BRITISH COLUMBIA
CENTRE *for* EXCELLENCE
in HIV/AIDS

HIV MONITORING QUARTERLY REPORT

FOR FRASER HEALTH

SECOND QUARTER 2013

UPDATED VERSION: NOV. 28, 2014 *

** See foreword*

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

First Nations Health Authority

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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 HAs. 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.

** Please note that for Q2 and Q3 2013 reports, a coding revision resulted in data display errors in Indicator 5, the Cascade of Care (in Figures 5.1–5.7 on pp. 14–19 in this report), which has been updated; and, only for Q2 2013 reports, Figure 8 (p. 22 in this report) in the Indicator 8 has been updated to correct a technical error. All other figures and reports remain accurate. Please discard any previous reports and use this updated version. If you have any questions, please contact Irene Day at iday@cfenet.ubc.ca.*

List of Indicators

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Acknowledgements and Contributions

BRITISH COLUMBIA
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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. Lillian Lourenco 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.

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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. Mark Gilbert 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

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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 highly active antiretroviral therapy (HAART) 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.

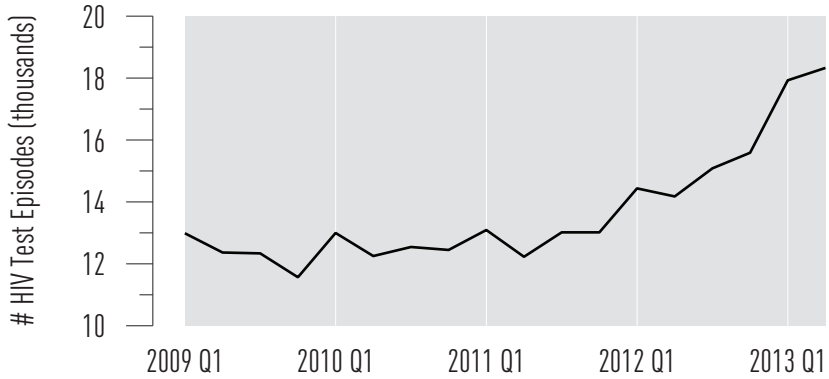
The goals of HA-led STOP-funded initiatives are to work toward achieving these goals. To these ends some outcome measures or indicators of progress have been drafted that should be considered in the design and implementation phases of these initiatives.

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 in Fraser Health, 2009 Q1–2013 Q2

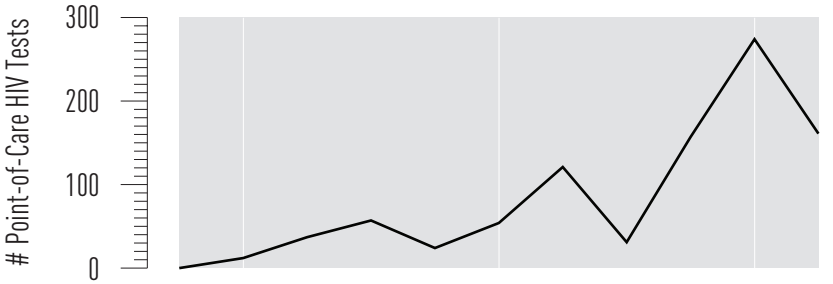


2009				2010				2011				2012				2013	
Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
13.0	12.4	12.3	11.6	13.0	12.3	12.5	12.4	13.1	12.2	13.0	13.0	14.4	14.2	15.1	15.6	17.9	18.3

Figure 1.2 HIV Test Episodes in Fraser Health by Gender, 2009 Q1–2013 Q2 [1] *(figure pending)*

Figure 1.3 HIV Test Episodes in Fraser Health by Age Category, 2009 Q1–2013 Q2 [1,2] *(figure pending)*

Figure 1.4 Point-of-Care HIV Tests in Fraser Health, 2010 Q4–2013 Q2 [2]



Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
0	12	37	57	24	54	121	31	157	274	161

1 *NB: Testing does not include point of care tests.*

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

Limitations:

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

2 POC testing data is available from the first quarter of 2010 and onwards.

Indicator 2. HIV Testing Rates

Figure 2.1 Rate of HIV Testing in Fraser Health, 2009–2012

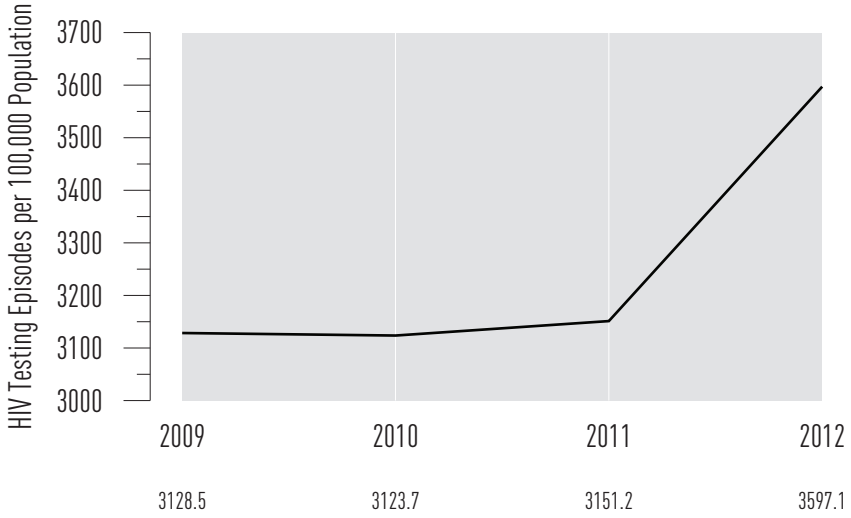


Figure 2.2 Rate of HIV Testing in Fraser Health by Gender, 2009–2012 [1] *(figure pending)*

Figure 2.3 Rate of HIV Testing in Fraser Health by Age Category, 2009–2012 [1] *(figure pending)*

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 in Fraser Health, 2009 Q1–2013 Q2 [3]

