**BRITISH COLUMBIA
CENTRE *for* EXCELLENCE
in HIV/AIDS**

HIV MONITORING QUARTERLY REPORT

FOR VANCOUVER ISLAND HEALTH

THIRD QUARTER 2013
UPDATED VERSION: NOV 28, 2014 *

* See foreword

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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. 20–25 in this report), which has been updated; and, only for Q3 2013 reports, Appendix Table for Indicator 5 (on p. 35 in this report). 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.

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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 2012 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.

NB: HIV screening tests conducted by the VIHA Laboratory are not included.

Indicator 1. HIV Testing Episodes

Figure 1.1   HIV Test Episodes in Vancouver Island Health, 2009 Q1–2013 Q3

	2009	Q2	Q3	Q4	2010	Q2	Q3	Q4	2011	Q2	Q3	Q4	2012	Q2	Q3	Q4	2013	Q2	Q3
VIH	6.2	5.1	5.2	4.7	5.6	5.3	5.3	5.3	5.8	5.0	5.3	5.1	5.8	5.3	5.5	5.6	5.9	6.2	6.0
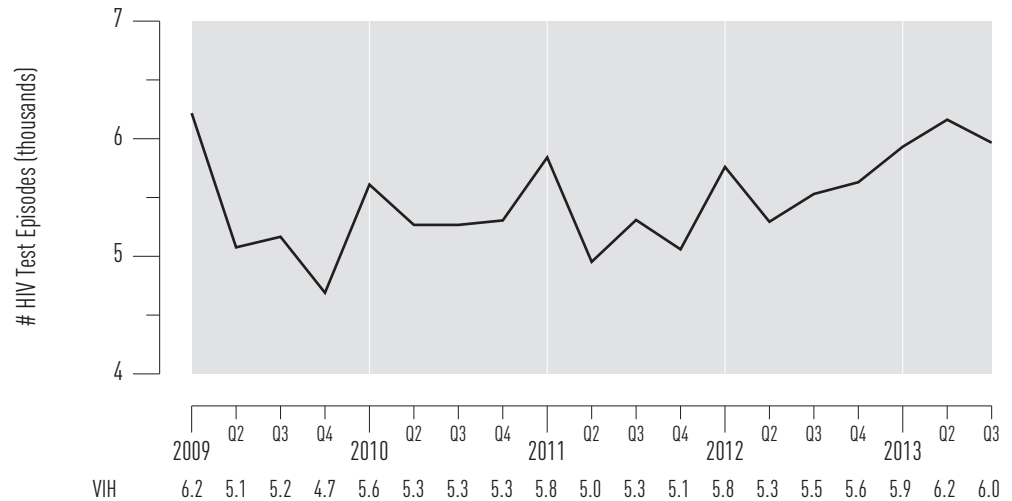
Figure 1.2   HIV Test Episodes by Gender and Prenatal Status in Vancouver Island Health, 2009 Q1–2013 Q3 [1]

	2009	Q2	Q3	Q4	2010	Q2	Q3	Q4	2011	Q2	Q3	Q4	2012	Q2	Q3	Q4	2013	Q2	Q3
Female	4.0	3.4	3.4	3.1	3.7	3.4	3.5	3.5	3.8	3.2	3.5	3.3	3.7	3.5	3.6	3.6	3.8	3.9	3.8
Male	2.2	1.7	1.7	1.6	1.9	1.9	1.8	1.8	2.0	1.7	1.8	1.7	2.0	1.8	1.9	1.8	2.0	2.1	2.0
Prenatal	1.7	1.5	1.6	1.5	1.7	1.5	1.6	1.6	1.9	1.5	1.7	1.6	1.8	1.6	1.6	1.6	1.7	1.6	1.6
Non-prenatal	2.2	1.9	1.8	1.6	2.0	1.8	1.8	1.8	1.9	1.7	1.8	1.7	1.9	1.8	1.9	2.0	2.1	2.2	2.1
Other	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
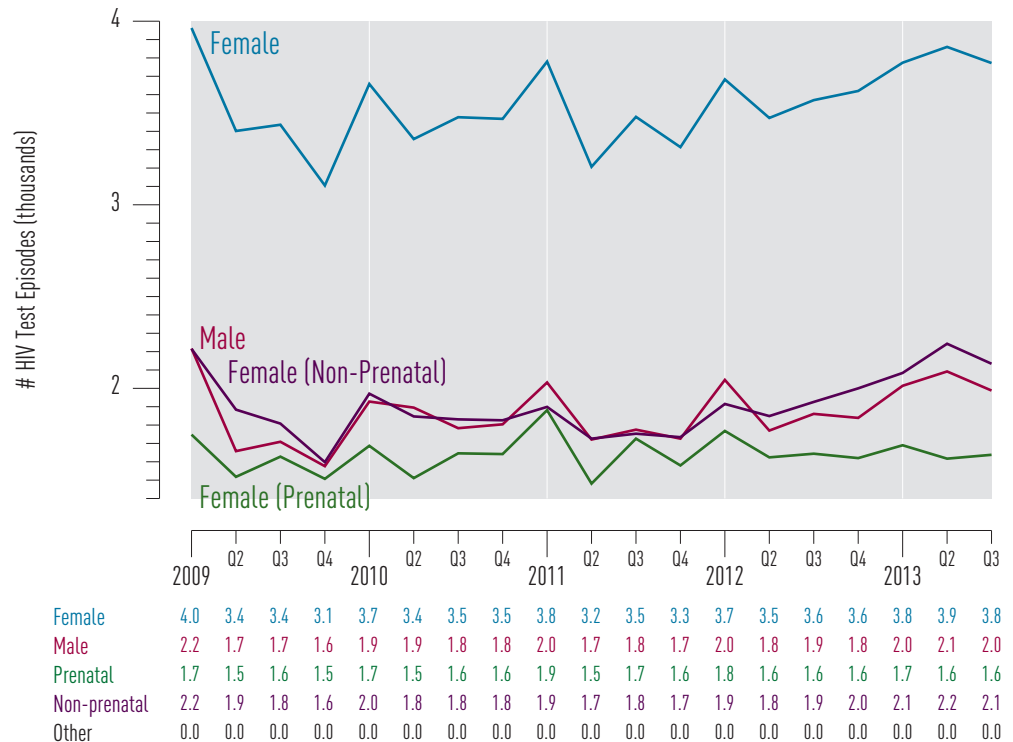
1   *NB: Testing does not include point of care tests.*

Figure 1.3   HIV Test Episodes by Age Category for Vancouver Island Health, 2009 Q1–2013 Q3 [1,2]

	2009	Q2	Q3	Q4	2010	Q2	Q3	Q4	2011	Q2	Q3	Q4	2012	Q2	Q3	Q4	2013	Q2	Q3
< 30	2.6	2.3	2.4	2.2	2.5	2.3	2.3	2.5	2.5	2.1	2.3	2.2	2.4	2.1	2.3	2.3	2.4	2.3	2.3
30 – 39	1.9	1.6	1.6	1.4	1.8	1.6	1.6	1.6	1.9	1.5	1.7	1.6	1.9	1.7	1.7	1.8	1.9	1.9	1.9
40 – 49	0.8	0.6	0.7	0.6	0.7	0.7	0.7	0.6	0.7	0.7	0.6	0.6	0.7	0.7	0.7	0.7	0.7	0.7	0.7
⩾ 50	0.9	0.6	0.5	0.5	0.6	0.7	0.6	0.6	0.7	0.6	0.6	0.6	0.8	0.7	0.7	0.8	0.9	1.0	0.9
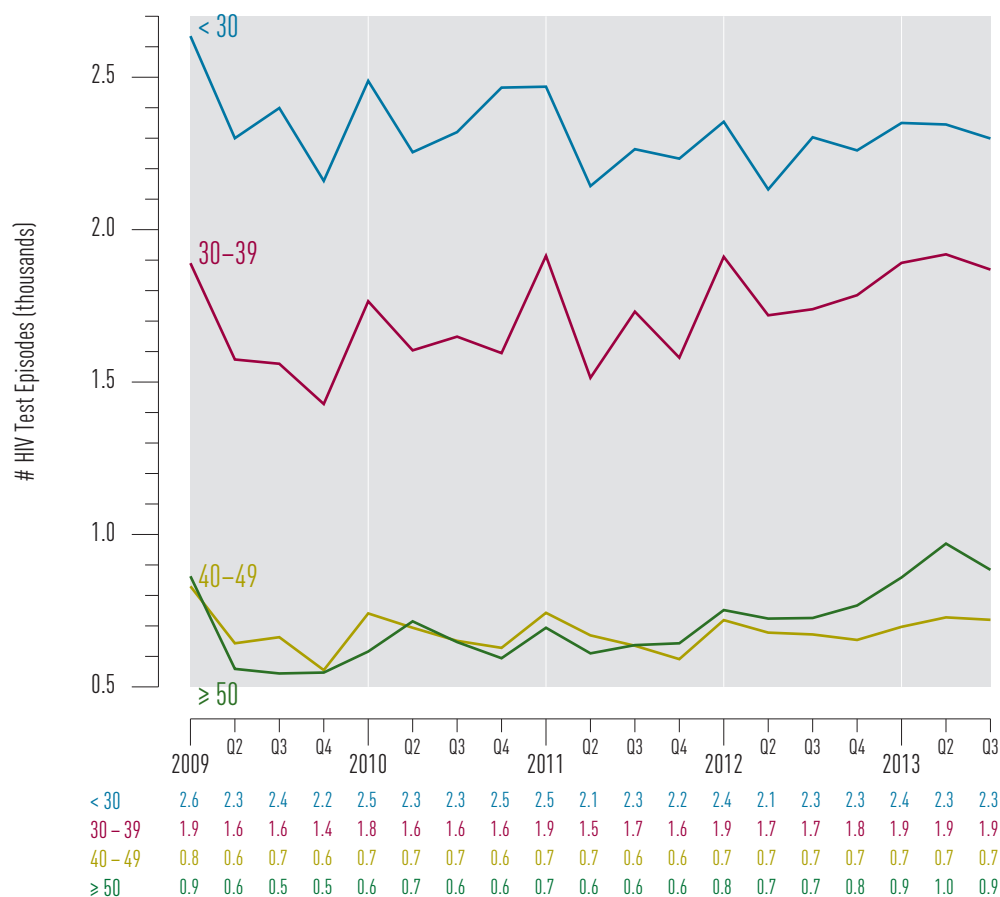
Figure 1.4   Point-of-Care HIV Tests in Vancouver Island Health, 2010 Q4–2013 Q3

