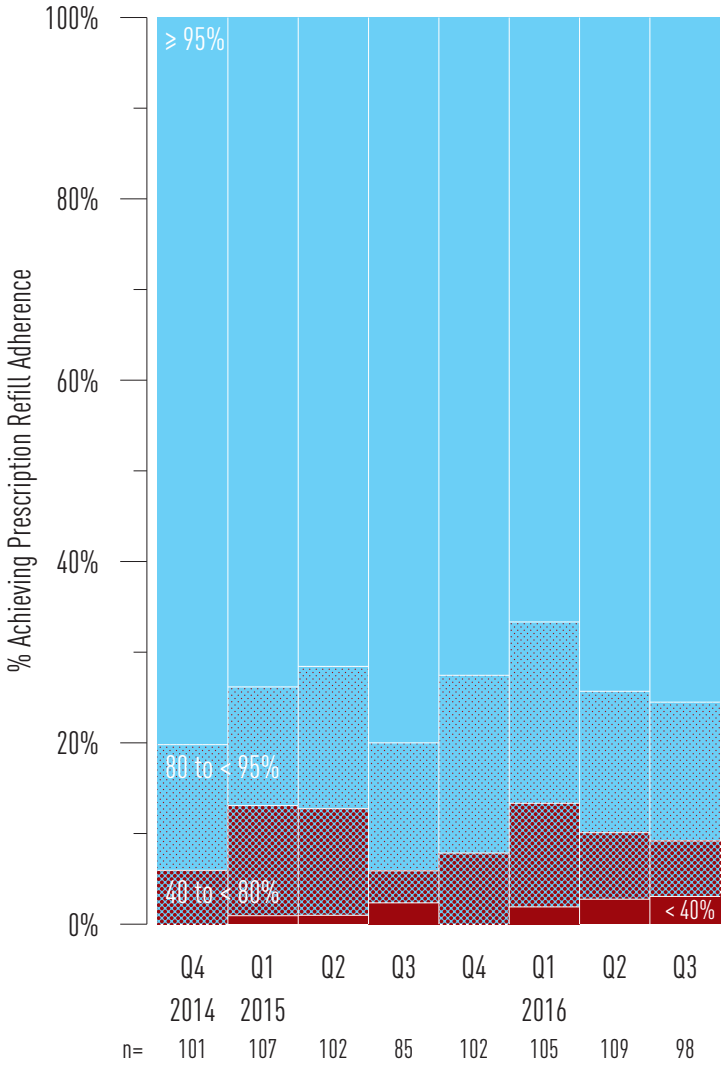
15 *Active DTP participants: An individual who has had medication prescribed at least once in the preceding quarter.*
Inactive DTP participants: Persons no longer prescribed drugs through the HIV/AIDS Drug Treatment Program in the last quarter.

Antiretroviral Adherence Level

In this section we present trends in prescription refill adherence levels for individuals in their first year of treatment. Given that the benefits of ART are compromised in the presence of imperfect ART adherence, we expect to see the proportion of persons on ART achieving near perfect adherence (ie. ≥95%) to increase with time. Furthermore, it is important that trends in the proportion of ART users achieving prescription refill adherence of ≥95% keep pace with new ART starts and increase among those continuing on ART.

Indicator 10. Antiretroviral Adherence

Figure 10 Distribution of Individuals by Adherence Level in 1st Year of Therapy, Based on Pharmacy Refill Compliance for BC, 2014 Q4–2016 Q3 [16]