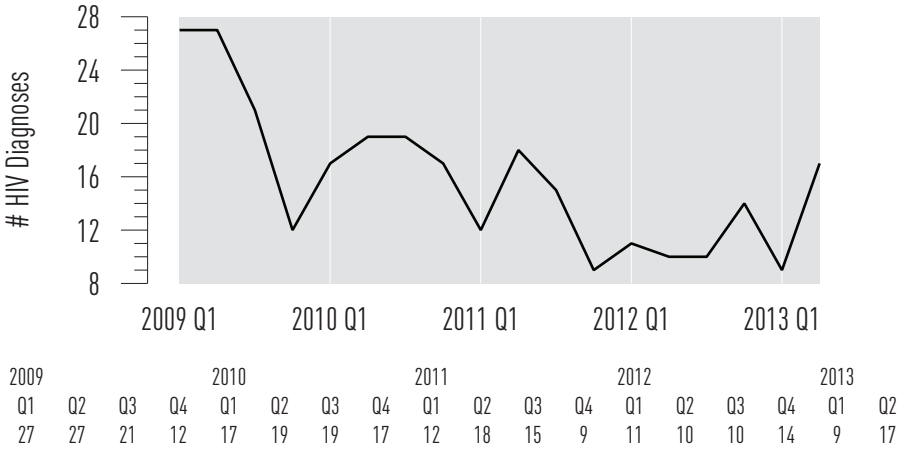


Figure 3.2 New HIV Diagnoses in Fraser Health by Gender, 2009 Q1–2013 Q2 *(figure pending)*

Figure 3.3 New HIV Diagnoses in Fraser Health by Age Category, 2009 Q1–2013 Q2 *(figure pending)*

Figure 3.4 New HIV Diagnoses in Fraser Health by Exposure Category, 2009 Q1–2013 Q2 [4] *(figure pending)*

3 *Data Source: BCCDC*

4 *BCCDC: Data lags by 6 months.*
MSM=men who have sex with men; IDU= injection drug user; HET=heterosexual. NIR=No identified risk/exposure.

Stage of HIV infection at diagnosis

This indicator is still under development.

Classification of stage of HIV infection at the time of diagnosis is done on the basis of clinical information, including first CD4+ cell count, laboratory results suggestive of acute HIV infection, and clinical presentation with an AIDS-defining illness.

The indicator will be developed based on the knowledge gained during the pilot phase and will link data from BCCDC, BCPHMRL, and BC-CFE.

Indicator 4. Stage of HIV Infection at Diagnosis

Figure 4.1. Stage of HIV Infection at Diagnosis Overall for the Province/HA *(figure pending)*

Figure 4.2. Stage of HIV Infection at Diagnosis by Gender *(figure pending)*

Figure 4.3. Stage of HIV Infection at Diagnosis by Age Category *(figure pending)*

Figure 4.4. Stage of HIV Infection at Diagnosis by Exposure Category (MSM, IDU, Other) *(figure pending)*

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. Linkage to HIV care, 3. Retention in HIV care, 4. On ART and 5. 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 (ie. 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 year 2012 in BC overall and stratified by sex and age for each Health Authority.

Figure 5.1 Estimated Cascade of Care for Fraser Health [5]

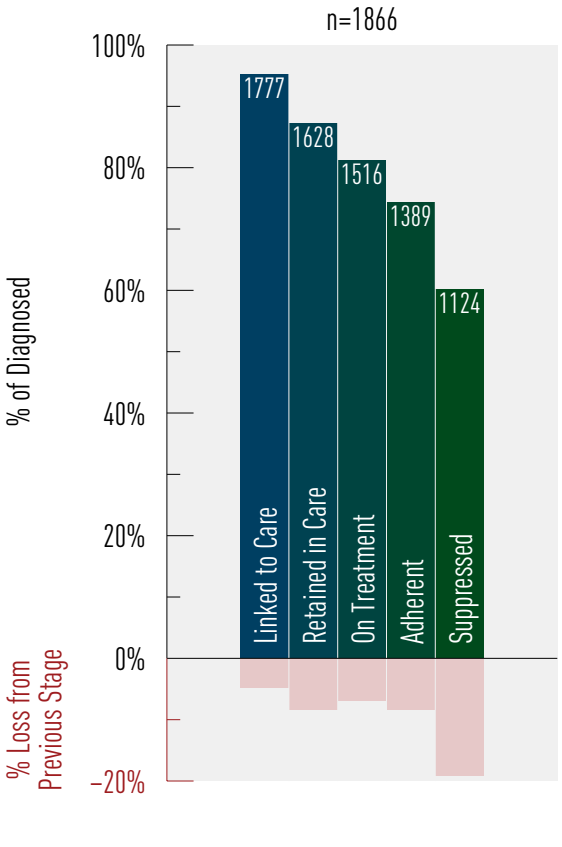
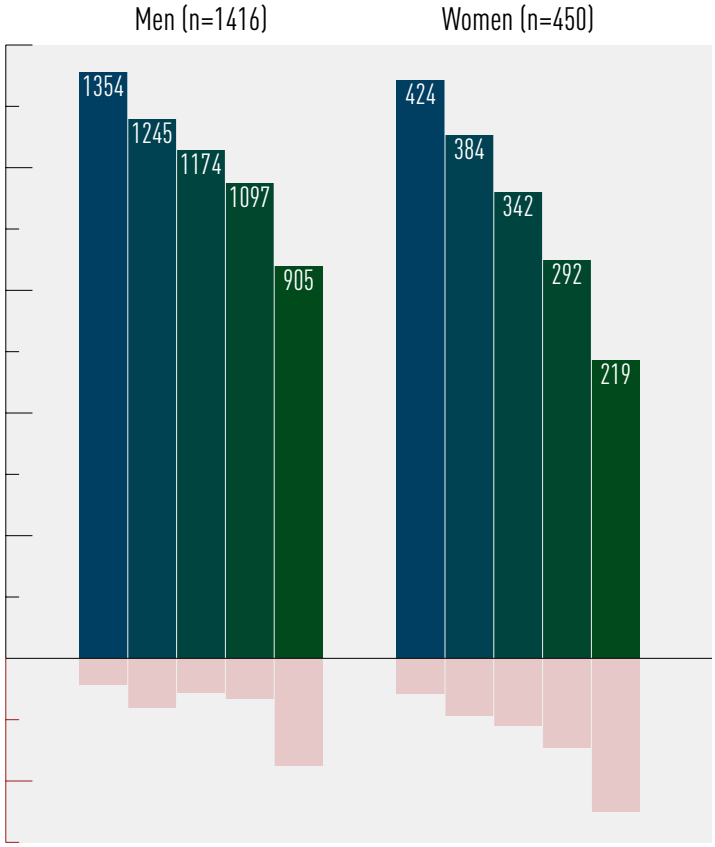


Figure 5.2 Estimated Cascade of Care for Fraser Health by Gender [6]