	Q4	2011	Q2	Q3	Q4	2012	Q2	Q3	Q4	2013	Q2	Q3
POC HIV Tests	22	21	17	42	12	24	41	90	164	135	200	194
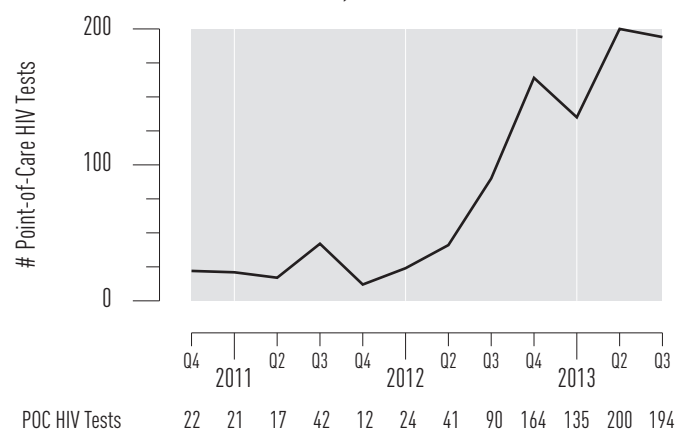
2   *Data Source: The BC Public Health Microbiology and Reference Laboratory (BCPHMRL) courtesy of the BC Centre for Disease Control (BCCDC).*

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 fourth quarter of 2010 and onwards.*

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Figure 1.5   HIV Test Episodes by Health Service Delivery Area in Vancouver Island Health, 2009 Q1–2013 Q3

	2009	Q2	Q3	Q4	2010	Q2	Q3	Q4	2011	Q2	Q3	Q4	2012	Q2	Q3	Q4	2013	Q2	Q3
Central Vancouver Island	1.6	1.5	1.6	1.4	1.7	1.5	1.6	1.5	1.8	1.6	1.6	1.6	1.7	1.5	1.7	1.6	1.9	1.9	1.8
South Vancouver Island	3.9	3.0	3.0	2.8	3.2	3.1	3.0	3.1	3.3	2.9	3.2	3.0	3.4	3.2	3.4	3.5	3.5	3.8	3.6
North Vancouver Island	0.7	0.6	0.6	0.5	0.7	0.6	0.6	0.7	0.7	0.5	0.5	0.4	0.6	0.5	0.5	0.5	0.5	0.5	0.5
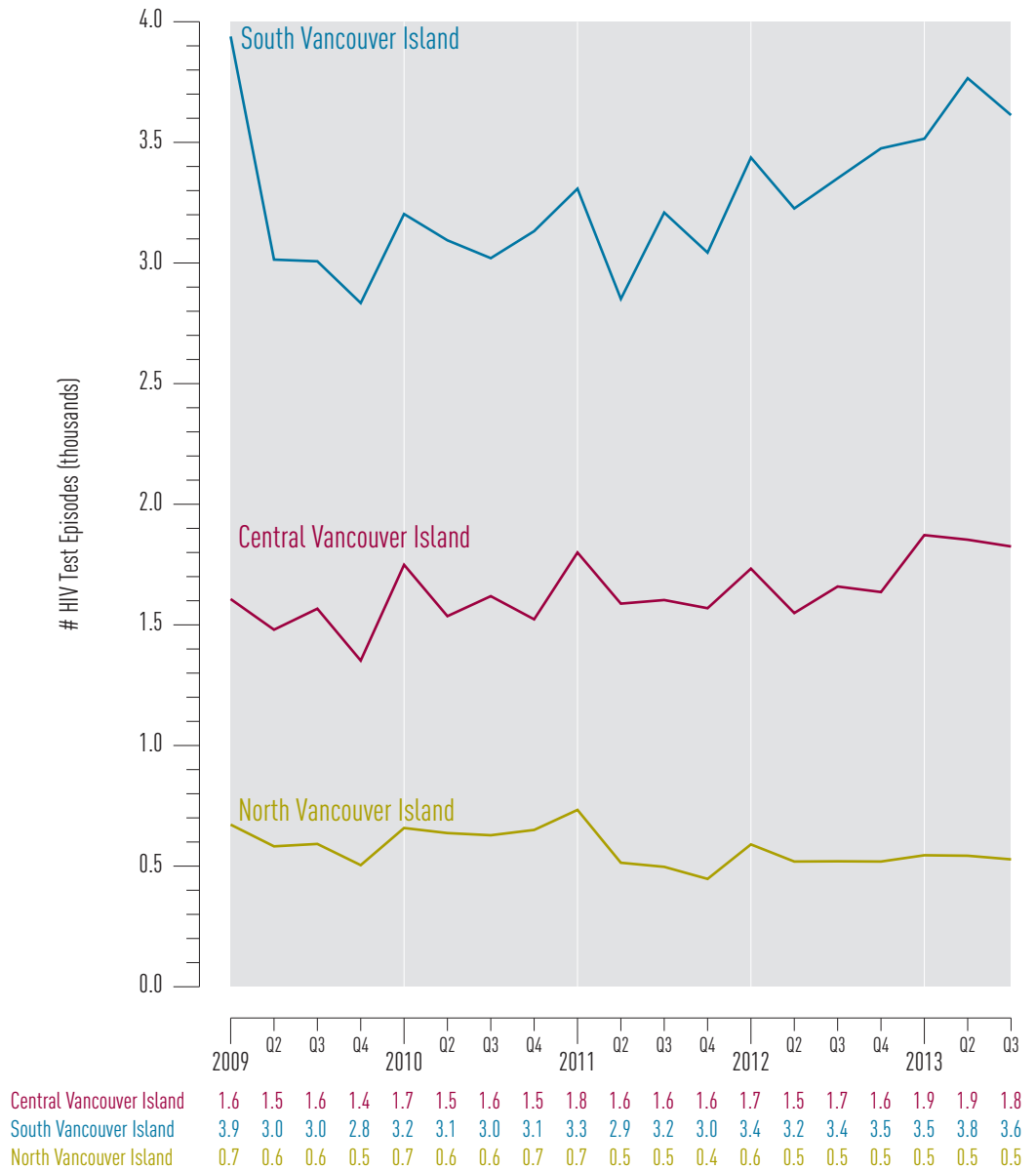
Indicator 2. HIV Testing Rates

Figure 2.1   Rate of HIV Testing in Vancouver Island Health and HSDAs, 2009–2012 [1]

	2009	2010	2011	2012
VIH	2720.4	2702.2	2659.9	2769.6
Central V.I.	2474.5	2518.5	2516.7	2500.7
South V.I.	3087.3	3001.4	2993.3	3257.5
North V.I.	2134.2	2183.4	1944.2	1858.7
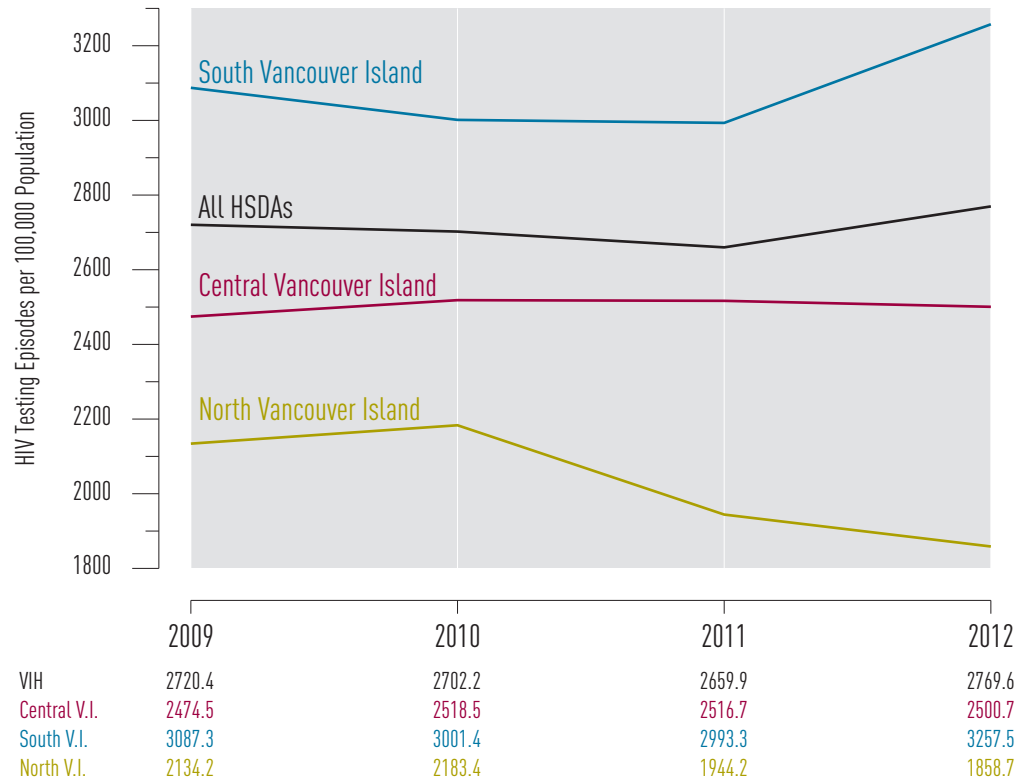
Figure 2.2   Rate of HIV Testing by Gender in Vancouver Island Health, 2009–2012 [1]

