

HIV MONITORING QUARTERLY REPORT

FOR VANCOUVER COASTAL HEALTH

THIRD QUARTER 2015

* Please see foreword

















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 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.

* The HIV Monitoring Quarterly Report for the third quarter of 2015 had a data error on Indicator 5 (HIV Cascade of Care). The data have been updated and the error fixed to reflect the actual numbers (Indicator 5, page 22–27).

A recent update of the POC Numbers was used in this report, as a result, 2015 Q3 data may differ from previous version. We apologize for any inconvenience.

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Acknowledgements and Contributions



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. Ana Prado writes and compiles the monitoring report. Guillaume Colley, Dr. Viviane Lima and Nada Gataric perform analysis of Indicators 5–13. James Nakagawa is responsible for publishing and editing. This report was conceived and guided by Dr. Julio Montaner.



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. 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

Kate Heath, BC-CFE

Bohdan Nosyk, BC-CFE

Viviane Dias Lima, BC-CFE

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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 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

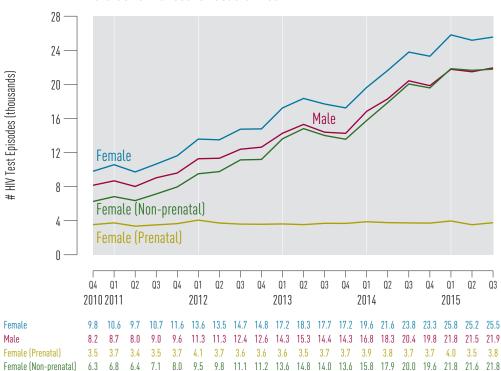
In this section, the number of HIV test episodes and point of care (POC) HIV tests conducted each quarter in BC is shown. In general terms the goal is to increase the number of tests performed and to maximize testing efficiency. Test episodes are allocated by region according to where the test is performed.

Indicator 1. HIV Testing Episodes

Figure 1.1 HIV Test Episodes for Vancouver Coastal Health 50 HIV Test Episodes (thousands) 40 30 20 10 Q1 Q2 Q2 Q3 Q1 Q2 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4 Q1 Q3 Q4 2012 2013 2014 2010 2011 2015

19.3 20.7 20.1 26.0 24.0 27.2 26.9 29.5 29.4 33.7 35.6 34.4 33.5 38.9 42.1 46.8 45.3 49.4 48.4 49.2

Figure 1.2 HIV Test Episodes by Gender and Prenatal Status for Vancouver Coastal Health ¹



HIV Test Episodes by Age Category for Vancouver Coastal Health 1,2 Figure 1.3 20 -18 16 # HIV Test Episodes (thousands) 14 12 -10 -8 30-39 40-49 ≥ 50 Q1 Q4 Q1 Q4 Q1 Q2 Q3 Q4 Q1 Q2 Q4 Q1 Q2 Q2 Q3 Q2 Q3 Q3 2012 2010 2011 2013 2014 2015 < 30 6.7 7.3 7.2 8.1 9.2 9.1 9.6 9.9 11.1 10.8 11.0 11.1 12.2 5.9 6.9 8.0 8.5 9.0

30-39 7.7 9.0 8.9 8.6 10.2 10.1 10.7 40-49 3.8 3.9 4.1 5.5 5.0 4.9 5.7 6.5 5.2 6.0 ≥ 50 4.8 6.0 6.4 9.1 10.2 9.0 9.0 11.0 14.0 16.1 16.0 18.1 17.5 16.7 Figure 1.4 Point-of-Care HIV Tests for Vancouver Coastal Health 6 # Point-of-Care HIV Tests 5 (thousands) 3 2 -Q1 Q2 Q3 Q1 Q2 Q3 Q1 Q2 Q1 Q2 Q1 Q2 2010 2011 2012 2013 2014 2015 Vancouver Coastal Health 0.9 1.0 2.0 5.9 2.4 2.1 1.9 2.1 1.7 2.0 1.8 2.1 1.9 2.1 2.0 2.4 2.0 1.7 1.6 1.5

1 Data Source: The BC Public Health Microbiology and Reference Laboratory (BCPHMRL) courtesy of the BC Centre for Disease Control (BCCDC).

Limitations:

- *i* Repeat tests in individuals who test using various identifiers may not be identified and these individuals may be counted more than once.
- ii Poc testing data are available from the fourth quarter of 2010 forward.
- 2 Testing does not include point of care tests.

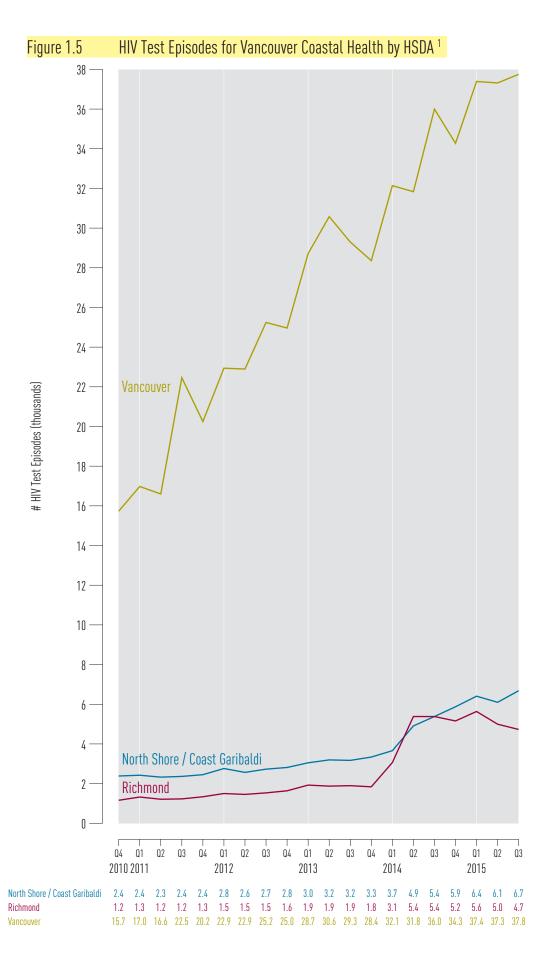


Figure 1.6 HIV Test Episodes for Non-prenatal Females in Vancouver Coastal Health by HSDA ¹