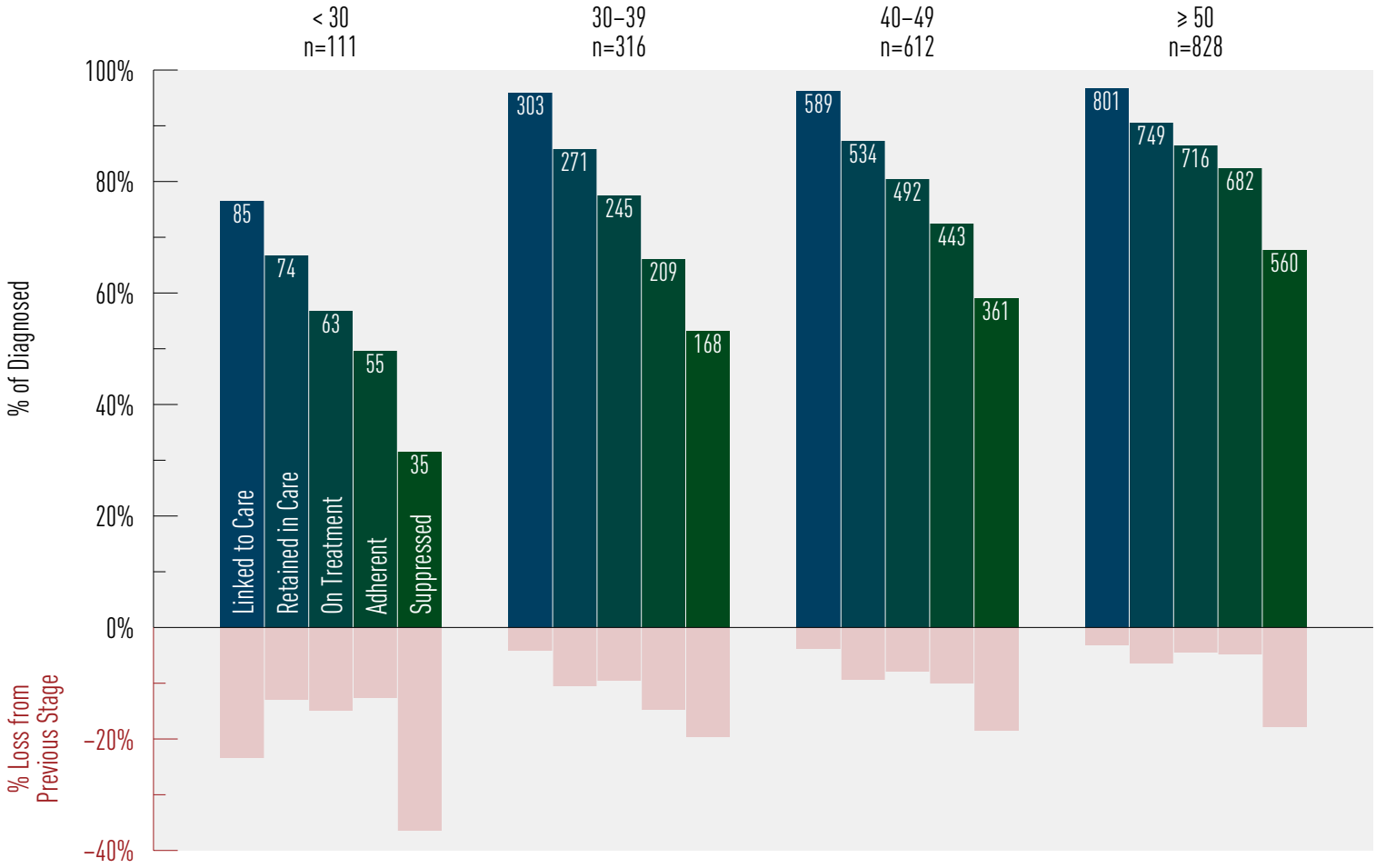


5,6 *Data is for the period 2012 Q3–2013 Q2.*
Data Sources:
1 *British Columbia Centre for Excellence Drug Treatment Program (DTP) Database (ARV use, VL and CD4 count).*
2 *Administrative data (ex. MSP billings; hospitalization data from the Discharge Abstract Database (DAD)).*

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 has been assigned to their biological sex.

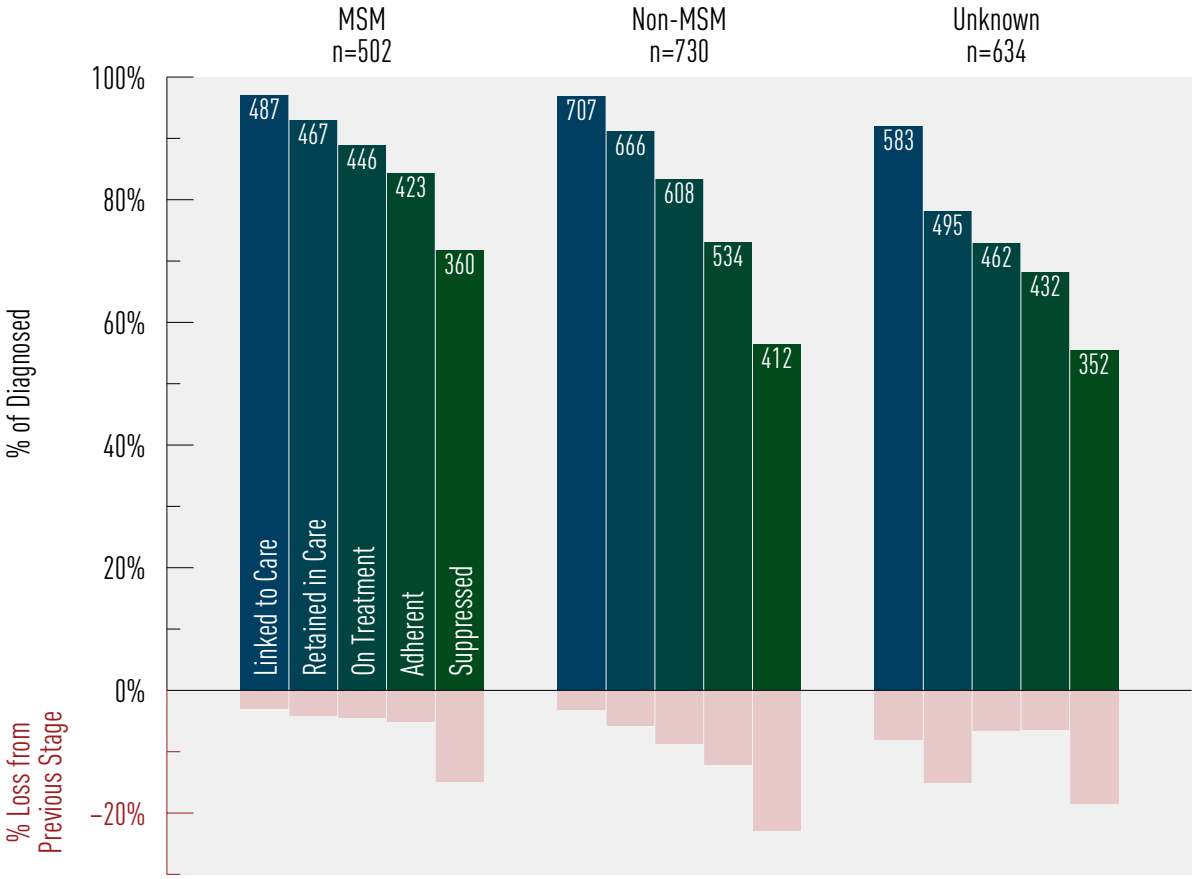
Figure 5.3 Estimated Cascade of Care for Fraser Health by Age Category [7]