	2009	2010	2011	2012
Female	3471.8	3428.8	3382.7	3528.8
Male	1913.3	1928.9	1895.8	1967.7

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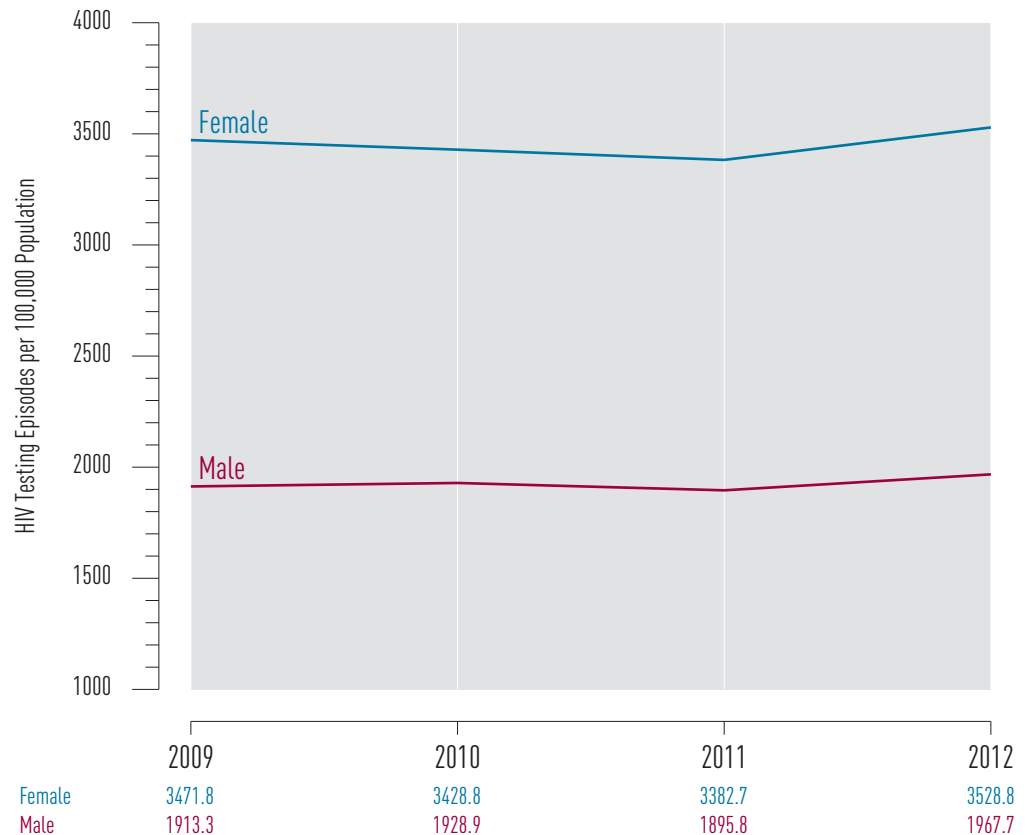
Figure 2.3   Rate of HIV Testing by Age Category in Vancouver Island Health, 2009–2012 [1]

	2009	2010	2011	2012
< 30	3695.0	3663.0	3520.5	3558.4
30–39	7309.1	7349.7	7500.6	7739.6
40–49	2376.7	2415.7	2383.5	2529.3
≥ 50	829.4	813.4	824.7	948.3
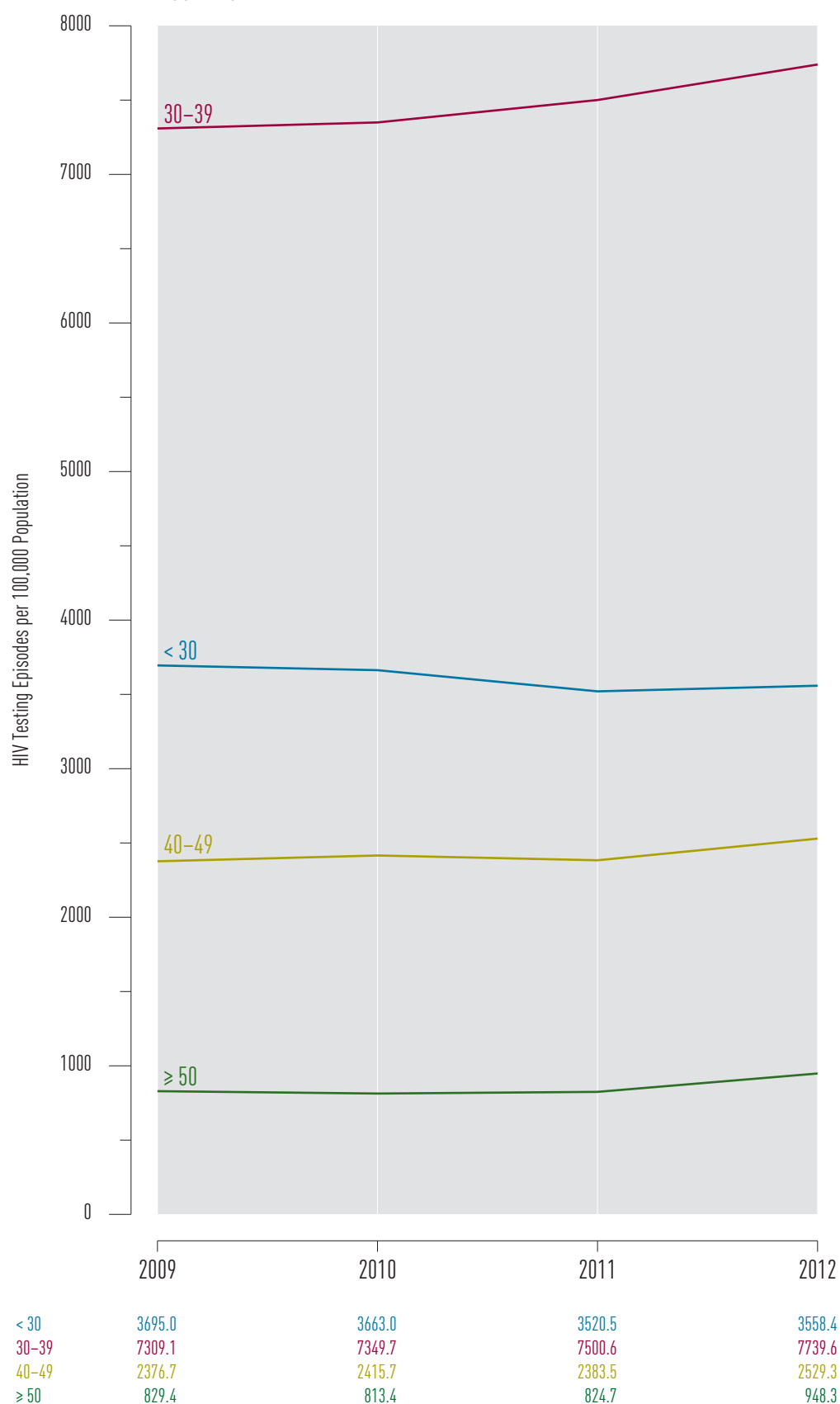
New HIV Diagnoses

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 Island Health, 2009 Q1–2013 Q3 [3]

		2009	Q2	Q3	Q4	2010	Q2	Q3	Q4	2011	Q2	Q3	Q4	2012	Q2	Q3	Q4	2013	Q2	Q3
Vancouver Island Health	By Client Residence	9	9	7	14	6	13	8	6	5	2	7	7	6	3	5	12	4	10	12
	By Provider Address	*11*	*9*	*7*	*14*	*6*	*12*	*8*	*5*	*5*	*3*	*6*	*6*	*3*	*3*	*5*	*12*	*5*	*10*	*12*

Figure 3.2 New HIV Diagnoses for Vancouver Island Health by Gender, 2009 Q1–2013 Q3