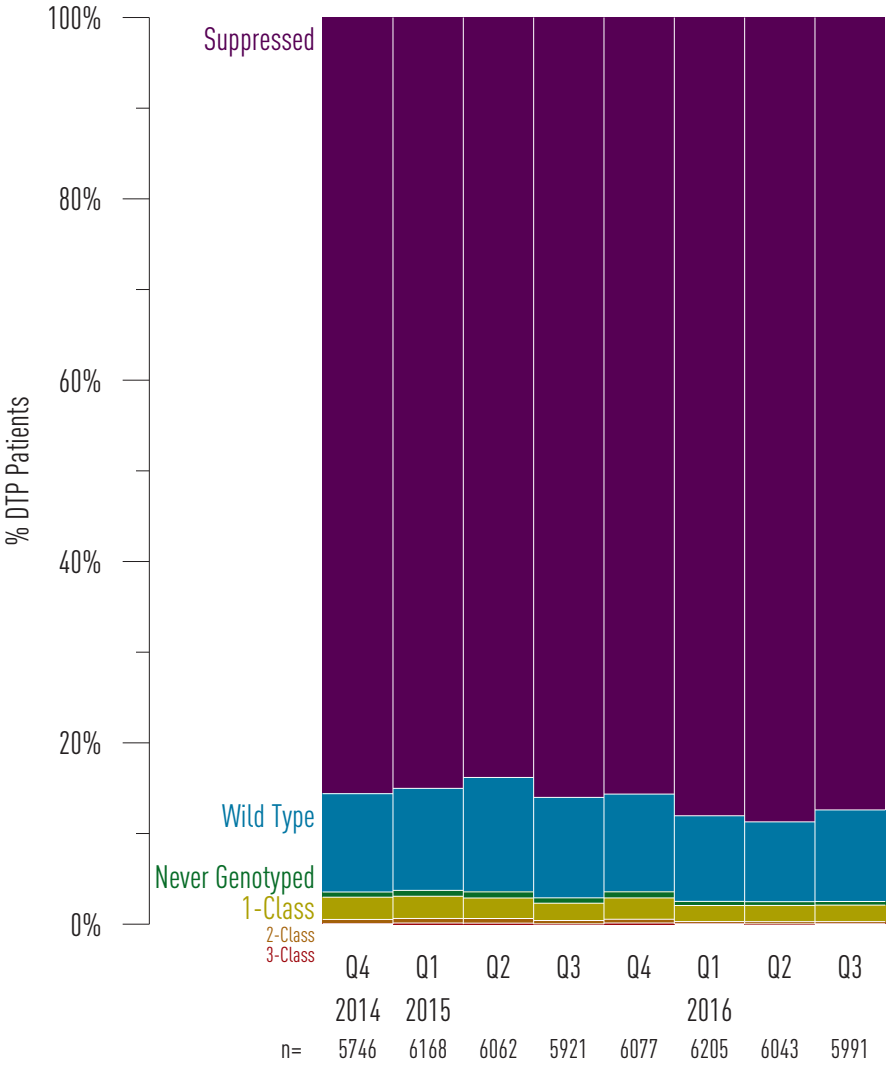
16 *Data Source: Drug Treatment Program Database*
Limitation: Prescription refill adherence is used as a proxy for patient adherence.

Resistance Testing and Results

Indicator 11. Resistance Testing and Results

In this section, we present trends in cumulative resistance testing by resistance category: Suppressed (where a DTP participant's viral load is too low to be genotyped); Wild Type (where no HIV treatment resistances were discovered), Never Genotyped, and Resistances to one, two, three, or four HIV treatment classes. Resistance testing prior to ART initiation is recommended in the BC HIV treatment primary care guidelines. Thus, it is expected that trends over time should find all persons enrolled in the DTP to have been genotyped. Trends over time should also show an increase in the proportion of DTP participants achieving a suppressed status and an increase in resistance testing should not lead to an increase in the number of ART resistances occurring.

Figure 11 Cumulative Resistance Testing Results by Resistance Category for BC, 2014 Q4–2016 Q3 [17]



17 *Data Source: Drug Treatment Program Database*

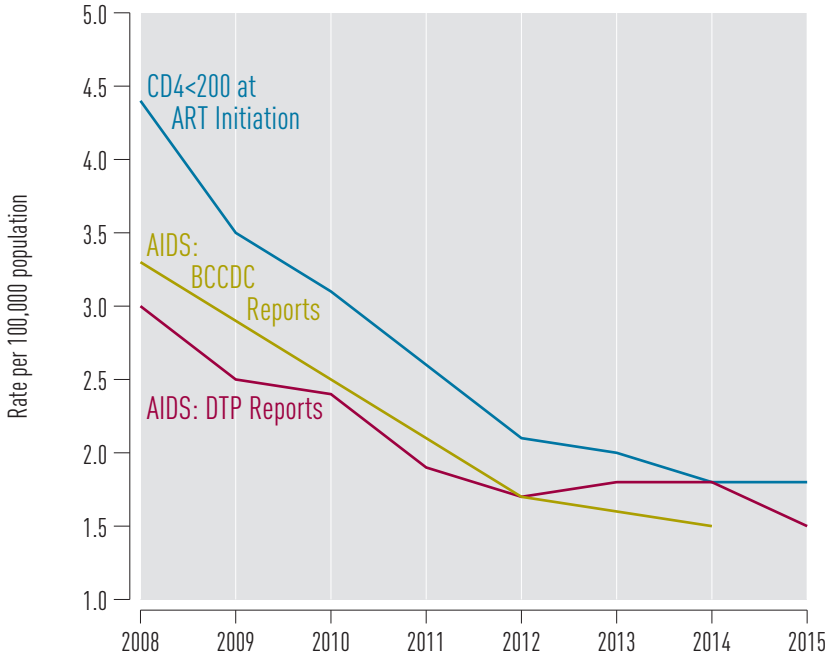
Limitation: DTP participants are designated to a HA based on most current residence provided by the participant.