7 *Data is for the period 2012 Q3–2013 Q2.*
Data Sources:
1 *British Columbia Centre for Excellence Drug Treatment Program (DTP) Database (ARV use, VL and CD4 count).*
2 *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.

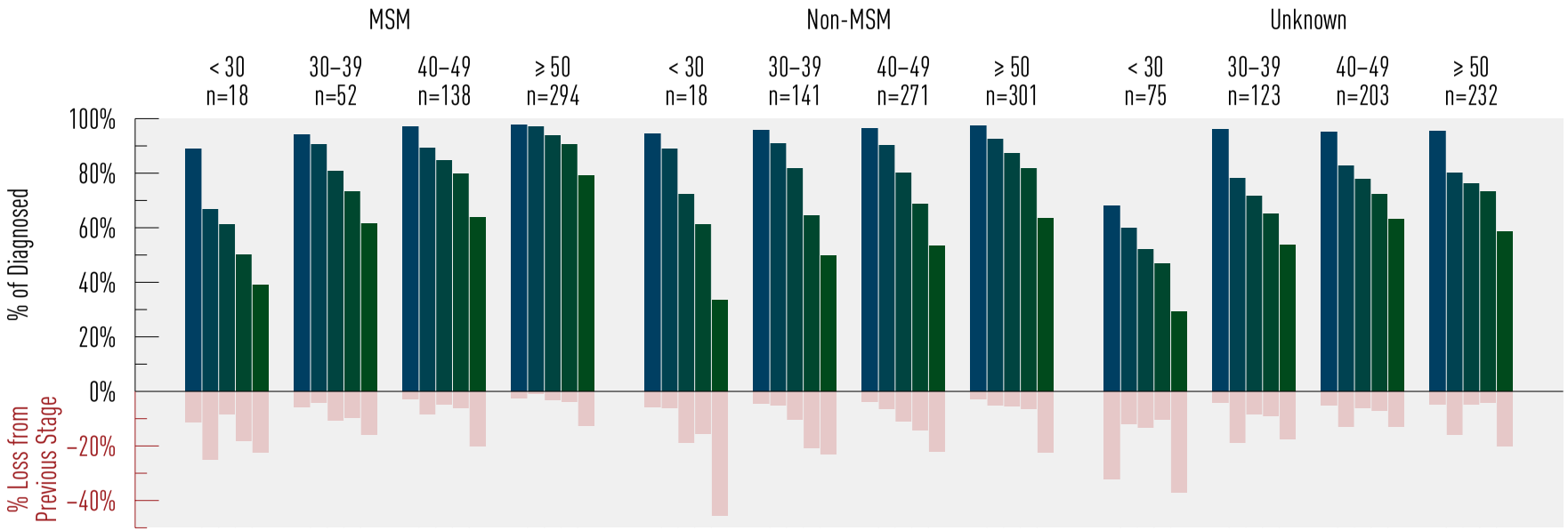
Figure 5.4 Estimated Cascade of Care for Fraser Health by MSM Status [8]



8 *Data is for the period 2012 Q3–2013 Q2.*
Data Sources:
1 *British Columbia Centre for Excellence Drug Treatment Program (DTP) Database (ARV use, VL and CD4 count).*
2 *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.

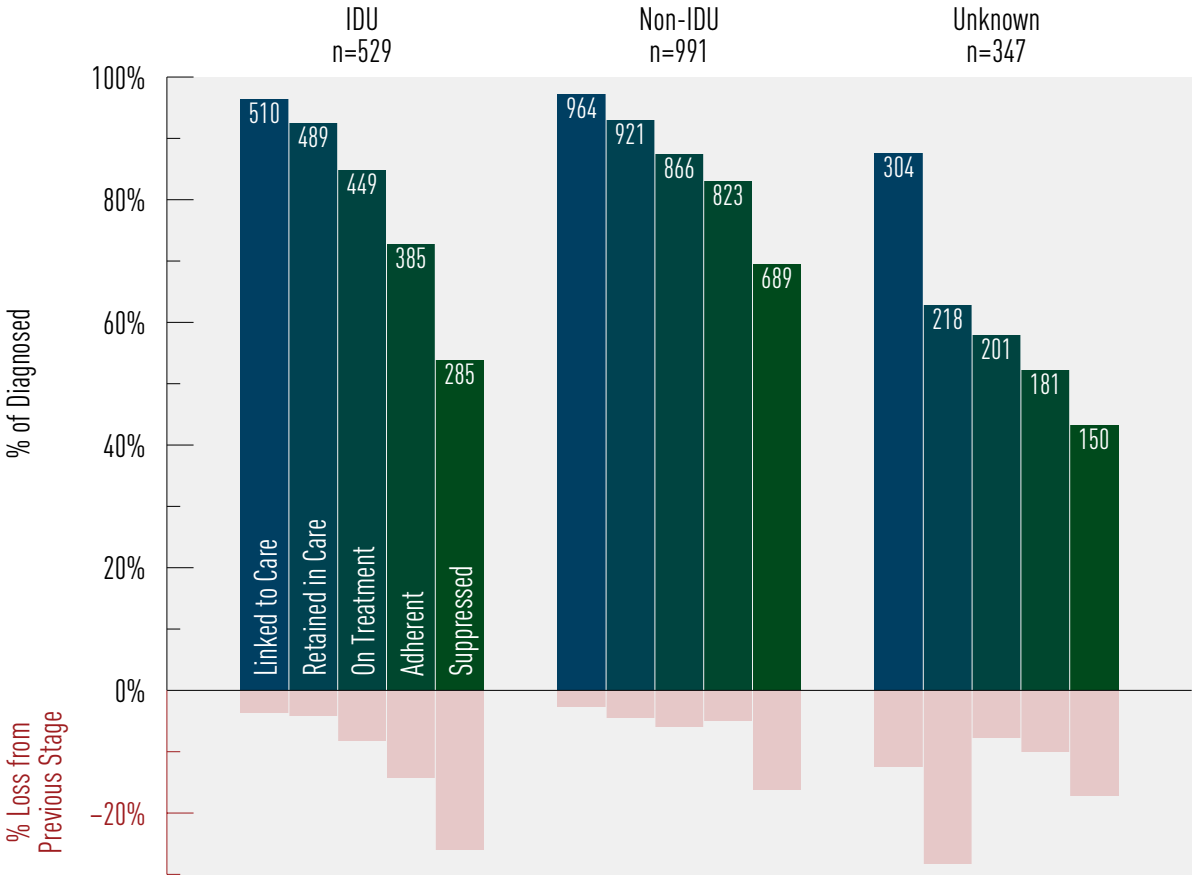
Figure 5.5 Estimated Cascade of Care for Fraser Health by Age Category and MSM Status [9]