	2009	Q2	Q3	Q4	2010	Q2	Q3	Q4	2011	Q2	Q3	Q4	2012	Q2	Q3	Q4	2013	Q2	Q3
Female	1	2	1	4	1	3	1	2	1	0	3	1	2	0	0	0	1	1	4
Male	8	7	6	10	5	10	7	4	4	2	4	6	4	3	5	12	3	9	8

3   *Data Source:* BCCDC
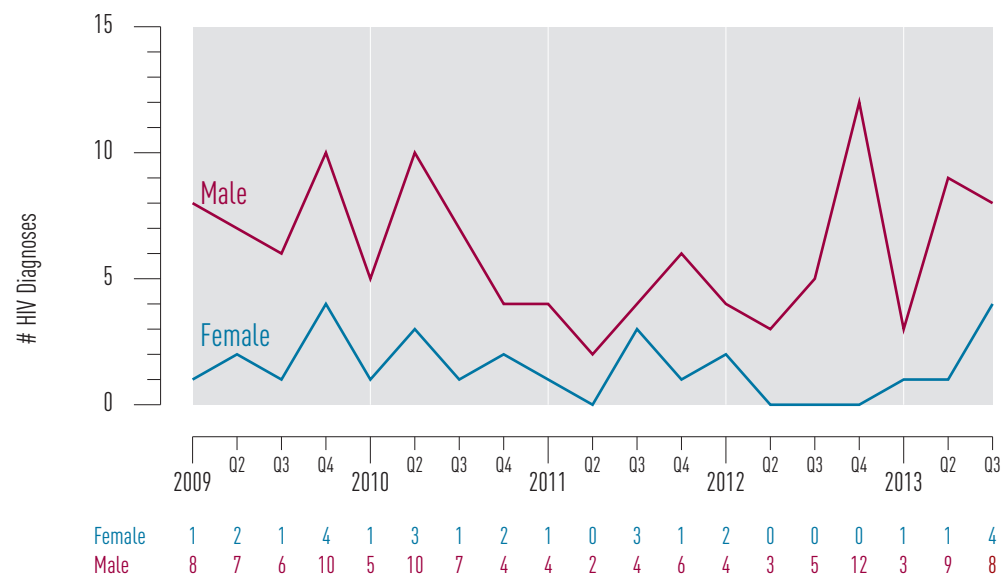
Figure 3.3 — New HIV Diagnoses for Vancouver Island Health by Age Category, 2009 Q1–2013 Q3

	2009	Q2	Q3	Q4	2010	Q2	Q3	Q4	2011	Q2	Q3	Q4	2012	Q2	Q3	Q4	2013	Q2	Q3
< 30 years	3	4	1	6	1	2	1	0	1	0	0	1	2	2	1	2	1	2	2
30–39 years	1	1	1	2	1	5	3	2	1	1	1	1	2	1	1	2	1	2	3
40–49 years	2	3	3	4	3	6	0	4	3	1	3	1	2	0	1	5	1	1	5
≥ 50 years	3	1	2	2	1	0	4	0	0	0	3	4	0	0	2	3	1	5	2
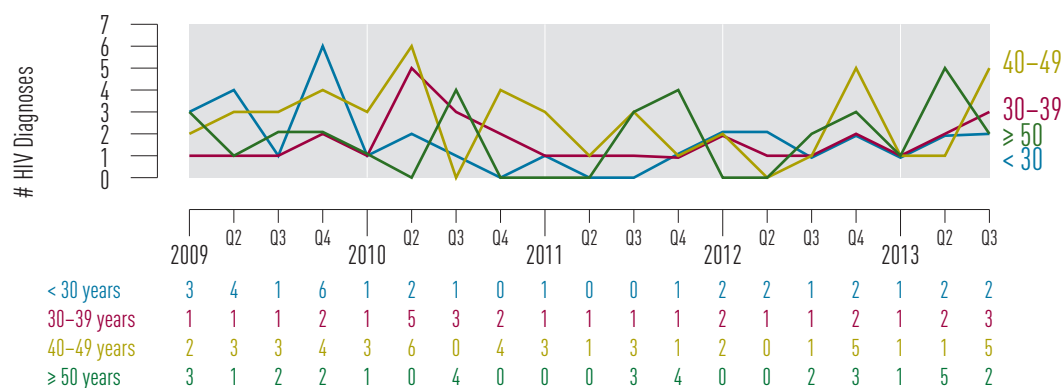
Figure 3.4 — New HIV Diagnoses for Vancouver Island Health by Exposure Category, 2009 Q1–2013 Q3 [4]

	2009	Q2	Q3	Q4	2010	Q2	Q3	Q4	2011	Q2	Q3	Q4	2012	Q2	Q3	Q4	2013
MSM (men having sex with men)	6	4	2	4	2	6	4	1	3	1	3	1	2	2	4	8	2
IDU (injection drug use)	1	3	1	5	1	4	2	2	1	0	2	0	2	0	0	1	0
HET (heterosexual contact)	1	1	2	4	3	2	2	3	1	1	2	5	2	0	1	3	1
Other (other exposure identified)	0	0	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0
NIR/Unknown (no identified exposure)	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1
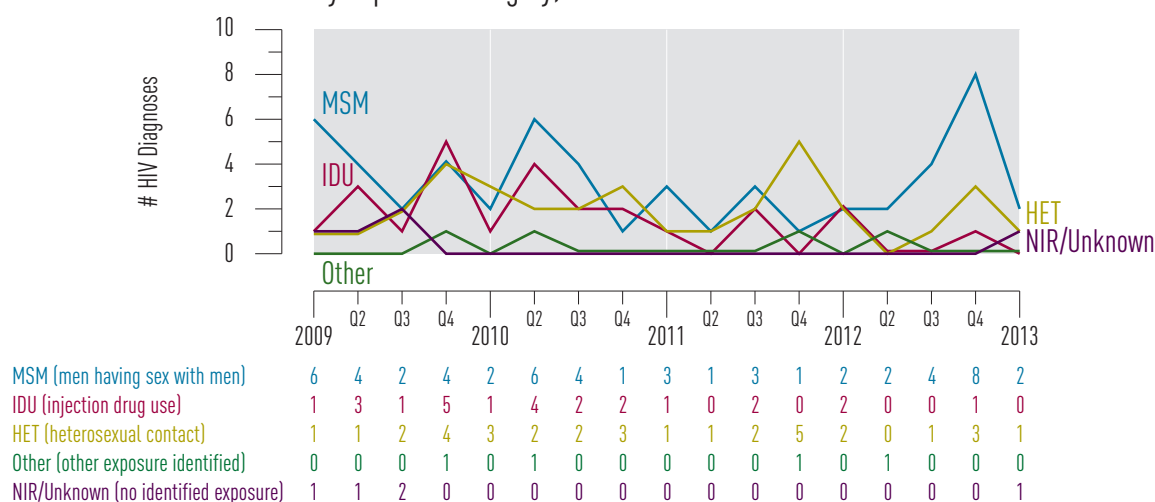
Figure 3.5 — New HIV Diagnoses for Vancouver Island Health by HSDA, 2009 Q1–2013 Q3

		2009	Q2	Q3	Q4	2010	Q2	Q3	Q4	2011	Q2	Q3	Q4	2012	Q2	Q3	Q4	2013	Q2	Q3
Central Vancouver Island	By Client Residence	2	2	1	3	1	5	2	0	1	0	1	3	2	1	4	2	3	5
	By Provider Address	3	0	0	2	1	3	2	0	1	0	0	3	1	1	1	4	2	3	5
South Vancouver Island	By Client Residence	7	6	6	11	5	7	5	4	4	2	6	2	3	2	3	6	2	5	7
	By Provider Address	8	9	7	12	5	7	5	5	4	3	6	1	2	2	3	6	3	5	7
North Vancouver Island	By Client Residence	0	1	0	0	0	1	1	2	0	0	2	1	0	1	2	0	2	0
	By Provider Address	0	0	0	0	0	2	1	0	0	0	0	2	0	0	1	2	0	2	0