AIDS-Defining Illness

Indicator 12. AIDS-Defining Illness

Improvements in ART and the expansion of ART province-wide has led to very low numbers of recorded AIDS cases across BC. However, interpreting trends in AIDS cases is challenging as AIDS reporting is passive in BC and it is likely that they are under-reported across all Health Authorities. In addition to under-reporting, methods of reporting AIDS cases are inconsistent across HA's and do not truly reflect the current reality of new AIDS diagnoses. Efforts will need to be made to improve under- and inconsistent reporting of AIDS cases across all HA's. The table below shows AIDS cases using three definitions. First, AIDS cases were defined as the number of physician-reported AIDS defining illness (ADI) in a given year. AIDS case reporting is a passive process and physicians can voluntarily report AIDS cases to the BCCDC or DTP. As such, we have plotted both BCCDC reports and DTP reported AIDS cases. We also show the proportion of persons initiating ART with a CD4<200 cells/μL.

Figure 12 AIDS Case Rate and Reports for BC [18]



		2008	2009	2010	2011	2012	2013	2014	2015
CD4<200 at ART initiation	CASES	193	155	138	115	96	90	84	84
	PER 100K	4.4	3.5	3.1	2.6	2.1	2.0	1.8	1.8
AIDS: DTP Reports	CASES	131	110	108	87	75	83	82	71
	PER 100K	3.0	2.5	2.4	1.9	1.7	1.8	1.8	1.5
AIDS: BCCDC Reports	CASES	143	127	113	95	76	73	70	–
	PER 100K	3.3	2.9	2.5	2.1	1.7	1.6	1.5	–

18 *Data Source: DTP AIDS cases are obtained from the Drug Treatment Program Database; BCCDC AIDS cases are obtained from the BCCDC; CD4<200 at ART initiation data came from the DTP database. Indicator 12 also reflects information from BC Vital Statistics. As this information is made available to BC-CFE, we use it to inform the development and refinement of this indicator.*

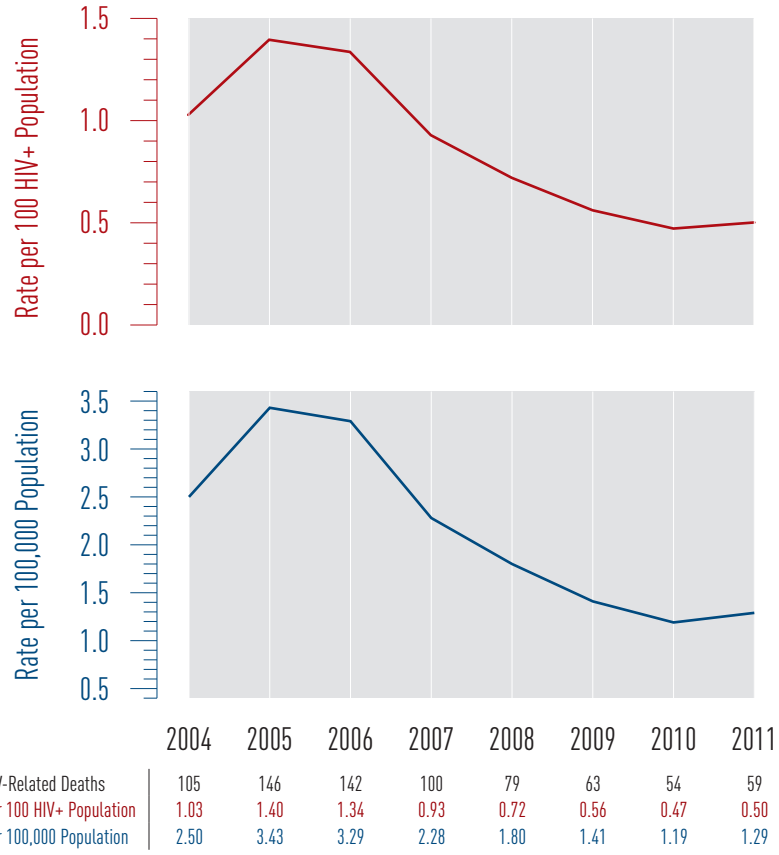
Limitation: AIDS case reporting was investigated using 3 definitions: First, using AIDS cases reported in AIDS case report forms from the DTP; Second, using AIDS cases reported via the BCCDC and third, using a CD4 cell count of <200 cells/μL at time of ART initiation using DTP data. AIDS case reporting is passive in BC, thus; AIDS case reporting is not well captured. The DTP sends out AIDS reporting forms to physicians annually. The BCCDC uses DTP AIDS case reports as well as physician AIDS case reports made directly to the BCCDC. Interpreting AIDS case reports should be done with these limitations in mind. AIDS data is updated annually as very few AIDS cases reports are reported in general and trends would be difficult to notice if reported quarterly.