9 *Data is for the period 2012 Q3–2013 Q2.*
Data Sources:
1 *British Columbia Centre for Excellence Drug Treatment Program (DTP) Database (ARV use, VL and CD4 count).*
2 *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.

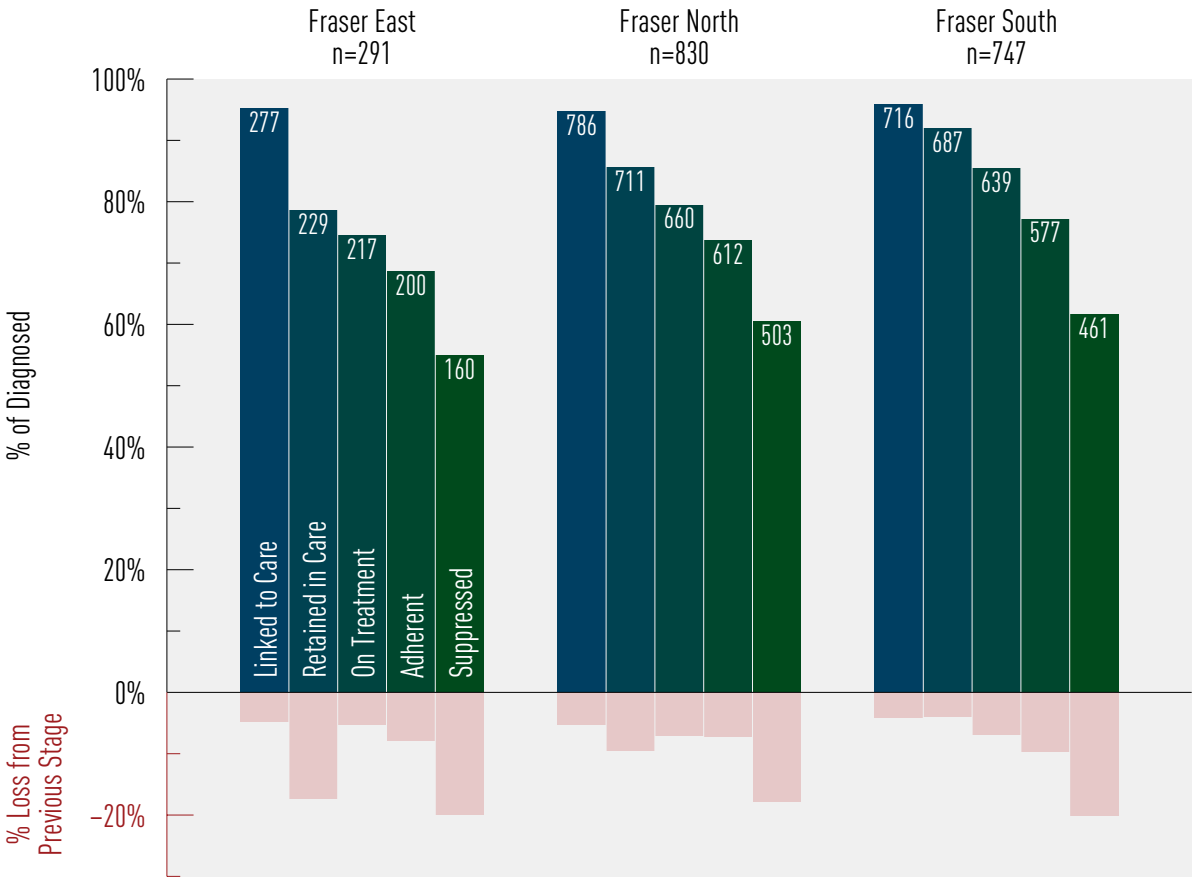
Figure 5.6 Estimated Cascade of Care for Fraser Health by History of IDU [10]



10 *Data is for the period 2012 Q3–2013 Q2.*
Data Sources:
1 *British Columbia Centre for Excellence Drug Treatment Program (DTP) Database (ARV use, VL and CD4 count).*
2 *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 Fraser Health by HSDA [11]



11 *Data is for the period 2012 Q3–2013 Q2.*
Data Sources:
1 *British Columbia Centre for Excellence Drug Treatment Program (DTP) Database (ARV use, VL and CD4 count).*
2 *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.

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 0–6 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 0. A detailed description of how the PCS score is calculated and its valida¬tion 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 1. 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)
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 Fraser Health, 2011 Q3–2013 Q2 [12]