"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	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	CD4 ≥500	*and*	No AIDS case report
2a		CD4 350–499		
2b		CD4 200–349		
3		(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 Island Health, 2010–2012 [5]
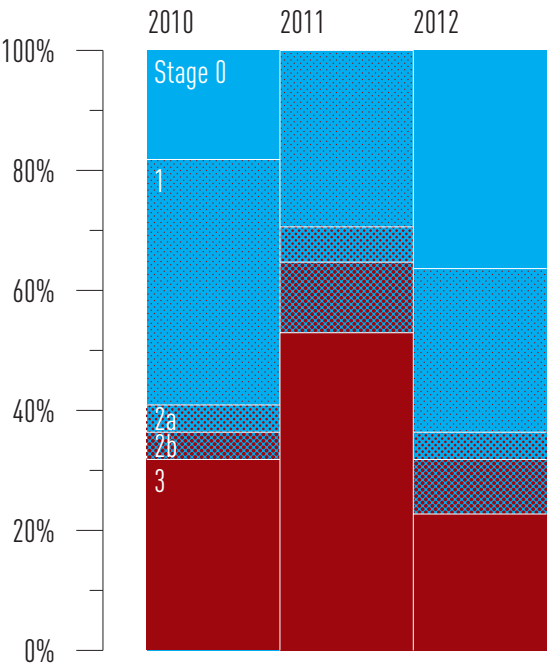
Figure 4.2 Stage of HIV Infection at Diagnosis by Gender for Vancouver Island Health, 2010–2012 [5]
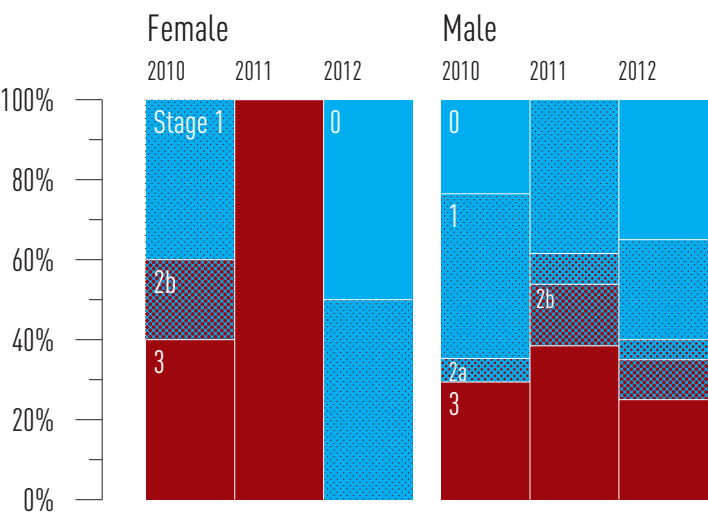
	VIH			Female			Male		
	2010	2011	2012	2010	2011	2012	2010	2011	2012
Stage 0	4	0	8	0	0	1	4	0	7
Stage 1	9	5	6	2	0	1	7	5	5
Stage 2a	1	1	1	0	0	0	1	1	1
Stage 2b	1	2	2	1	0	0	0	2	2
Stage 3	7	9	5	2	4	0	5	5	5
Unknown	11	4	4	2	1	0	9	3	4
Total *(n=)*	33	21	26	7	5	2	26	16	24

Figure 4.3 Stage of HIV Infection at Diagnosis by Age Category for Vancouver Island Health, 2010–2012 [5]
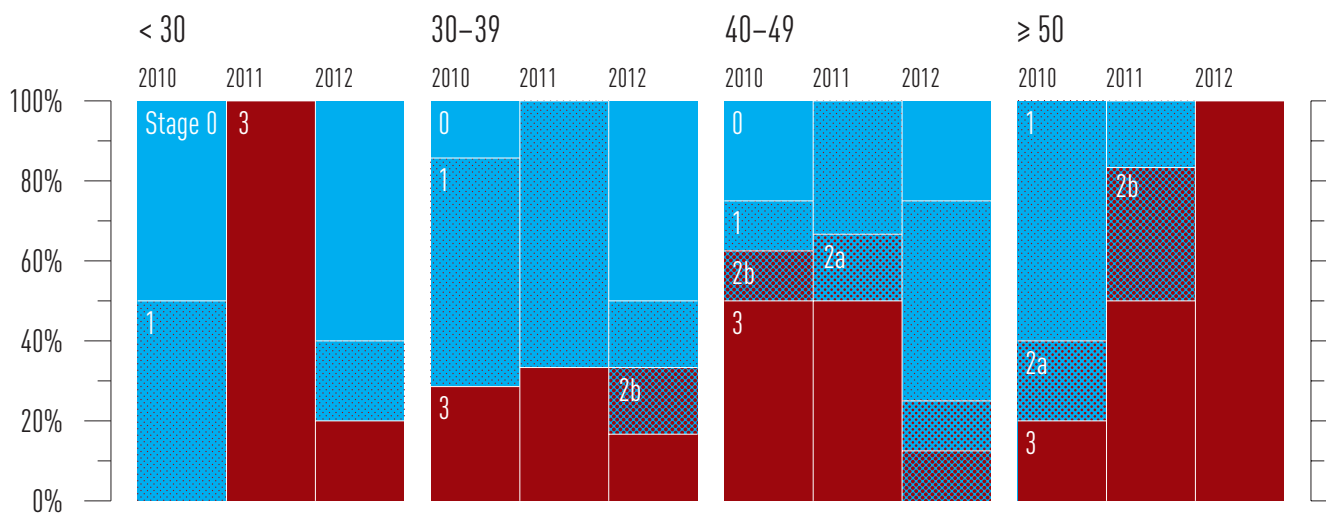
Figure 4.4 Stage of HIV Infection at Diagnosis by Exposure Category for Vancouver Island Health, 2010–2012 [5,6]
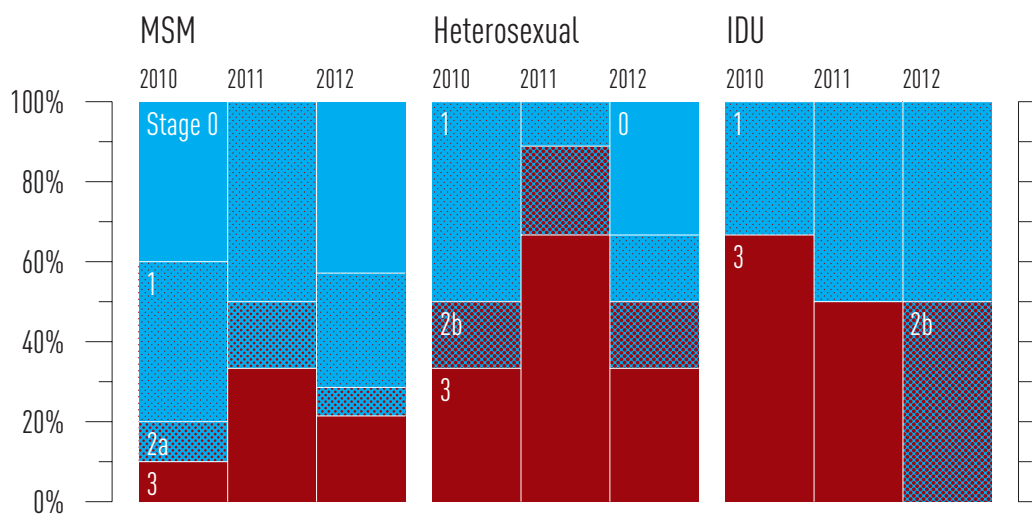
	< 30 years			30–39 years			40–49 years			≥ 50 years			MSM			HET			IDU			Other			NIR/Unknown		
	2010	2011	2012	2010	2011	2012	2010	2011	2012	2010	2011	2012	2010	2011	2012	2010	2011	2012	2010	2011	2012	2010	2011	2012	2010	2011	2012
Stage 0	1	0	3	1	0	3	2	0	2	0	0	0	4	0	6	0	0	2	0	0	0	0	0	0	0	0	0
Stage 1	1	0	1	4	2	1	1	2	4	3	1	0	4	3	4	3	1	1	2	1	1	0	0	0	0	0	0
Stage 2a	0	0	0	0	0	0	0	1	1	1	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0
Stage 2b	0	0	0	0	0	1	1	0	1	0	2	0	0	0	0	1	2	1	0	0	1	0	0	0	0	0	0
Stage 3	0	2	1	2	1	1	4	3	0	1	3	3	1	2	3	2	6	2	4	1	0	0	0	0	0	0	0
Unknown	2	0	1	4	1	1	5	2	0	0	1	2	3	2	2	4	0	0	3	1	1	1	1	1	0	0	0
Total (n=)	4	2	6	11	4	7	13	8	8	5	7	5	13	8	16	10	9	6	9	3	3	1	1	1	0	0	0