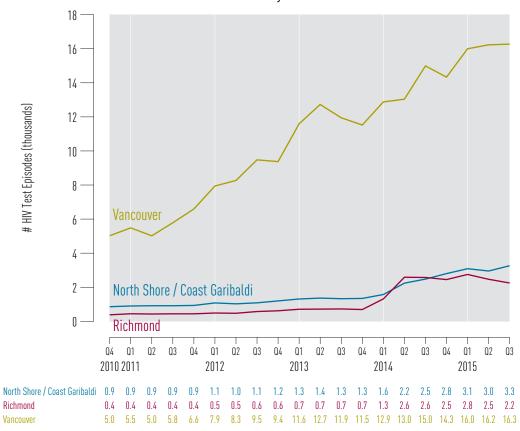
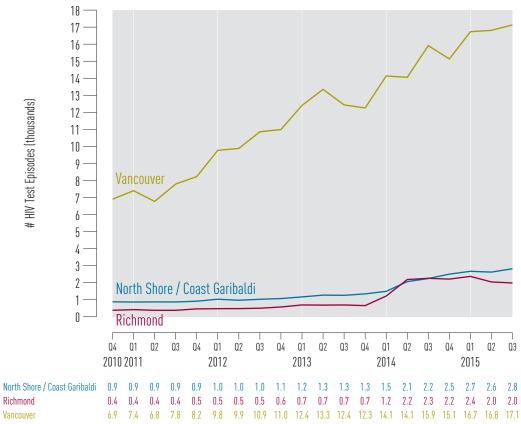


Figure 1.7 HIV Test Episodes for Males in Vancouver Coastal Health by HSDA ¹



Indicator 2. HIV Testing Rates

Rate of HIV Testing for Vancouver Coastal Health and HSDAs $^{\mathrm{2}}$ Figure 2.1 15000 14000 13000 HIV Testing Episodes per 100,000 Population 12000 11000 10000 9000 8000 Vancouver 7000 6000 All Vancouver Coastal Health 5000 North Shore / Coast Garibaldi 4000 Richmond 3000 2000 2009 2010 2011 2012 2013 2014 5242.4 5258.6 5554.2 7318.4 9200.8 11480.8 All Vancouver Coastal Health North Shore / Coast Garibaldi 3500.4 3538.4 3649.9 4180.2 4762.0 7038.4

Richmond 2589.7 2699.1 2792.7 3411.2 3952.3 9158.5 6817.2 6801.6 7233.0 9869.4 12698.3 14096.2 Vancouver

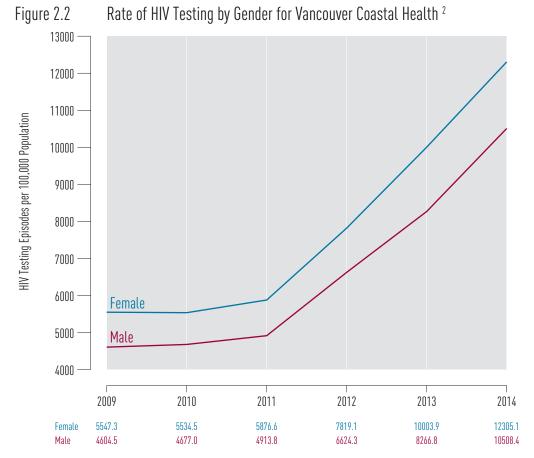


Figure 2.3 20000 18000 16000 14000 -HIV Testing Episodes per 100,000 Population 12000 30-39 10000 8000 6000 **\$**(BU49 4000 ≥ 50 2000 2011 2013 2010 2012 2009 2014 < 30 5052.4 5037.2 5234.3 6296.2 7420.8 8574.6 30-39 11236.5 11583.8 11907.7 14066.7 17072.8 19252.7 40-49 5015.5 4960.7 5233.1 6858.0 9693.7 11647.6 1913.4 2197.2 7273.3 ≥ 50 1847.9 4203.6 10751.7

Rate of HIV Testing by Age Category for Vancouver Coastal Health $^{\rm 2}$

 $Testing\ does\ not\ include\ point\ of\ care\ tests.$

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 Vancouver Coastal Health ³

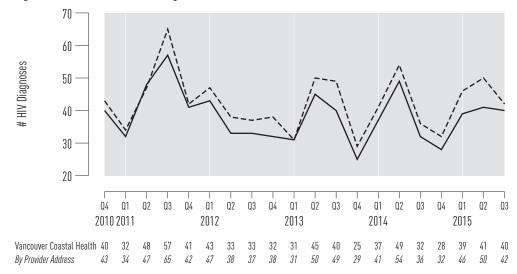


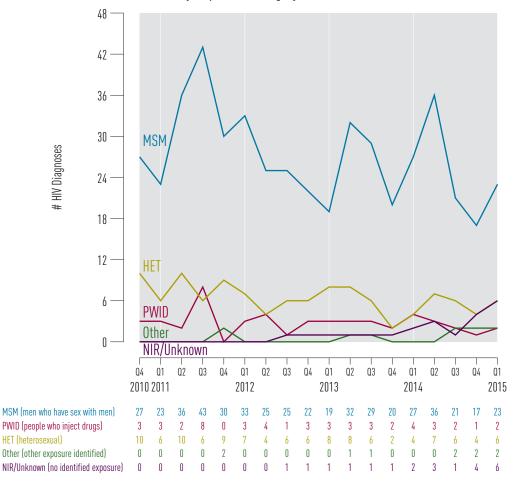
Figure 3.2 New HIV Diagnoses for Vancouver Coastal Health by Gender ³



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

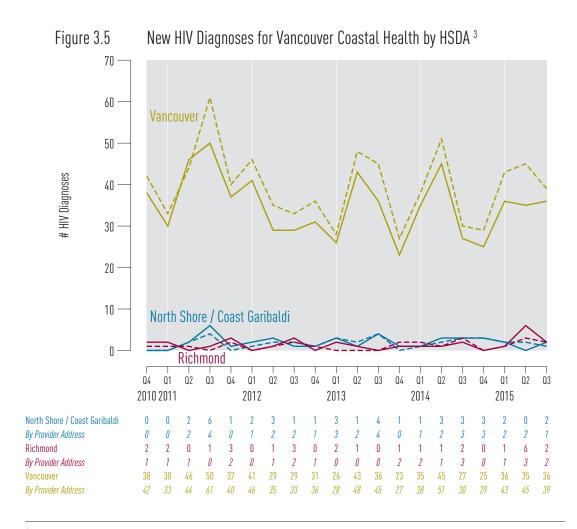
Figure 3.3 New HIV Diagnoses for Vancouver Coastal Health by Age Category ³ # HIV Diagnoses 30 - 39≥ 50 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4 Q2 Q3 Q2 Q3 Q4 Q1 Q2 Q1 Q4 Q1 2010 2011 < 30 30-39 40-49 ≥ 50

Figure 3.4 New HIV Diagnoses for Vancouver Coastal Health by Exposure Category 3.4



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.