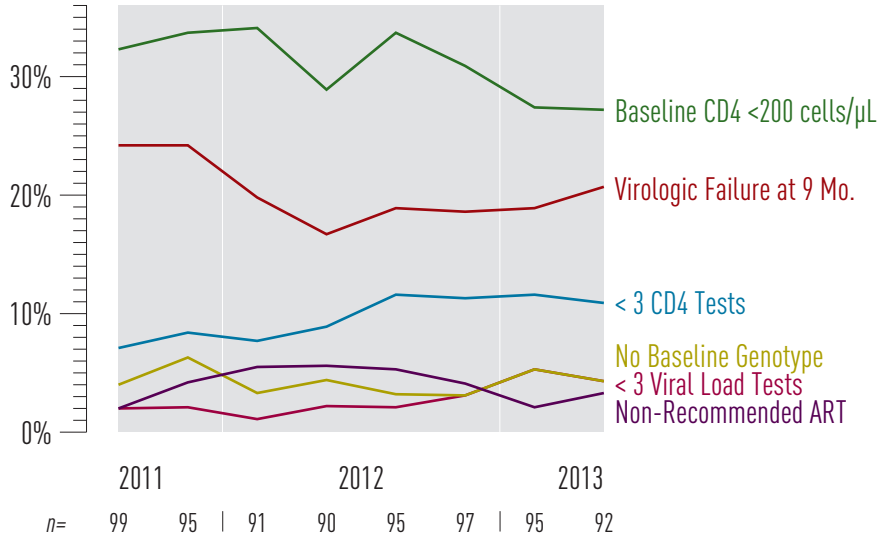
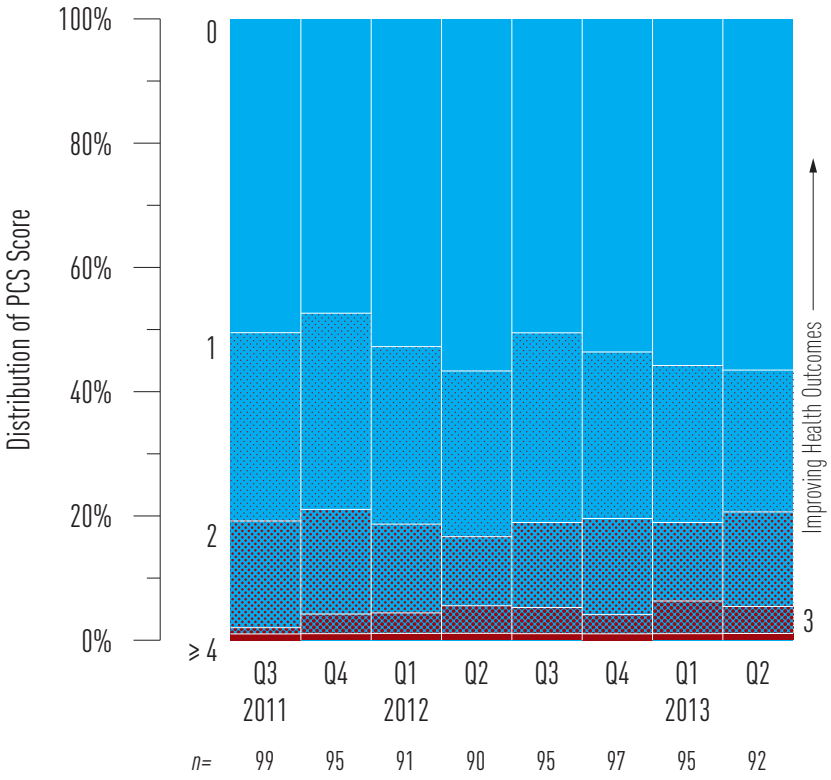


Figure 6.2 Historical Trends for PCS Score for Fraser Health, 2011 Q3–2013 Q2 [13]



NB: A score of 0 is the best score and a score of 4 or more is the worst score.

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

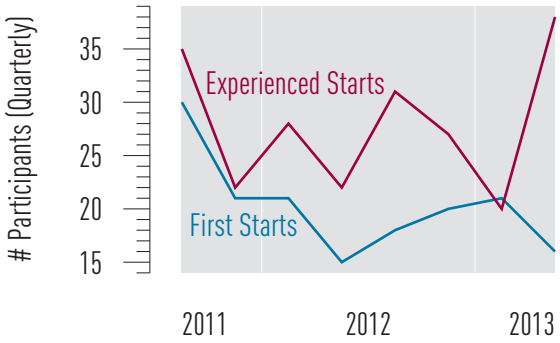
13 *Data Source: British Columbia Centre for Excellence Drug Treatment Program (DTP) Database.*
Each quarter's data is calculated as the sum of the 4 quarters leading up to it. e.g. 2012 Q1 is calculated from 2011 Q2 – 2012 Q1.

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.

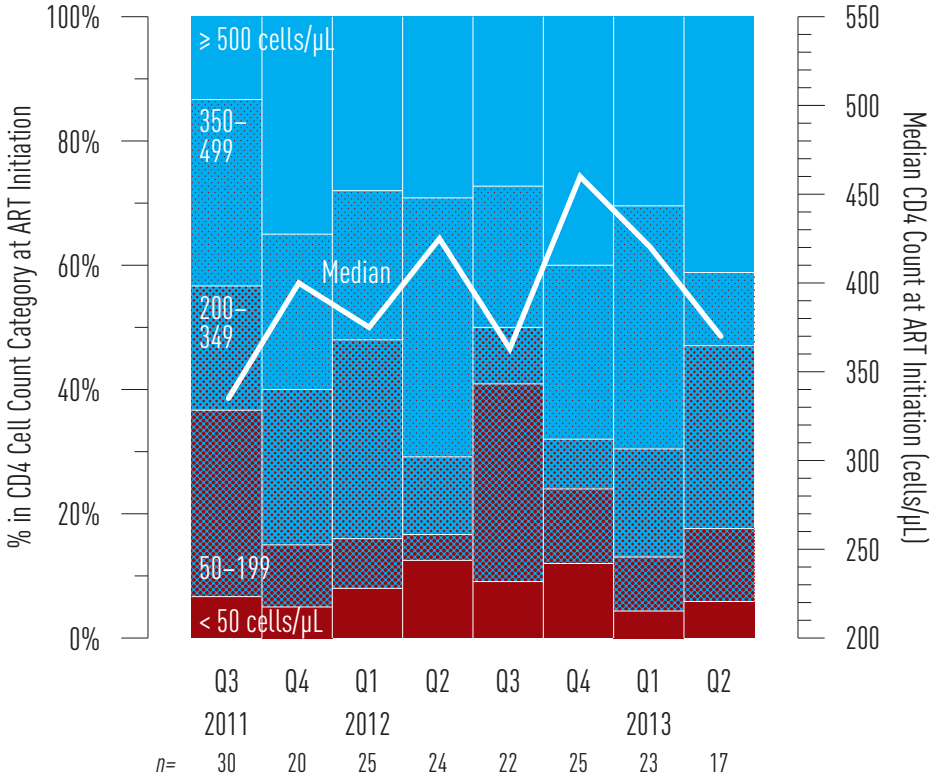
Indicator 7. New Antiretroviral Therapy Starts in Fraser Health

Figure 7 BC-CfE Drug Treatment Program Enrollment: New Antiretroviral Participants for Fraser Health, 2011 Q3 – 2013 Q2 [14]



Indicator 8. CD4 Cell Count at ART Initiation

Figure 8 CD4 Cell Count at ART Initiation of ART-Naïve DTP Participants for Fraser Health, 2011 Q3–2013 Q2 [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.