6   MSM=men who have sex with men; IDU= injection drug user; 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. 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 Island Health, Year Ending 2013 Q3 [7]
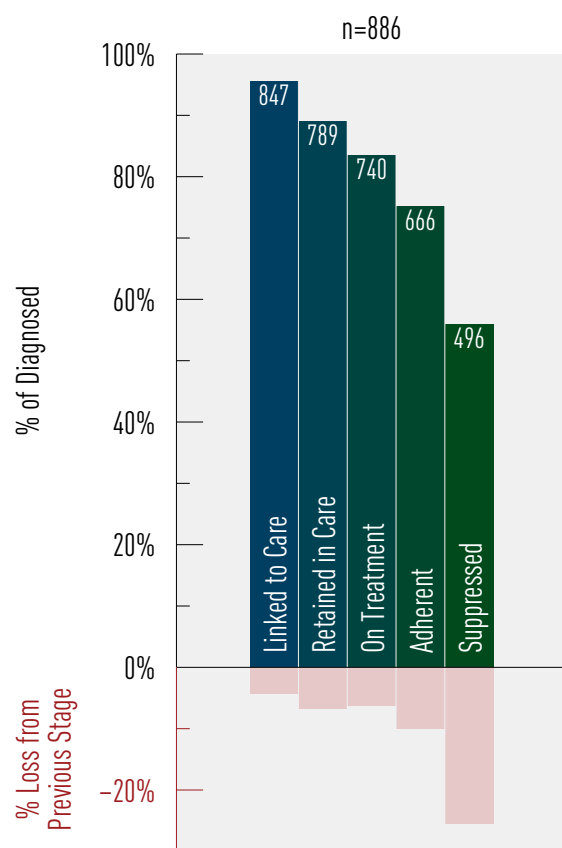
Figure 5.2   Estimated Cascade of Care for Island Health by Gender, Year Ending 2013 Q3 [8]
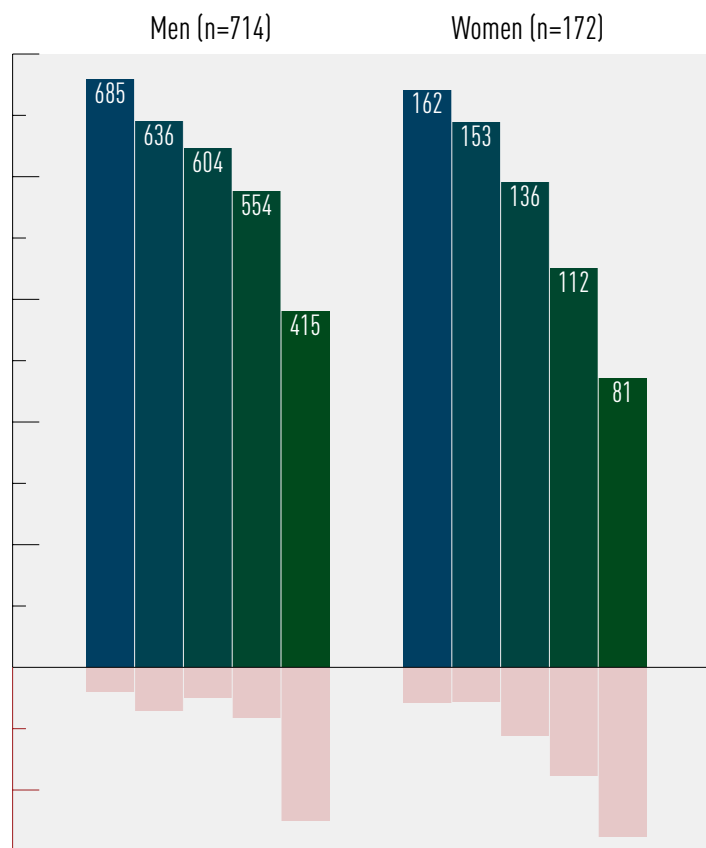
5,6   *Data is for the period 2012 Q3–2013 Q3.*
Data Sources:
1   *British Columbia Centre for Excellence Drug Treatment Program (DTP) Database (ARV use, VL and CD4 count).*
2   *Administrative data (ex. MSP billings; hospitalization data from the Discharge Abstract Database (DAD)).*

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.

7   *Data is for the period 2012 Q3–2013 Q3.*
     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.

MSM
n=198

Non-MSM
n=311

Unknown
n=377

% of Diagnosed

% Loss from Previous Stage

MSM: Linked to Care 195, Retained in Care 190, On Treatment 182, Adherent 165, Suppressed 130

Non-MSM: 305, 299, 277, 240, 169

Unknown: 347, 300, 281, 261, 197

8   *Data is for the period 2012 Q3–2013 Q3.*
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 Island Health by Age Category and MSM Status, Year Ending 2013 Q3 [11]
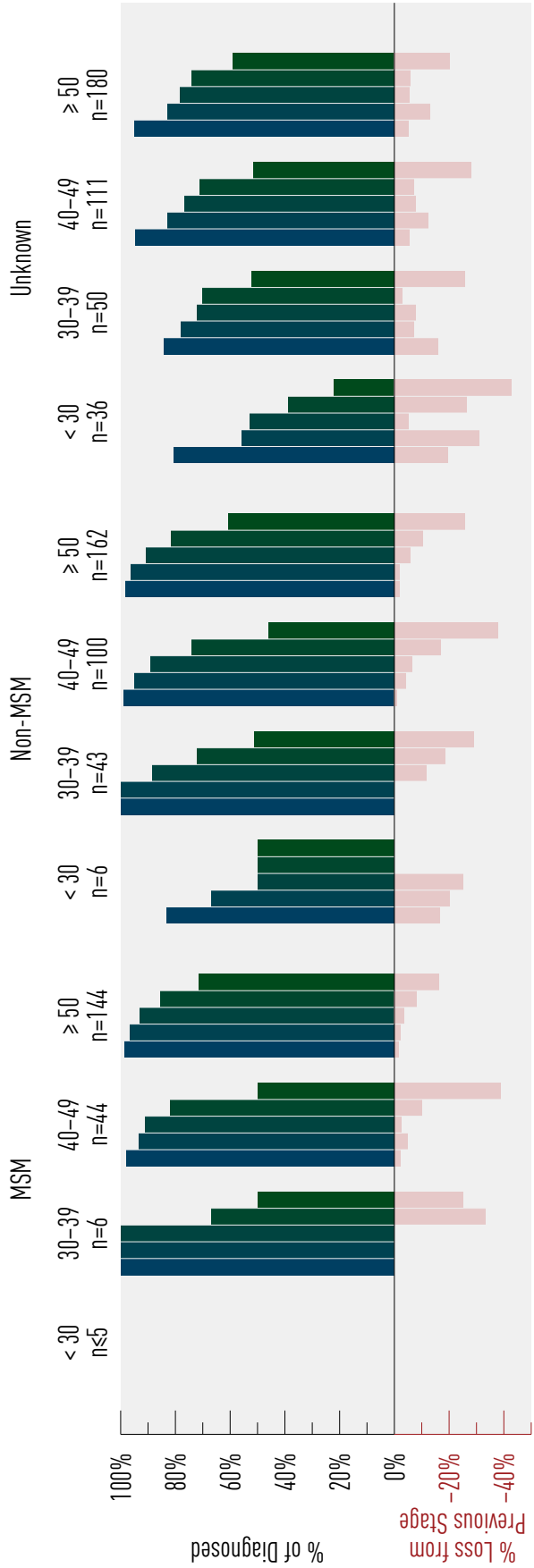
[9]   Data is for the period 2012 Q3–2013 Q3.