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, laboratory results suggestive of acute HIV infection, and clinical presentation with an AIDS-defining illness (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	previous	Laboratory criteria met for acute HIV infection, or orevious negative or indeterminate HIV test within 180 days of first confirmed positive HIV test.												
1			CD4 ≥500		N AIDO									
2a			CD4 350-499	and	No AIDS case report									
2b	Stage 0		CD4 200-349		торогс									
3	not met	and	(CD4 <200	or	AIDS case report									
Unknown			No available CD4	and	No AIDS case report									

Figure 4.1 Stage of HIV Infection at Diagnosis for Vancouver Coastal Health, 2010–2014 ⁵

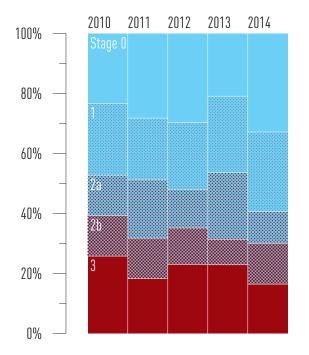
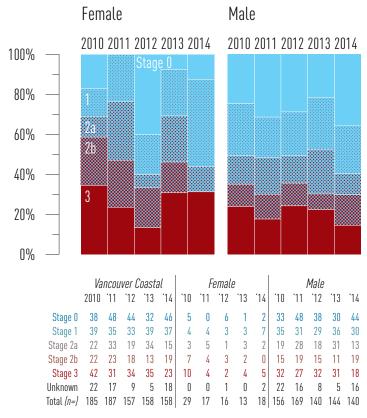


Figure 4.2 Stage of HIV Infection at Diagnosis by Gender for Vancouver Coastal Health, 2010–2014 ⁵



Data Source: BCCDC

Figure 4.3 Stage of HIV Infection at Diagnosis by Age Category for Vancouver Coastal Health, 2010–2014 ⁵

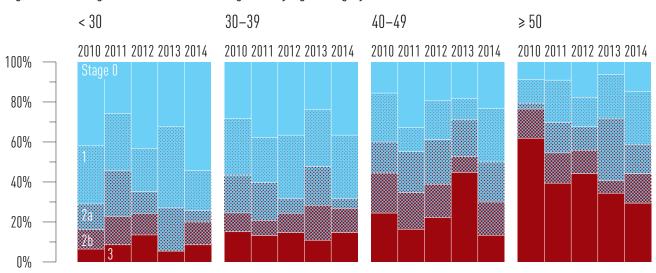
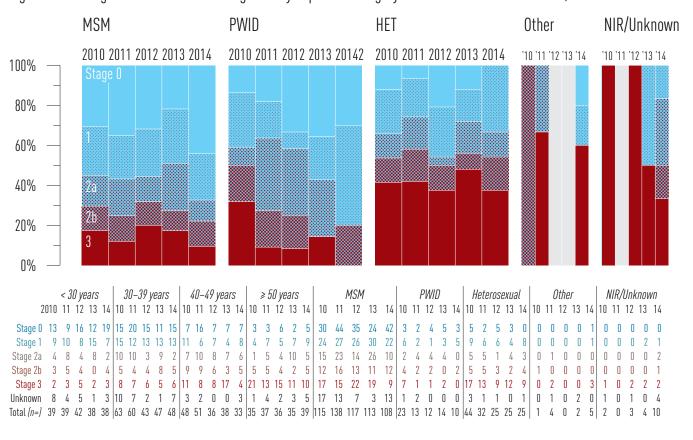


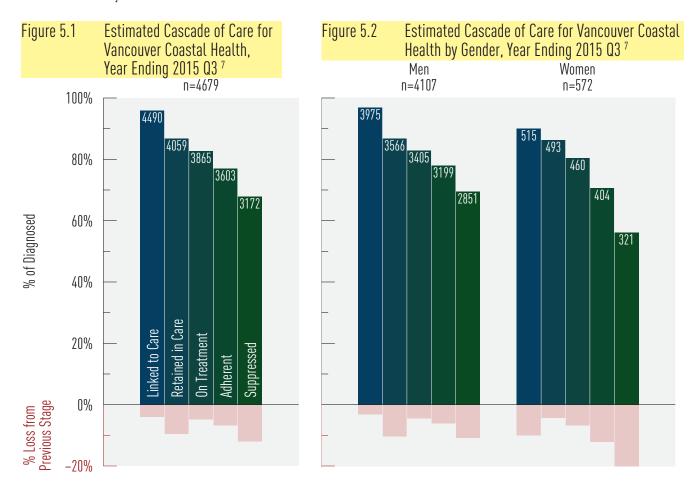
Figure 4.4 Stage of HIV Infection at Diagnosis by Exposure Category for Vancouver Coastal Health, 2010–2014 5.6



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

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. Leakage 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 2014 Q4–2015 Q3 in BC overall and stratified by sex and age for each Health Authority.



⁷ Data is for the period 2014 Q4-2015 Q3. Data Sources:

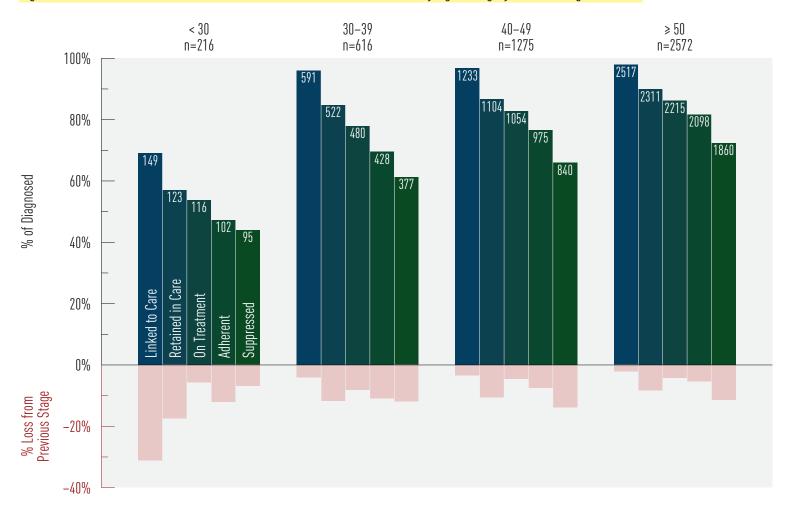
Limitations: HA assignment is based on the most recent HA of residence of the patient, if not available of the HIV-care provider. If the most recent HA of residence is not updated then the designated HA may be incorrect.