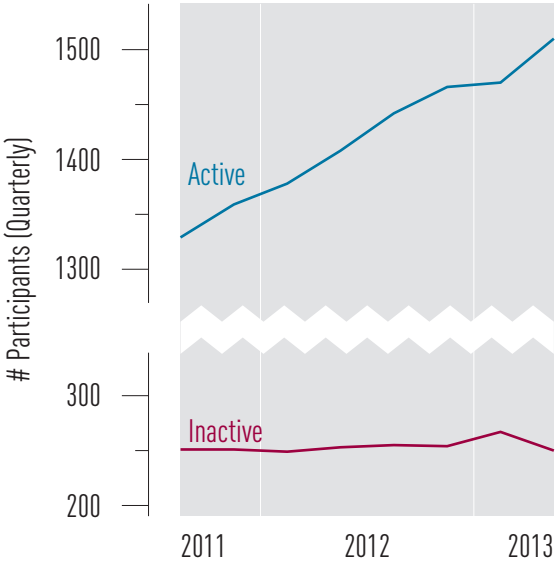
15 *Data Source: Drug Treatment Program Database. Limitations: CD4 cell count data is approximately 80% complete.*
Due to a technical error this figure has been updated from the previous version of the Second Quarter 2013 report. This is the correct version.

Indicator 9. Active and Inactive DTP Participants

Table 2. Distribution of People on ART for Fraser Health, 2013 Q2 [16]

Age	< 30	70
	30–39	256
	40–49	507
	≥ 50	677
Gender	Male	1163
	Female	347
Exposure	MSM	432
	IDU	444
Total		1510

Figure 9 Active and Inactive DTP Participants for Fraser Health, 2011 Q3 – 2013 Q2 [17]



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

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

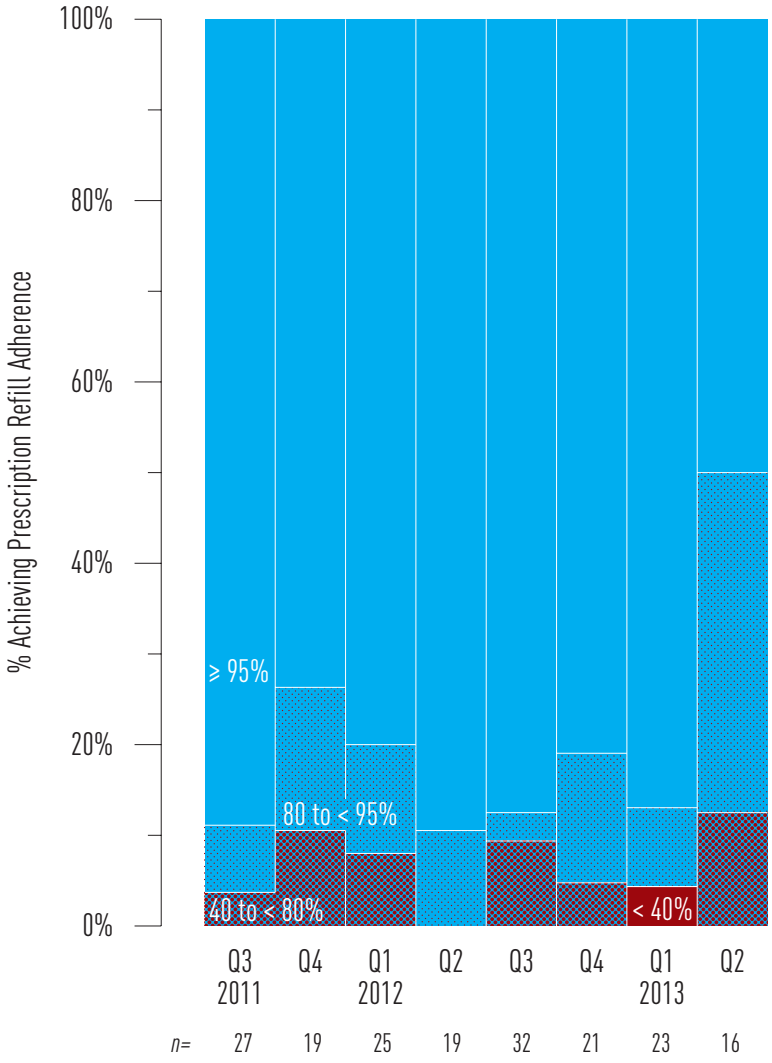
17 *Active DTP participants: are those who are prescribed one or more drugs in the last six months.*
Inactive DTP Participants: Persons no longer prescribed drugs through the HIV/AIDS Drug Treatment Program in the last quarter.

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 Fraser Health, 2011 Q3–2013 Q2 [18]