HIV-Related Mortality

Indicator 13. HIV-Related Mortality

Evidence indicates that individuals who initiate treatment with recommended ART in a timely fashion may live near normal lifespans. Excess mortality among HIV positive persons is, therefore, an important measure of HIV care with a goal of minimizing HIV-related mortality in British Columbia.

Figure 13 HIV-Related Deaths by Year for BC, 2004–2011 [19]



	2004	2005	2006	2007	2008	2009	2010	2011
HIV-Related Deaths	105	146	142	100	79	63	54	59
Per 100 HIV+ Population	1.03	1.40	1.34	0.93	0.72	0.56	0.47	0.50
Per 100,000 Population	2.50	3.43	3.29	2.28	1.80	1.41	1.19	1.29

19 *Data Source: BC Vital Statistics*

Limitation:

1. DTP participants are designated to an HA based on most current residence provided by the participant.

2. Mortality data is updated annually.

3. The most recent available data was used.

APPENDICES

Indicator 1: **Test Episodes (thousands)**		2012				2013				2014				2015				2016			
		Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
British Columbia		37.6	42.3	41.5	45.0	46.6	54.8	58.0	55.9	54.6	61.9	66.1	71.2	70.4	77.9	76.9	79.8	80.6	88.7	87.7	83.0
Gender	Female	16.6	18.9	18.9	20.8	21.5	25.7	27.5	26.4	25.6	28.7	31.2	33.7	33.7	37.4	37.3	38.7	38.7	42.3	42.6	40.1
	Male	18.0	20.8	20.1	21.6	22.7	26.2	27.9	26.5	26.2	30.0	31.6	33.8	33.7	37.2	36.7	38.3	39.1	43.3	42.5	40.4
	Other	0.5	0.4	0.3	0.4	0.3	0.3	0.2	0.2	0.2	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Age	< 30	13.0	14.0	13.5	14.8	14.7	15.7	16.7	16.8	16.3	17.4	17.6	19.2	18.9	19.7	19.9	21.8	21.8	22.2	22.6	22.8
	30–39	8.7	10.1	9.7	10.2	10.3	12.2	12.7	12.3	11.9	13.9	13.9	14.6	14.0	16.1	16.0	16.6	16.1	18.6	18.3	17.3
	40–49	6.0	6.9	6.8	6.9	7.6	9.0	9.3	8.7	8.5	9.7	10.1	10.5	10.5	11.6	11.4	11.7	11.8	13.3	12.9	11.8
	≥ 50	7.0	8.8	9.1	10.5	11.7	15.2	16.9	15.2	15.2	17.8	21.4	23.5	24.0	27.4	26.9	27.0	28.3	31.7	31.6	28.8
POC Tests		2.5	2.3	2.1	2.3	2.2	2.6	2.4	2.7	2.6	3.0	3.0	3.3	2.9	2.9	2.6	2.6	2.6	2.7	2.3	2.2
Fraser Health		9.0	10.1	10.1	10.8	11.6	13.5	14.0	13.7	12.9	13.6	14.5	14.9	15.1	16.1	15.8	16.8	17.1	18.5	19.2	17.9