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.
Where n ≤ 5, data has been withheld for concerns of statistical significance as well as privacy.
Authorized parties may contact the British Columbia Centre for Excellence in HIV/AIDS to obtain this information.
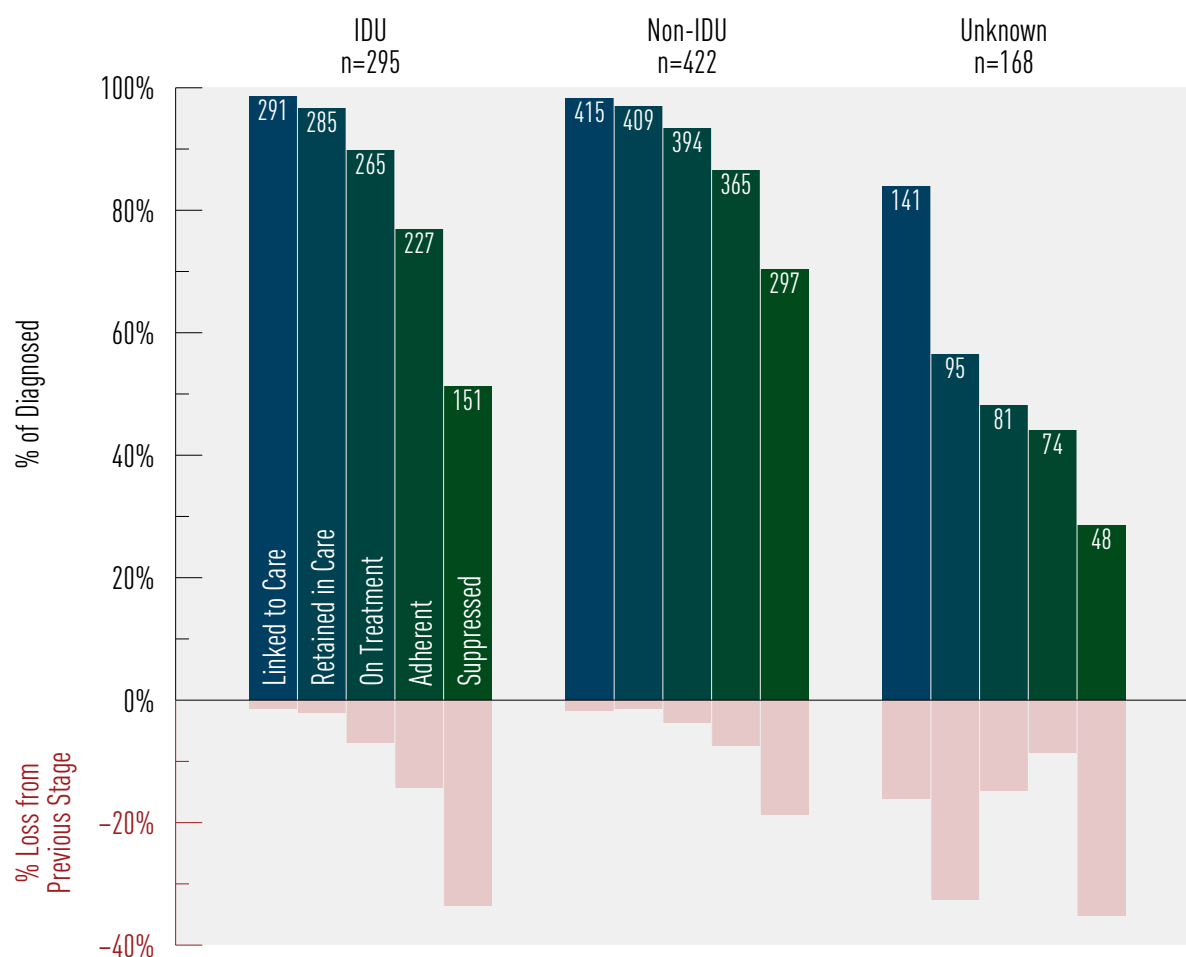
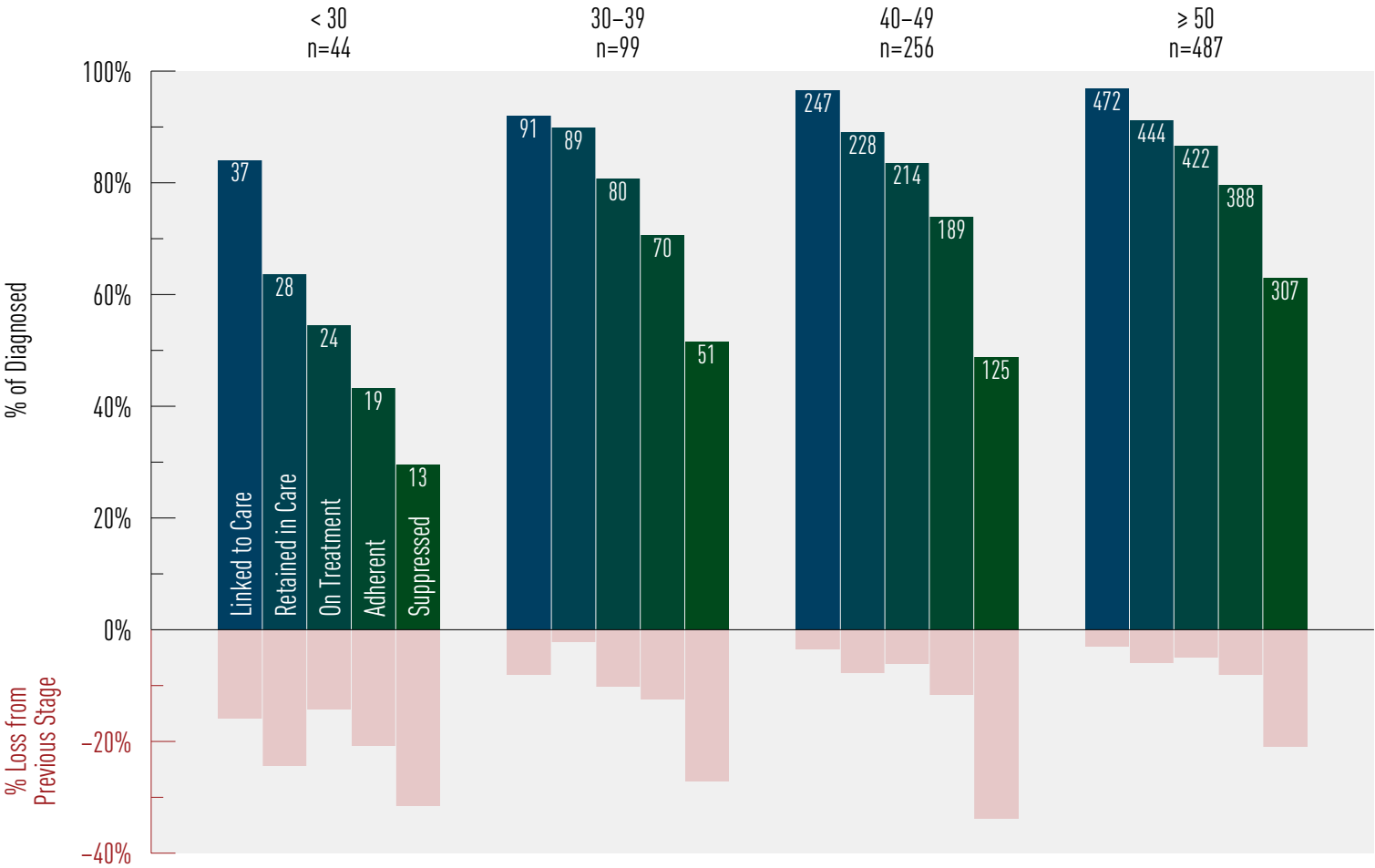10   *Data is for the period 2012 Q3–2013 Q3.*
      Data Sources:
      1   *British Columbia Centre for Excellence Drug Treatment Program (DTP) Database (ARV use, VL and CD4 count).*
      2   *Administrative data (ex. MSP billings; hospitalization data from the Discharge Abstract Database (DAD)).*

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 Island Health by HSDA, Year Ending 2013 Q3 [13]
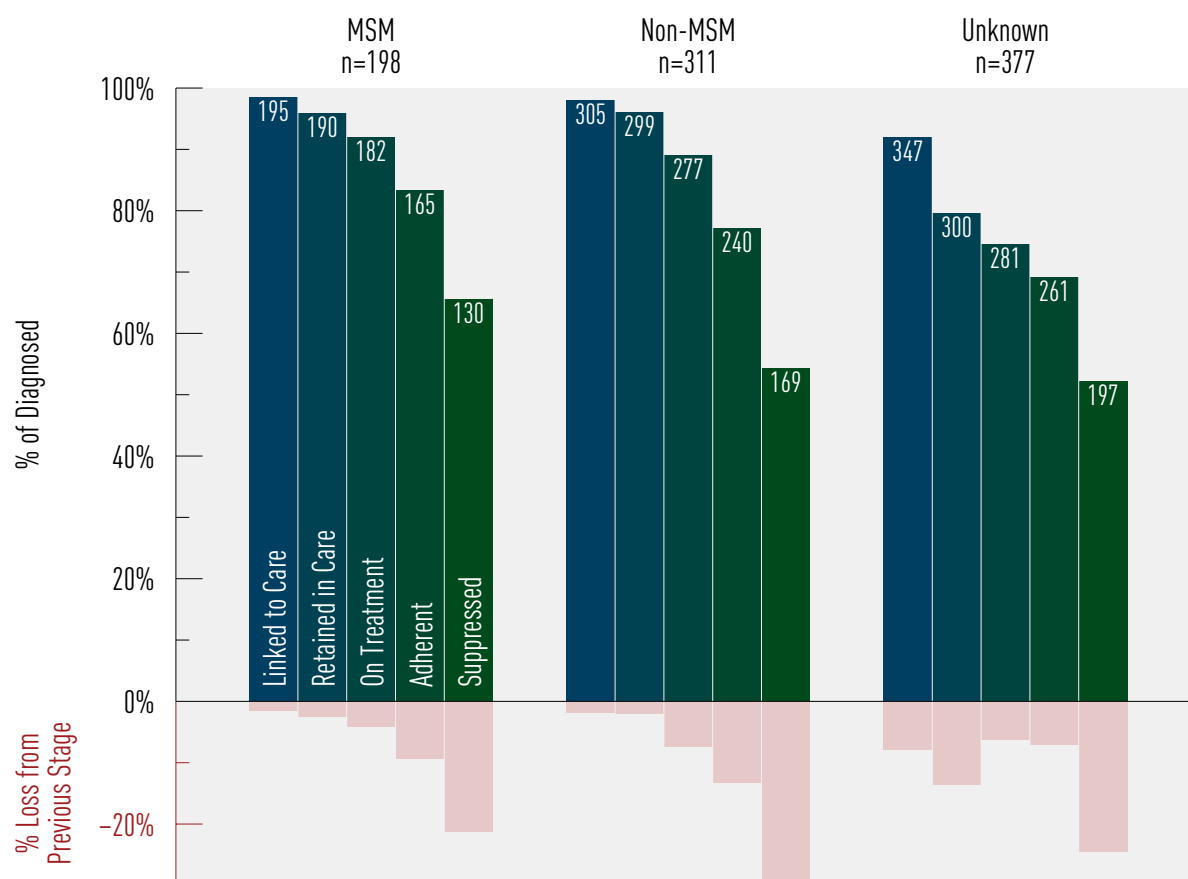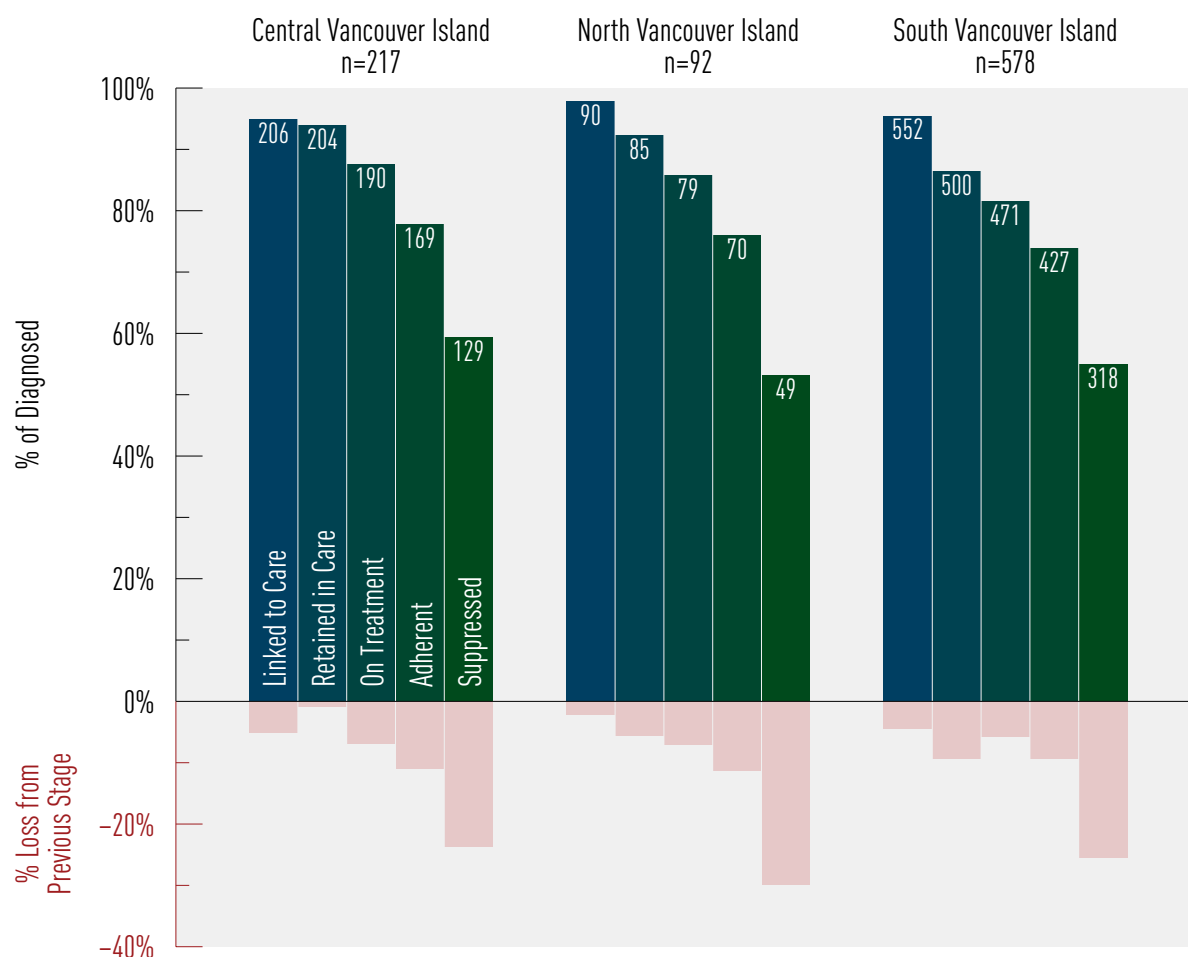
11   *Data is for the period 2012 Q3–2013 Q3.*
      Data Sources:
      1   British Columbia Centre for Excellence Drug Treatment Program (DTP) Database (ARV use, VL and CD4 count).
      2   Administrative data (ex. MSP billings; hospitalization data from the Discharge Abstract Database (DAD)).