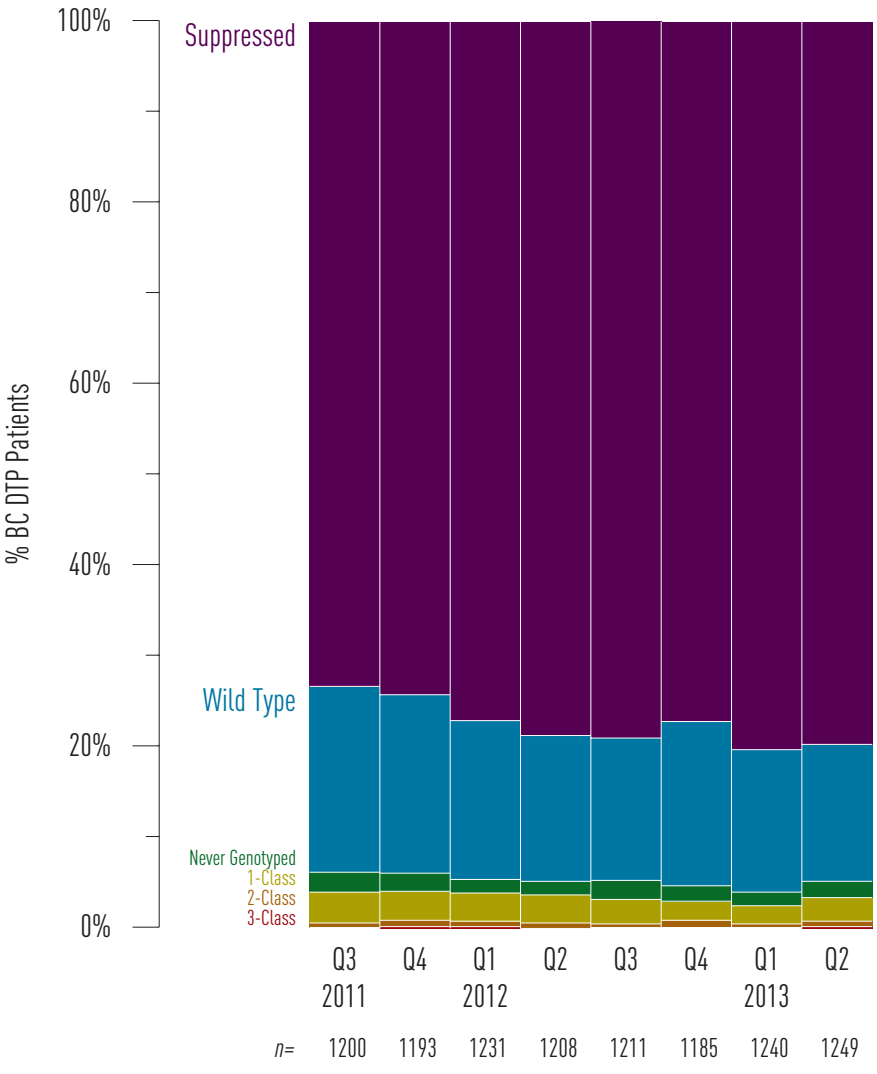


18 *Data Source: Drug Treatment Program Database*
Limitation: Prescription refill adherence is used as a proxy for patient adherence.

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.

Figure 11 Cumulative Resistance Testing Results by Resistance Category for Fraser Health, 2011 Q3–2013 Q2 [19]



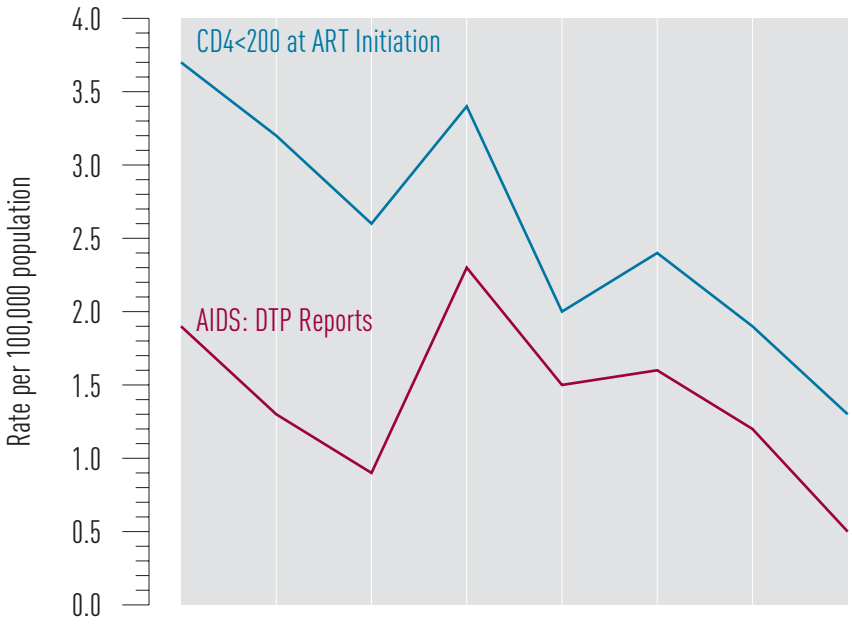
19 *Data Source: Drug Treatment Program Database*

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; as such, we have plotted DTP reported AIDS cases as well as the proportion of persons initiating ART with a CD4<200 cells/μL.

Figure 12 AIDS Case Rate and Reports for Fraser Health, 2005 – 2012 [20]



		2005	2006	2007	2008	2009	2010	2011	2012
CD4<200 at ART initiation	CASES	54	48	40	53	32	38	31	22
	PER 100K	3.7	3.2	2.6	3.4	2	2.4	1.9	1.3
AIDS: DTP Reports	CASES	28	20	14	36	23	25	19	8
	PER 100K	1.9	1.3	0.9	2.3	1.5	1.6	1.2	0.5

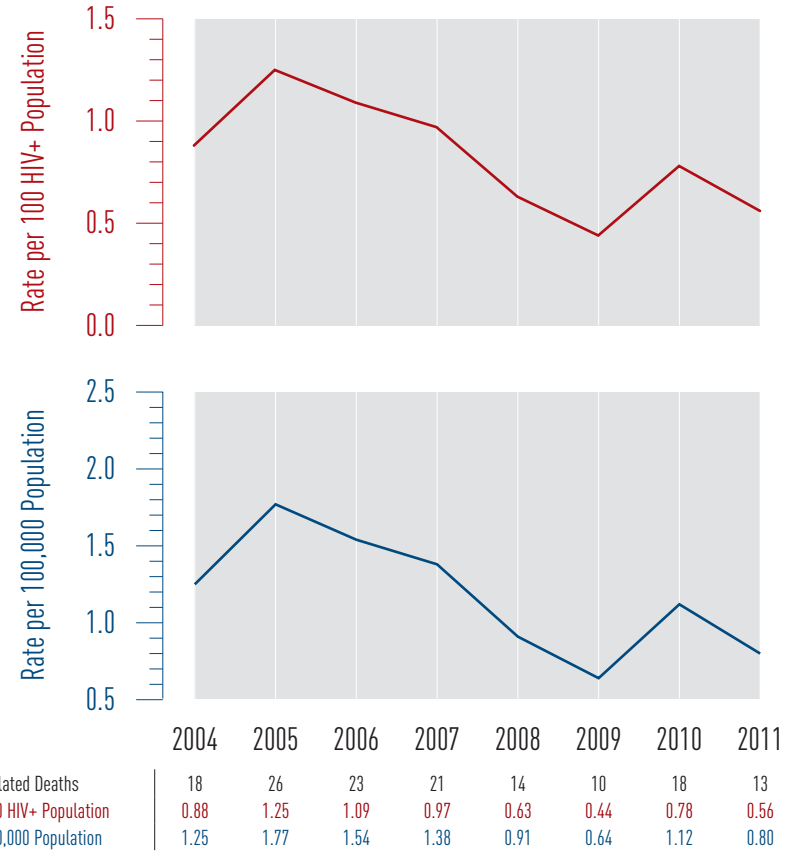
20 *Data Source: Drug Treatment Program Database*

Limitation: AIDS case reporting was investigated using 2 definitions: First, using AIDS cases reported in AIDS case report forms from the DTP, and second, 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. 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.

Figure 13 HIV-Related Deaths by Year for Fraser Health, 2004–2011 [20]



	2004	2005	2006	2007	2008	2009	2010	2011
HIV-Related Deaths	18	26	23	21	14	10	18	13
Per 100 HIV+ Population	0.88	1.25	1.09	0.97	0.63	0.44	0.78	0.56
Per 100,000 Population	1.25	1.77	1.54	1.38	0.91	0.64	1.12	0.80

21 *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.