Female		4.3	4.7	4.9	5.3	5.7	6.6	6.8	6.8	6.1	6.5	6.9	7.2	7.4	7.5	7.6	8.1	8.1	8.8	9.3	8.5
Male		4.6	5.3	5.1	5.4	5.7	6.6	7.0	6.7	6.5	6.9	7.1	7.3	7.5	8.1	7.8	8.4	8.6	9.4	9.6	9.1
Interior Health		4.2	4.1	4.0	4.2	4.2	4.4	4.7	4.6	4.9	5.3	5.5	5.6	5.9	6.6	7.0	7.9	9.1	10.5	9.8	9.0
Female		2.1	2.1	2.0	2.1	2.0	2.1	2.3	2.2	2.4	2.6	2.6	2.7	2.8	3.2	3.4	3.9	4.5	5.1	4.9	4.4
Male		2.0	2.0	1.9	2.0	2.1	2.2	2.3	2.3	2.4	2.6	2.8	2.7	2.9	3.2	3.4	3.8	4.4	5.1	4.8	4.4
Island Health		3.5	4.0	3.7	3.8	4.0	4.2	4.5	4.3	4.3	4.9	4.8	4.8	4.9	5.9	6.0	6.4	6.6	7.1	7.2	6.5
Female		1.7	1.9	1.8	1.9	2.0	2.1	2.2	2.1	2.1	2.3	2.3	2.4	2.4	2.9	3.0	3.2	3.3	3.5	3.7	3.4
Male		1.7	2.0	1.8	1.8	1.8	2.0	2.1	2.0	1.9	2.2	2.1	2.1	2.1	2.6	2.6	2.8	2.9	3.1	3.2	2.8
Northern Health		1.9	2.3	2.2	2.2	2.3	2.7	2.7	2.6	2.6	3.1	3.0	2.9	3.0	3.7	3.2	3.2	3.2	3.7	3.4	3.1
Female		1.0	1.2	1.1	1.2	1.2	1.3	1.4	1.3	1.3	1.6	1.5	1.5	1.5	1.9	1.6	1.6	1.6	1.9	1.7	1.5
Male		0.8	1.1	1.0	1.0	1.1	1.2	1.2	1.1	1.2	1.4	1.3	1.3	1.4	1.6	1.4	1.5	1.4	1.6	1.5	1.4
Vancouver Coastal Health		19.1	21.8	21.4	24.0	24.5	30.1	32.1	30.7	29.9	35.0	38.4	43.0	41.6	45.5	44.8	45.5	44.6	49.0	48.1	46.5
Female		7.4	9.0	9.0	10.3	10.6	13.6	14.8	14.0	13.6	15.8	17.9	20.0	19.6	21.8	21.6	21.8	21.2	23.0	23.1	22.2
Male		8.8	10.5	10.3	11.4	11.9	14.3	15.3	14.4	14.3	16.8	18.3	20.4	19.8	21.8	21.4	21.9	21.7	24.1	23.4	22.7

Indicator 2: **Rate of HIV Testing per 100,000**		2009	2010	2011	2012	2013	2014	2015
All British Columbia		2624.8	2645.4	2714.0	3318.1	4193.4	4967.4	5735.3
Fraser Health		2251.0	2266.7	2330.8	2794.7	3313.9	3590.9	4011.4
Interior Health		2027.5	2072.6	2093.6	2181.3	2578.2	3000.2	4077.4
Northern Health		2292.1	2349.7	2434.3	2910.9	3328.8	3825.1	4343.4
Vancouver Coastal Health		4124.7	4139.9	4342.3	5824.7	8114.3	10302.2	11577.1
Island Health		1927.0	1920.0	1850.8	1981.8	2151.0	2334.8	2940.8
Gender	Female	2446.3	2454.2	2523.0	3195.9	4166.3	4939.1	5763.9
	Male	2694.7	2734.6	2809.0	3383.6	4180.4	4951.8	5656.1
Age	< 30	2794.6	2801.5	2854.0	3230.7	3684.5	4045.3	4538.8
	30–39	5089.6	5225.5	5251.9	6072.8	7203.7	8101.6	9007.5
	40–49	3027.6	3025.3	3124.1	3832.7	4933.0	5704.9	6511.0
	≥ 50	1240.3	1280.7	1395.4	2168.4	3303.0	4415.0	5355.7