NB: Transgender has been assigned to their biological sex.

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)).

Figure 5.3 Estimated Cascade of Care for Vancouver Coastal Health by Age Category, Year Ending 2015 Q3 8



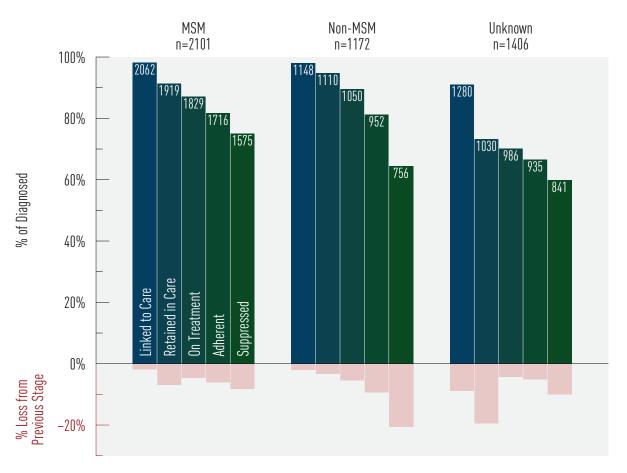
Limitations: HA assignment is based on the most recent HA of residence of the patient, if not available of the HIV-care provider. If the most recent HA of residence is not updated then the designated HA may be incorrect.

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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.

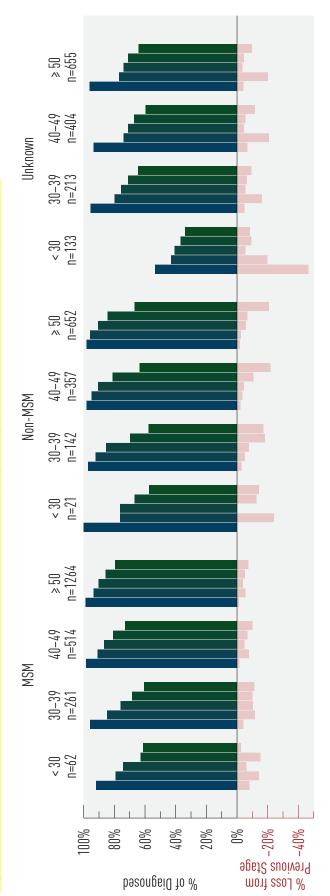
Recent updates to the DTP database have allowed for more comprehensive information on HIV risk group category. As a result, 2014 Q4 data may differ significantly from preceding reports in terms of total numbers ascribed to each risk group.

⁹ Data is for the period 2014 Q4-2015 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)).

Estimated Cascade of Care for Vancouver Coastal Health by Age Category and MSM Status, Year Ending 2015 Q3 ? Figure 5.5



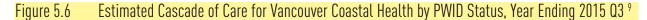
Data is for the period 2014 Q4-2015 Q3.

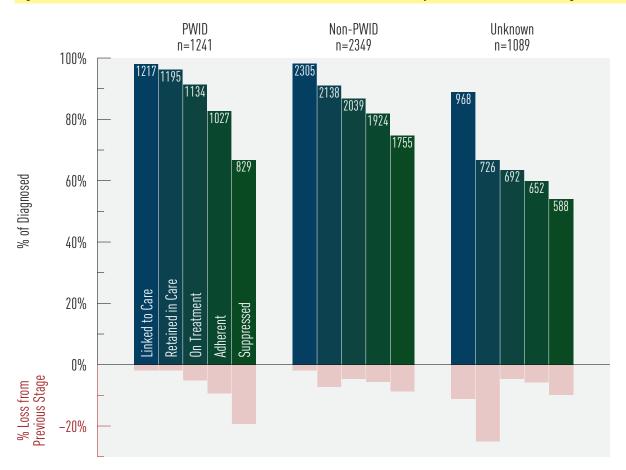
Data Sources:

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. Recent updates to the DTP database have allowed for more comprehensive information on HIV risk group category. As a result, 2014 Q4 data may differ significantly from preceding reports in terms of total numbers ascribed to each risk group.

British Columbia Centre for Excellence Drug Treatment Program (DTP) Database (ARV use, VL and CD4 count).

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.

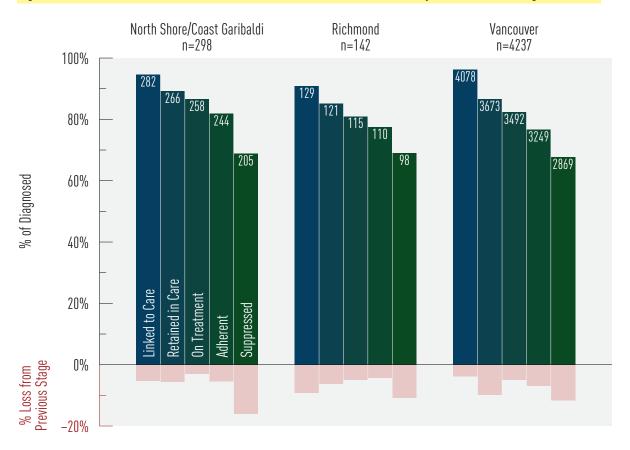
Recent updates to the DTP database have allowed for more comprehensive information on HIV risk group category. As a result, 2014 Q4 data may differ significantly from preceding reports in terms of total numbers ascribed to each risk group.

⁹ Data is for the period 2014 Q4-2015 Q3. Data Sources:

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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.

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⁹ Data is for the period 2014 Q4-2015 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)).

Indicator 6. The 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 o−6 with higher scores indicative of poorer health outcomes and greater risk of death. Table 1 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 o. 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:

- 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;
- 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 o) is the eventual goal.