Indicator 3: **New HIV Diagnoses**		2012				2013				2014				2015				2016			
		Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
British Columbia	By Client Residence	65	70	55	52	60	49	79	80	58	63	75	63	60	64	61	65	49	57	70	75
	By Provider Address	*65*	*70*	*55*	*52*	*60*	*49*	*79*	*80*	*58*	*63*	*75*	*63*	*60*	*64*	*61*	*65*	*49*	*57*	*70*	*75*
Gender	Female	7	9	10	5	5	6	12	8	5	13	9	13	9	10	4	12	11	10	11	13
	Male	58	61	45	47	55	43	67	72	53	49	65	50	51	54	57	53	38	47	59	60
Age	< 30	18	18	14	9	18	9	17	23	15	17	15	13	18	14	14	21	13	19	15	20
	30–39	13	16	17	11	10	16	25	18	11	17	21	25	15	15	17	17	8	19	13	22
	40–49	19	20	11	19	19	12	14	21	20	14	14	7	13	11	19	10	11	11	13	11
	≥ 50	15	16	13	13	13	12	23	18	12	15	25	18	14	24	11	17	17	8	29	21
Exposure	MSM	38	42	34	37	36	27	44	45	38	35	46	34	36	37	38	36	25	27		
	PWID	3	14	7	2	6	4	7	5	9	10	5	3	8	4	4	6	3	1		
	HET	21	14	12	11	15	15	21	24	9	16	19	20	10	17	14	19	17	11		
	Other	3	0	1	0	1	0	1	5	0	0	1	4	2	2	0	1	0	1		
	NIR/Unknown	0	0	1	2	2	3	6	1	2	2	4	2	4	4	5	3	4	17		
Fraser Health	By Client Residence	9	11	10	10	14	8	14	23	19	15	11	16	17	18	17	15	12	19	20	17
	By Provider Address	*8*	*10*	*5*	*7*	*8*	*9*	*8*	*14*	*15*	*11*	*10*	*12*	*13*	*11*	*11*	*15*	*14*	*17*	*15*	*15*
Interior Health	By Client Residence	3	5	5	0	2	1	4	4	4	3	4	4	6	5	1	7	6	6	2	4
	By Provider Address	*3*	*5*	*5*	*0*	*2*	*1*	*5*	*4*	*4*	*3*	*2*	*4*	*5*	*5*	*1*	*7*	*6*	*6*	*2*	*3*
Island Health	By Client Residence	7	6	3	5	12	4	9	10	7	6	4	7	8	3	7	8	6	7	11	4
	By Provider Address	*6*	*3*	*3*	*5*	*12*	*5*	*9*	*10*	*7*	*6*	*4*	*8*	*8*	*3*	*7*	*6*	*5*	*7*	*9*	*3*
Northern Health	By Client Residence	5	5	4	3	0	3	8	3	3	2	5	4	2	1	2	2	1	2	4	4
	By Provider Address	*6*	*5*	*4*	*3*	*0*	*3*	*8*	*3*	*3*	*2*	*5*	*3*	*2*	*1*	*2*	*2*	*1*	*3*	*4*	*4*
Vancouver Coastal	By Client Residence	41	43	33	33	32	31	44	40	25	37	49	32	27	37	34	33	24	23	33	45
Health	*By Provider Address*	*42*	*47*	*38*	*37*	*38*	*31*	*49*	*49*	*29*	*41*	*54*	*36*	*32*	*44*	*40*	*35*	*23*	*24*	*40*	*50*