Table 2. The 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)
O (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 Vancouver Coastal Health, 2013 Q4–2015 Q3 10

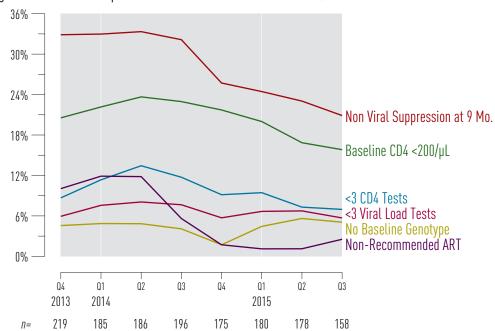
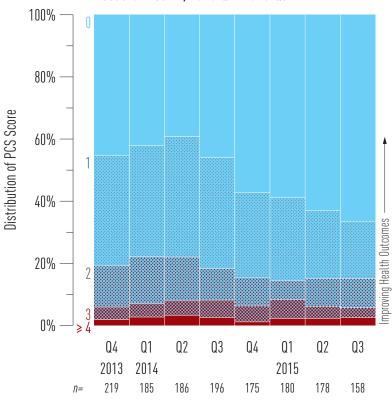


Figure 6.2 Historical Trends for PCS Score for Vancouver Coastal Health, 2013 Q4-2015 Q3 10,11



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

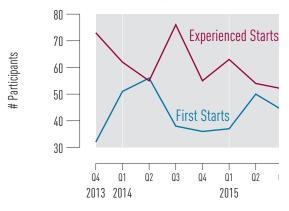
¹¹ Each quarter's data is calculated as the sum of the 4 quarters leading up to it. e.g. 2013 Q1 is calculated from 2012 Q2 – 2013 Q1. NB: A score of o is the best score and a score of 4 or more is the worst score.

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.

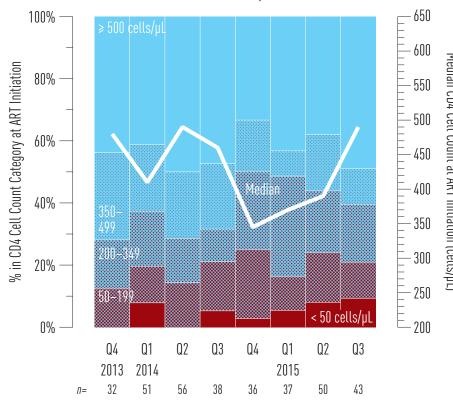
Indicator 7. New Antiretroviral Therapy Starts in Vancouver Coastal Health

Figure 7 BC-CfE Drug Treatment Program Enrollment: New ART Participants in Vancouver Coastal Health, 2013 Q4-2015 Q3 12



Indicator 8. CD4 Cell Count at ART Initiation

Figure 8 CD4 Cell Count at ART Initiation of ART-Naïve DTP Participants in Vancouver Coastal Health, 2013 Q4–2015 Q3 ¹³



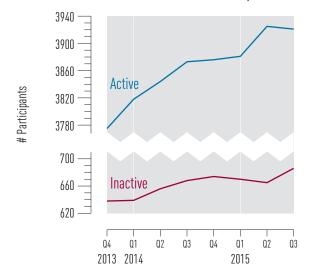
- 12 Data Source: Drug Treatment Program Database Limitation: DTP participants are designated to an HA based on most current residence provided by the participant.
- 13 Data Source: Drug Treatment Program Database Limitations: CD4 cell count data is approximately 80% complete.

Indicator 9. Active and Inactive DTP Participants

Table 3. Distribution of People on ART for Vancouver Coastal Health, 2015 Q3 14

Age	< 30	143
	30-39	520
	40-49	1095
	≥ 50	2163
Gender	Male	3462
	Female	459
Exposure	MSM	1863
	PWID	1117
Total		3921

Figure 9 Active and Inactive DTP Participants for Vancouver Coastal Health, 2013 Q4-2015 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.

Recent updates to the DTP database provides for improved classification allowing some individuals previously classified as 'unknown' to be reclassified into specific risk groups. This update is in effect from 2014Q4 and may result in noticeable changes of numbers in each risk group category compared to previous reports.

Definitions:

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

'Unknown/not stated' defined as being on treatment in the current quarter, and city of residence unknown

15 Active DTP participants: An individual who has had medication prescribed at least once in the preceding quarter.

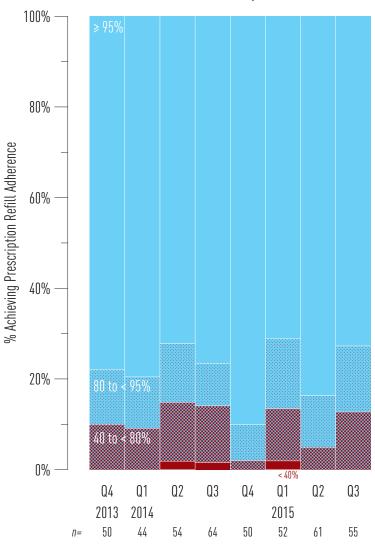
Inactive DTP participants: Persons no longer prescribed drugs through the HIV/AIDS Drug Treatment Program in the last quarter.

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. \geq 95%) to increase with time. Furthermore, it is important that trends in the proportion of ART users achieving prescription refill adherence of \geq 95% keep pace with new ART starts and increase among those continuing on ART.

Indicator 10. Antiretroviral Adherence

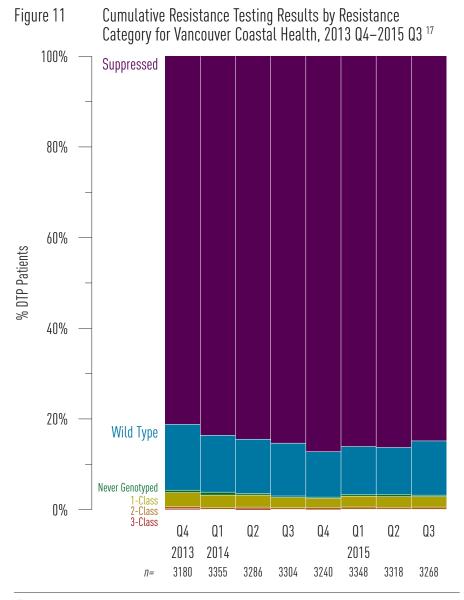
Figure 10 Distribution of Individuals by Adherence Level in 1st Year of Therapy, Based on Pharmacy Refill Compliance for Vancouver Coastal Health, 2013 Q4–2015 Q3 ¹⁶



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

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 or three 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.