Indicator 4: **Stage of HIV Infection at Baseline**

	British Columbia					Female					Male					< 30 years					30-39 years					40-49 years				
	'11	'12	'13	'14	'15	'11	'12	'13	'14	'15	'11	'12	'13	'14	'15	'11	'12	'13	'14	'15	'11	'12	'13	'14	'15	'11	'12	'13	'14	'15
Stage 0	64	53	49	64	51	3	6	3	5	9	61	47	45	59	42	14	18	19	28	14	26	18	15	18	16	19	10	10	7	6
1	56	51	58	55	50	8	7	9	13	8	47	43	49	42	42	15	12	22	12	22	21	14	19	18	10	9	16	7	10	7
2a	43	28	46	33	21	8	5	6	4	2	35	23	40	29	19	11	4	12	5	7	14	4	14	7	3	13	11	10	8	5
2b	47	32	36	29	36	10	6	5	5	7	37	26	31	23	28	6	7	4	4	6	10	7	12	7	11	17	10	10	8	8
3	56	57	65	44	49	11	5	7	10	7	45	52	58	34	42	3	7	4	4	5	13	11	10	11	7	20	15	25	13	13
Unknown	22	15	11	35	31	3	1	1	8	5	18	14	10	27	26	5	7	0	7	4	8	3	2	12	11	4	2	3	9	10
Total	288	236	265	260	238	43	30	31	45	38	243	205	233	214	199	54	55	61	60	58	92	57	72	73	58	82	64	65	55	49

	≥ 50 years					MSM					Heterosexual					PWID					Other Exposure					NIR/Unknown				
	'11	'12	'13	'14	'15	'11	'12	'13	'14	'15	'11	'12	'13	'14	'15	'11	'12	'13	'14	'15	'11	'12	'13	'14	'15	'11	'12	'13	'14	'15
Stage 0	5	7	5	11	15	52	42	36	54	34	5	4	7	4	4	7	7	4	4	13	0	0	1	1	0	0	0	1	1	0
1	11	9	10	15	11	34	33	36	30	36	8	6	6	10	1	13	11	13	13	9	1	1	0	1	1	0	0	3	1	3
2a	5	9	10	13	6	28	17	30	18	14	6	6	6	1	1	7	5	7	10	4	2	0	2	0	1	0	0	1	4	1
2b	14	8	10	10	11	24	16	24	13	21	3	7	0	4	4	19	8	9	10	9	1	0	1	1	1	0	1	2	1	1
3	20	24	26	16	24	20	30	24	16	16	7	5	5	4	5	27	20	30	18	22	2	0	1	3	0	0	2	5	3	6
Unknown	5	3	6	7	6	12	10	4	19	14	5	1	1	3	2	2	1	5	10	10	1	1	1	1	0	2	2	0	2	5
Total	60	60	67	72	73	170	148	154	150	135	34	29	25	26	17	75	52	68	65	67	7	2	6	7	3	2	5	12	12	16

Indicator 5: **HIV Cascade of Care**			Diagnosed	Linked	Retained	On ARVs	Adherent	Suppressed
British Columbia			10201	9368	7744	7236	6673	5790
Gender	Men		8369	7744	6414	6023	5613	4929
	Women		1833	1624	1330	1213	1060	861
Age Category	< 30		502	345	279	254	213	169
	30-39		1342	1231	1000	920	796	683
	40-49		2558	2385	1950	1813	1648	1405
	≥ 50		5791	5408	4515	4249	4016	3533
MSM Status	MSM		3443	3376	3048	2884	2701	2450
	Non-MSM		2853	2782	2500	2331	2089	1685
	Unknown		3905	3211	2196	2021	1883	1655
Age Category and MSM Status	MSM	< 30	139	126	110	100	85	70
		30-39	427	411	340	319	280	256
		40-49	721	707	636	598	548	495
		≥ 50	2156	2131	1962	1867	1788	1629
	Non-MSM	< 30	49	49	35	31	23	16
		30-39	368	356	321	292	242	185
		40-49	840	818	716	667	587	461
		≥ 50	1596	1559	1428	1341	1237	1023
	Unknown	< 30	314	170	134	123	105	83
		30-39	547	464	339	309	274	242
		40-49	997	859	598	548	513	449
		≥ 50	2039	1718	1125	1041	991	881
PWID Status	PWID		2530	2473	2254	2112	1882	1506
	Non-PWID		4684	4593	4135	3908	3664	3276
	Unknown		2988	2302	1354	1216	1127	1008
Health Authority	Fraser Health		2152	2072	1844	1756	1600	1388
	Interior Health		617	603	498	467	430	345
	Island Health		1037	1005	918	860	790	658
	Northern Health		304	284	244	223	191	142
	Vancouver Coastal Health		4796	4647	4112	3929	3662	3257