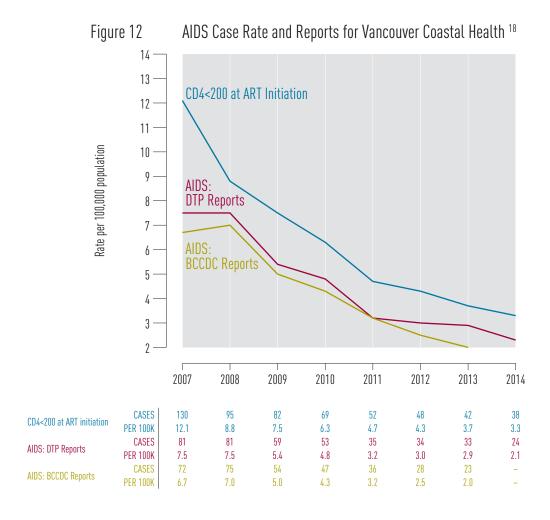


¹⁷ Data Source: Drug Treatment Program Database

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

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.

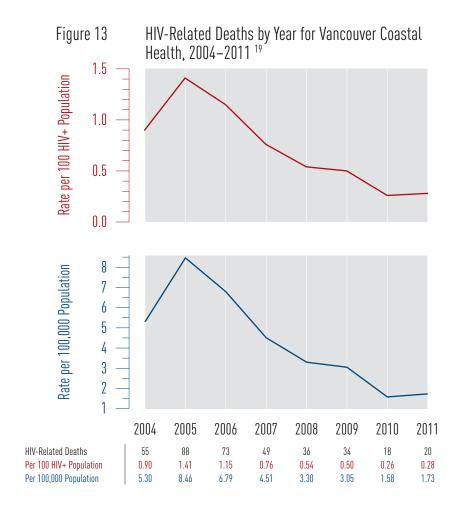


Data Source: DTP AIDS cases are obtained from the Drug Treatment Program Database; BCCDC AIDS cases are obtained from the BCCDC; CD4<200 at ART initiation data came from the DTP database.

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.

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.



Limitation:

¹⁹ Data Source: BC Vital Statistics

^{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 Episodes (: Test thousands)	2010 Q4	2011 O1	Q2	Q3	Q4	201		Q3	04	201: Q1		O3	Q4	2014 Q1	4 Q2	Q3	Q4	201: O1		, ,	Q3
	Coastal Health		20.7	_	_		_				_	_	_				_	_	_	_		
Gender	Female		10.6					13.5														
	Male	8.2	8.7	8.0	9.0			11.3														
	Other	0.4	0.4	0.4	0.4	0.4	0.3	0.2	0.2	0.3	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	2 0.2	2 (0.2
Female (Pro	enatal)	3.5	3.7	3.4	3.5	3.7	4.1	3.7	3.6	3.6	3.6	3.5	3.7	3.7	3.9	3.8	3.7	3.7	4.0	3.	5	3.8
Female (No	on-prenatal)	6.3	6.8	6.4	7.1	8.0	9.5	9.8	11.1	11.2	13.6	14.8	14.0	13.6	15.8	17.9	20.0	19.6	21.8	3 21.0	6 2	1.8
Age	< 30	6.1	6.1	5.9	6.7	6.9	7.3	7.2	8.1	8.0	8.5	9.0	9.2	9.1	9.6	9.9	11.1	10.8	11.0	11.	1 1	2.2
	30-39	6.2	6.7	5.9	6.4	6.5	7.8	7.4	7.7	7.6	8.8	9.0	8.9	8.6	10.2	10.1	10.7	10.1	11.6	5 11.	3 1	1.8
	40-49	2.8	3.1	2.8	3.0	3.2	3.9	3.8	3.9	4.1	5.2	5.5	5.0	4.9	5.7	6.0	6.5	6.3	7.0	6.	8	6.8
	≥ 50	2.3	2.8	2.6	3.0	3.4	4.6	4.8	6.0	6.4	9.1	10.2	9.0	9.0	11.0	14.0	16.1	16.0	18.1	17.	5 1	6.7
POC HIV	Tests	0.9	1.0	2.0	5.9	2.4	2.1	1.9	2.1	1.7	2.0	1.8	2.1	1.9	2.1	2.0	2.4	2.0	1.7	7 1.0	6	1.5
North Shor / Coast Gar		2.4	2.4	2.3	2.4	2.4	2.8	2.6	2.7	2.8	3.0	3.2	3.2	3.3	3.7	4.9	5.4	5.9	6.4	1 6.	1	6.7
	Non-prenatal)	0.9	0.9	0.9	0.9	0.9	1.1	1.0	1.1	1.2	1.3	1.4	1.3	1.3	1.6	2.2	2.5	2.8	3.1	1 3.0	n	3.3
Male	ron pronunci	0.9	0.9	0.9	0.9	0.9	1.0			1.1	1.2				1.5							2.8
Richmond		1.2	1.3	1.2	1.2	1.3	1.5			1.6					3.1	5.4						4.7
	Non-prenatal)	0.4	0.4	0.4	0.4	0.4	0.5			0.6					1.3	2.6						2.2
Male	1	0.4	0.4	0.4	0.4					0.6					1.2							2.0
Vancouver		15.7	17.0	16.6	22.5	20.2	22.9			25.0	28.7	30.6	29.3	28.4	32.1	31.8	36.0	34.3	37.4	37.3	3 3	7.8
Female (Non-prenatal)	5.0	5.5	5.0	5.8	6.6	7.9	8.3	9.5	9.4	11.6	12.7	11.9	11.5	12.9	13.0	15.0	14.3	16.0	16.2	2 10	6.3
Male	•	6.9	7.4	6.8	7.8	8.2	9.8	9.9	10.9	11.0	12.4	13.3	12.4	12.3	14.1	14.1	15.9	15.1	16.7	16.8	8 1	7.1
	Coastal Health	1.1.	5242	.4	525	58.6		2011 5554.2		7318	.4	920	013		2014 480.8							
North Shor	e / Coast Gariba	aldi	3500	.4	353	38.4	3	3649.9		4180	.2	476	52.0	70	38.4							
Richmond			2589			99.1		2792.7		3411			52.3		158.5							
Vancouver	- 1		6817			01.6		7233.0		9869		1269)96.2							
Gender	Female		5547			34.5		876.6		7819		1000			305.1							
	Male		4604			77.0		1913.8		6624			66.8		508.4							
Age	< 30		5052			37.2		5234.3		6296			20.8		574.6							
	30-39 40-49		11236 5015		1158			1907.7 5233.1		4066		1707			252.7							
	40–49 ≥ 50		1847			50.7 13.4		233.1 2197.2		6858 4203			93.7 73.3		547.6 751.7							
					'10	'11			201	2			013			2014			21	015		
Indicator 3	: New HIV Dia	gnoses	3				Q2 (Q3 Q			Q3)2 Q:	3 Q4			Q3)2	Q3
Vancouver		Client		ence	40				1 43		33			15 40			49				11	40
Health		Provid			43	34	47	65 4	2 47		37			50 4	9 29	41	54	36	32	46 5	50	42
Gender		male			3	3	7		2 5		3	2	4		1 1		4	3	4		2	8
	Ma				37				9 38		30			11 3			44	29			39	32
Age	< 3				7	3			2 11		7	13		11 14			12	6			0	11
		-39 40			12				8 12		7				5 3		16	13			9	11
		-49			11				3 12 8 8		11	9 4	8	8 1			7 14	5 e	6		1 1	7 11
Exposure	≥ 5 MS				10 27	6 23	10 36		0 33		25			12 10 32 29			14 36	8 21		13 1 23	_	11
Laposuic		VID			3	3	2		0 33		1	3	3		3 2		3	2	1	23	_	_
	H				10		10		9 7		6	6	8		5 2		7	6	4	6	_	_
		her			0	0	0		2 (0	0	0		1 0		0	2	2	2	_	_
	O.						_	-		9			-	_	U			_	_	_		

NIR/Unknown

T 11						,		1\		'11	02)12	22	Ω_2		2013		02	0.4	201		2 (2015		02
Indicator 3		w H							Q4							Q2			Q1		Q3				2 (Q3
North Shor / Coast Gar	-	li		•		t Re			0				-	1	2	3	1	1	3	1	4	1			3	3	3	2	0	2
	10 411			_		der 1			0	0				0	1	2	2	1	3	2	4	0			2	3	3	2	2	1
Richmond				•		t Re			2	2			1	3	0	1	3	0	2	1	0	1			1	2	0	1	6	2
				,		der 1			1	_			9	2	0	1	2	1	0	0	0	2		2	1	3	0	1	3	2
Vancouver						t Re			38	30					41	29	29	31	26	43	36	23				27	25	36	35	36
				Ву Р	rovi	der 1	Addı	ress	42	33	44	1 6.	1 4	10	46	35	33	36	28	48	45	27	38	8 5	1 3	30	29	43	45	39
Indicator 4: Stage of HIV Infection at Baseline																														
		7	/CH	[F	emal	e			N	Лale	:			< 3	30 ye	ars		3	30-3	9 ye	ars			40-	49 y	ears	
	'10	'11	'12	'13	'14	'10	'11	'12	'13	'14	'10	'11	'12	'13	'14	'10	'11	'12	'13	'14	'10	' 11	'12	'13	' 14	'10	'11	'12	'13	'14
Stage 0	38	48	44	32	46	5	0	6	1	2	33	48	38	30	44	13	9	16	12	19	15	20	15	11	15	7	16	7	7	7
Stage 1	39	35	33	39	37	4	4	3	3	7	35	31	29	36	30	9	10	8	15	7	15	12	13	13	13	11	6	7	4	8
Stage 2a	22	33	19	34	15	3	5	1	3	2	19	28	18	31	13	4	8	4	8	2	10	10	3	9	2	7	10	8	7	6
Stage 2b	22	23	18	13	19	7	4	3	2	0	15	19	15	11	19	3	5	4	0	4	5	4	4	8	5	9	9	6	3	5
Stage 3	42	31	34	35	23	10	4	2	4	5	32	27	32	31	18	2	3	5	2	3	8	7	6	5	6	11	8	8	17	4
Unknown	22	17	9	5	18	0	0	1	0	2	22	16	8	5	16	8	4	5	1	3	10	7	2	1	7	3	2	0	0	3
Total	185	187	157	158	158	29	17	16	13	18	156	169	140	144	140	39	39	42	38	38	63	60	43	47	48	48	51	36	38	33
		> 5	0 ve	ars			1	MSM	ſ			p.	WII)			Hete	erose	exual		Ot	her :	Evn	osur	e l	N	JIR/	Unk	now	'n
	'10				' 14	'10		'12		'14	'10				'14				'13		'10								'13	
Stage 0	3	3	6	2	5	30	44	35	24	42	3	2	4	5	3	5	2	5	3	0	0	0	0	0	1	0	0	0	0	0
Stage 1	4	7	5	7	9	24	27	26	30	22	6	2	1	3	5	9	6	6	4	8	0	0	0	0	1	0	0	0	2	1
Stage 2a	1	5	4	10	5	15	23	14	26	10	2	4	4	4	0	5	5	1	4	3	0	1	0	0	0	0	0	0	0	2
Stage 2b	5	5	4	2	5	12	16	13	11	12	4	2	2	0	2	5	5	3	2	4	1	0	0	0	0	0	0	0	0	1
Stage 3	21	13	15	11	10	17	15	22	19	9	7	1	1	2	0	17	13	9	12	9	0	2	0	0	3	1	0	2	2	2
Unknown	1	4	2	3	5	17	13	7	3	13	1	2	0	0	0	3	1	1	0	1	0	1	0	2	0	1	0	1	0	4
Total	35	37	36	35	39	115	138	117	113	108	23	13	12	14	10	44	32	25	25	25	1	4	0	2	5	2	0	3	4	10
Indicator 5	· HI	V Ca	isca	de o	f Ca	re		Д	IAGI	NOSE	D.		LI	NKE	'ח	1	RFTA	INE	D		ON	ART		AD	HER	FNT		SUPI	PRESS	SED
Vancouver					- 04					467				449				405				865				603				172
Age Catego											16			14			123				116			102			95			
<i>6.</i> 28	,	30-								61				59			522			480 428										
		40-								127				123				110			1	054				975				840