Indicator 6: **Programmatic Compliance Score (PCS)**	2015 Q4	2015 Q1	2015 Q2	2015 Q3	2015 Q4	2016 Q1	2016 Q2	2016 Q3
< 3 CD4 Tests	21.1%	19.3%	16.1%	14.9%	17.7%	16.0%	16.4%	19.3%
< 3 Viral Load Tests	5.9%	7.3%	6.6%	6.7%	7.5%	7.8%	9.0%	10.0%
No Baseline Genotype	2.2%	3.6%	4.6%	3.5%	4.0%	4.2%	4.3%	5.6%
Baseline CD4 < 200 cells/μL	24.2%	23.0%	21.6%	20.6%	23.0%	23.5%	26.2%	26.2%
Non-Recommended ART	3.7%	2.2%	1.7%	1.6%	3.4%	7.2%	8.3%	10.3%
Non Viral Suppression at 9 Mo.	30.6%	27.7%	25.6%	24.4%	24.5%	25.2%	28.7%	27.4%
PCS Score: 0	159	171	178	172	163	143	136	127
PCS Score: 1	111	111	102	88	94	96	114	113
PCS Score: 2	62	46	46	33	38	44	44	49
PCS Score: 3	19	22	17	16	20	19	22	23
PCS Score: 4 or more	5	7	5	6	7	4	8	9
Total (n=)	**356**	**357**	**348**	**315**	**322**	**306**	**324**	**321**

Indicator 7: **New DTP ARV Participants**								
First Starts	78	88	97	75	72	57	74	93
Experienced Starts	113	134	125	122	141	118	129	130

Indicator 8: **CD4 Cell Count Initiation for ARV-Naïve DTP Participants**								
CD4 ≥ 500	29	32	34	29	28	14	32	29
CD4 350-499	14	13	12	9	10	15	14	19
CD4 200-349	15	22	21	14	13	11	11	18
CD4 50-199	12	13	17	11	10	11	12	21
CD4 < 50	6	4	11	10	6	4	4	3
CD4 MED	390	388	340	360	401	378	479	370
Total (n=)	**76**	**84**	**95**	**73**	**67**	**55**	**73**	**90**

Indicator 9: **Active and Inactive DTP Participants**								
Active DTP Participants	6992	7056	7131	7172	7236	7240	7289	7348
Inactive DTP Participants	1153	1158	1155	1168	1164	1193	1206	1249

Indicator 10: **Antiretroviral Adherence**								
≥ 95%	81	79	74	73	68	70	81	74
80% to < 95%	14	14	20	16	12	21	17	15
40% to < 80%	6	13	8	12	3	12	8	6
< 40%	0	1	0	1	2	2	3	3
Total (n=)	**101**	**107**	**102**	**102**	**85**	**105**	**109**	**98**

Indicator 11: **Resistance Testing and Results**								
Suppressed	4919	5244	5205	5081	5093	5463	5361	5236
Wild Type	623	694	655	765	656	586	532	605
Never Genotyped	33	40	41	41	35	28	25	24
1-Class	141	151	143	137	113	110	108	109
2-Class	27	31	25	31	22	15	15	14
3-Class	3	8	8	7	2	3	2	3
4-Class	0	0	0	0	1	0	0	0
Total (n=)	**5746**	**6168**	**6077**	**6062**	**5922**	**6205**	**6043**	**5991**

Indicator 12: **AIDS-Defining Illness**		2008	2009	2010	2011	2012	2013	2014	2015
CD4 < 200 at	Cases	193	155	138	115	96	90	84	84
ART initiation	*Rate per 100,000*	*4.4*	*3.5*	*3.1*	*2.6*	*2.1*	*2.0*	*1.8*	*1.8*
AIDS Cases	Cases	131	110	108	87	75	83	82	71
(DTP Reports)	*Rate per 100,000*	*3.0*	*2.5*	*2.4*	*1.9*	*1.7*	*1.8*	*1.8*	*1.5*
AIDS Cases	Cases	143	127	113	95	76	73	70	-
(BCCDC Reports)	*Rate per 100,000*	*3.3*	*2.9*	*2.5*	*2.1*	*1.7*	*1.6*	*1.5*	-

Indicator 13: **HIV-Related Mortality**	2004	2005	2006	2007	2008	2009	2010	2011
British Columbia	105	146	142	100	79	63	54	59
Per 100 HIV+ Population	1.03	1.40	1.34	0.93	0.72	0.56	0.47	0.50
Per 100,000 Population	2.50	3.43	3.29	2.28	1.80	1.41	1.19	1.29