Indicator 5: H	IV Cascade of	Care	DIAGNOSED	LINKED	RETAINED	ON ART	ADHERENT	SUPPRESSED
Vancouver Co	astal Health		4679	4490	4059	3865	3603	3172
Age Category	< 30		216	149	123	116	102	95
	30-39		616	591	522	480	428	377
	40-49		1275	1233	1104	1054	975	840
	≥ 50		2572	2517	2311	2215	2098	1860
Age Category	MSM	< 30	62	57	49	46	39	38
and MSM		30-39	261	250	221	198	178	158
Status		40-49	514	506	467	445	415	374
		≥ 50	1264	1249	1183	1140	1084	1005
	Non-MSM	< 30	21	21	16	16	14	12
		30-39	142	138	131	121	99	82
		40-49	357	350	338	323	289	226
		≥ 50	652	640	625	590	550	436
	Unknown	< 30	133	71	57	54	49	45
		30-39	213	203	170	161	151	137
		40-49	404	377	299	286	271	240
		≥ 50	655	629	503	485	464	419
Gender	Male		4107	3975	3566	3405	3199	2851
	Female		572	515	493	460	404	321

Indicator 5: H	IIV Cascade of Care	D	IAGNOSED	LINKED	RETAINED	ON	ART A	ADHERENT	SUPPRESSED
Injection	PWID		1241	1217	1195		1134	1027	829
Drug Use	Non-PWID		2349	2305	2138		2039	1924	1755
	Unknown		1089	968	726		692	652	588
MSM Status	MSM		2101	2062	1919		1829	1716	1575
	Non-MSM		1172	1148	1110		1050	952	756
	Unknown		1406	1280	1030		986	935	841
Health Authority	North Shore / Coast Garibaldi		298	282	266		258	244	205
	Richmond		142	129	121		115	110	98
	Vancouver		4237	4078	3673	:	3492	3249	2869
Indicator 6: D	rogrammatic Comp	lianca Sca	ro (DCS)						
mulcator o. F	rogrammatic Comp.	2013	2014				2015		
		Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
< 3 CD4 Tests	3	8.7%	11.4%	13.4%	11.7%	9.1%	9.4%	7.3%	7.0%
< 3 Viral Load	d Tests	5.9%	7.6%	8.1%	7.7%	5.7%	6.7%	6.7%	5.7%
No Baseline C	Genotype	4.6%	4.9%	4.8%	4.1%	1.7%	4.4%	5.6%	5.1%
Baseline CD4	$< 200 \text{ cells/}\mu\text{L}$	20.5%	22.2%	23.7%	23.0%	21.7%	20.0%	16.9%	15.8%
Non-Recomn	nended ART	10.0%	11.9%	11.8%	5.6%	1.7%	1.1%	1.1%	2.5%
Non Viral sup	ppression at 9 Mo.	32.9%	33.0%	33.3%	32.1%	25.7%	24.4%	23.0%	20.9%
PCS Score: 0		99	78	73	90	100	106	112	105
PCS Score: 1		78	66	72	70	48	48	39	29
PCS Score: 2		29	28	26	20	16	11	16	15
PCS Score: 3		9	8	9	11	9	11	7	5
PCS Score: 4	or more	4	5	6	5	2	4	4	4
Total (n=)		219	185	186	196	175	180	178	158
	lew DTP ARV Partic	ipants							
First Starts		32	51	56	38	36	37		
Experienced S	Starts	73	62	55	76	55	63	54	52
Indicator 8: C	D4 Cell Count at AI	RT Initiati	on for ARV-N	laïve DTP Par	ticipants				
CD4 ≥ 500		14	21	28	18	12	16	19	21
CD4 350-499		9	11	12	8	6	3	9	5
CD4 200-349		5	9	8	4	9	12	10	8
CD4 50-199		4	6	8	6	8	4	8	5
CD4 < 50		0	4	0	2	1	2	4	4
CD4 Median ((cells/μL)	480	410	490	460	345	370	390	490
Total (n=)		32	51	56	38	36	37	50	43
Indicator 9: A	ctive and Inactive D	TP Partici	pants						
Active DTP P		3775	3818	3844	3873	3876	3881	3925	3921
Inactive DTP	=	638	639	656	668	674	670	665	686
Indicator 10:	Antiretroviral Adhe	rence							
≥ 95%		39	35	39	49	45	37	51	40
80% to < 95%		6	5	7	6	4	8	7	
40% to < 80%		5	4	7	8	1	6	3	
< 40%		0	0	1	1	0	1		
Total (n=)		50	44	54	64	50	52		
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Indicator 11: Resistance Testing and Results

	2013 Q4	2014 Q1	Q2	Q3	Q	4	2015 Q1	Q2	Q3
Suppressed	2582	2805	2776	2820	282	6	2882	2863	2773
Wild Type	462	421	393	385	32	5	354	343	391
Never Genotyped	17	22	12	12	1	0	13	17	11
1-Class	97	91	87	74	ϵ	3	80	78	75
2-Class	15	14	14	11	1	5	16	14	16
3-Class	7	2	4	2		1	3	3	2
Total (n=)	3180	3355	3286	3304	324	0	3348	3318	3268
Indicator 12: AIDS-I	Defining Illness	2007	2008	2009	2010	2011	2012	2013	2014
CD4 < 200 at	Cases	130	95	82	69	52	48	42	38
ART initiation	Rate per 100,000	12.1	8.8	7.5	6.3	4.7	4.3	3.7	3.3
AIDS Cases	Cases	81	81	59	53	35	34	33	26
(DTP Reports)	Rate per 100,000	7.5	7.5	5.4	4.8	3.2	3.0	2.9	2.3
AIDS Cases	Cases	72	75	54	47	36	28	23	-
(BCCDC Reports)	Rate per 100,000	6.7	7.0	5.0	4.3	3.2	2.5	2.0	-
Indicator 13: HIV-Ro	elated Mortality	2004	2005	2006	2007	2008	2009	2010	2011
Vancouver Coastal H	Iealth	55	88	73	49	36	34	18	20
Per 100 HIV+ Popula	ation	0.90	1.41	1.15	0.76	0.54	0.50	0.26	0.28
Per 100,000 Populati	on	5.30	8.46	6.79	4.51	3.30	3.05	1.58	1.73