      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 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)
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)

Figure 6.1   PCS Components for Vancouver Island Health, 2011 Q4–2013 Q3 [14]
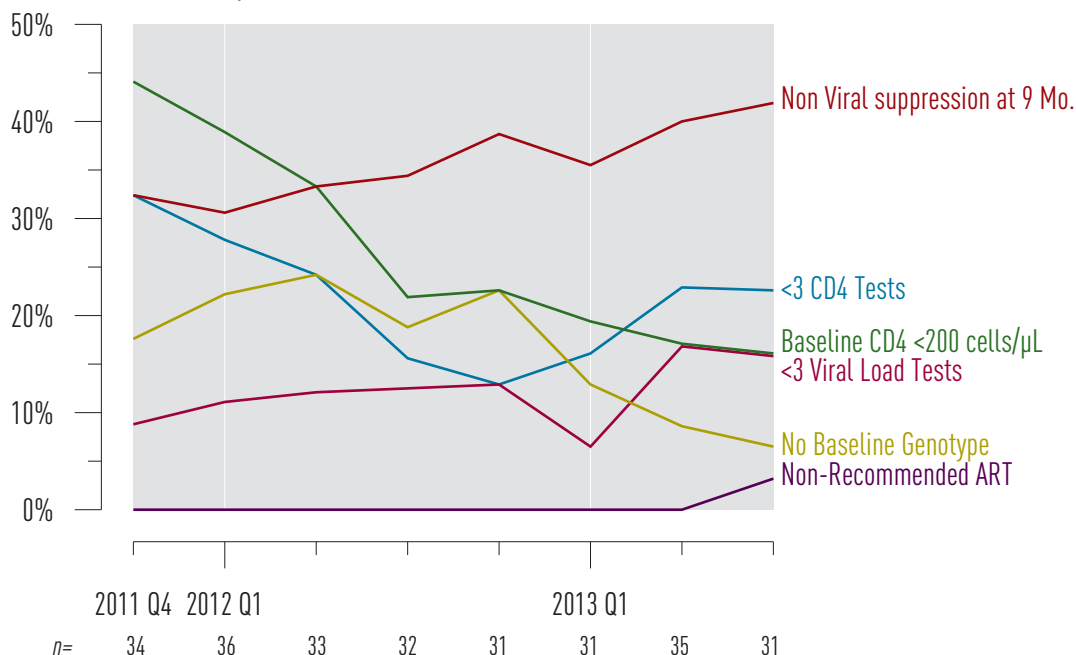
Figure 6.2   Historical Trends for PCS Score for
Vancouver Island Health, 2011 Q4–2013 Q3 [15]
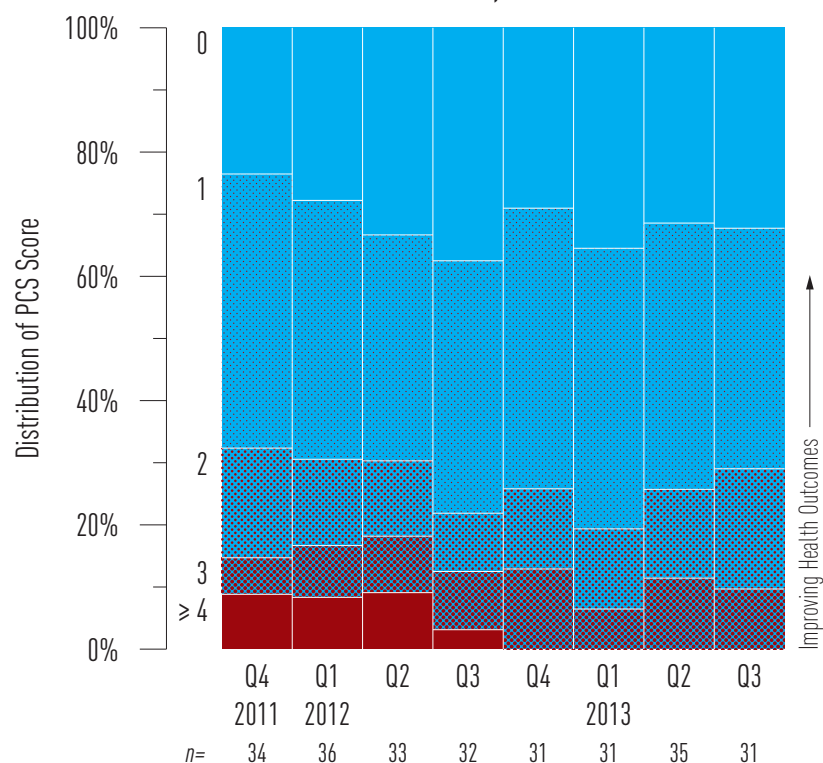

NB: A score of 0 is the best score and a score of 4 or more is the worst score.

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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 Vancouver Island Health

Figure 7   BC-CfE Drug Treatment Program Enrollment: New Antiretroviral Participants for Vancouver Island Health, 2011 Q4–2013 Q3 [16]

Indicator 8. CD4 Cell Count at ART Initiation

Figure 8   CD4 Cell Count at ART Initiation of ART-Naïve DTP Participants for Vancouver Island Health, 2011 Q4–2013 Q3 [17]

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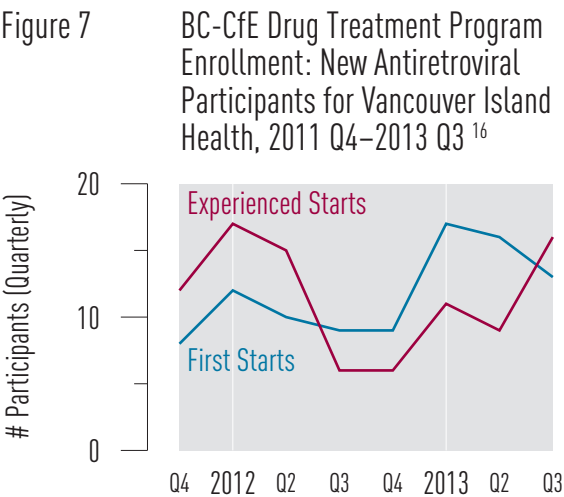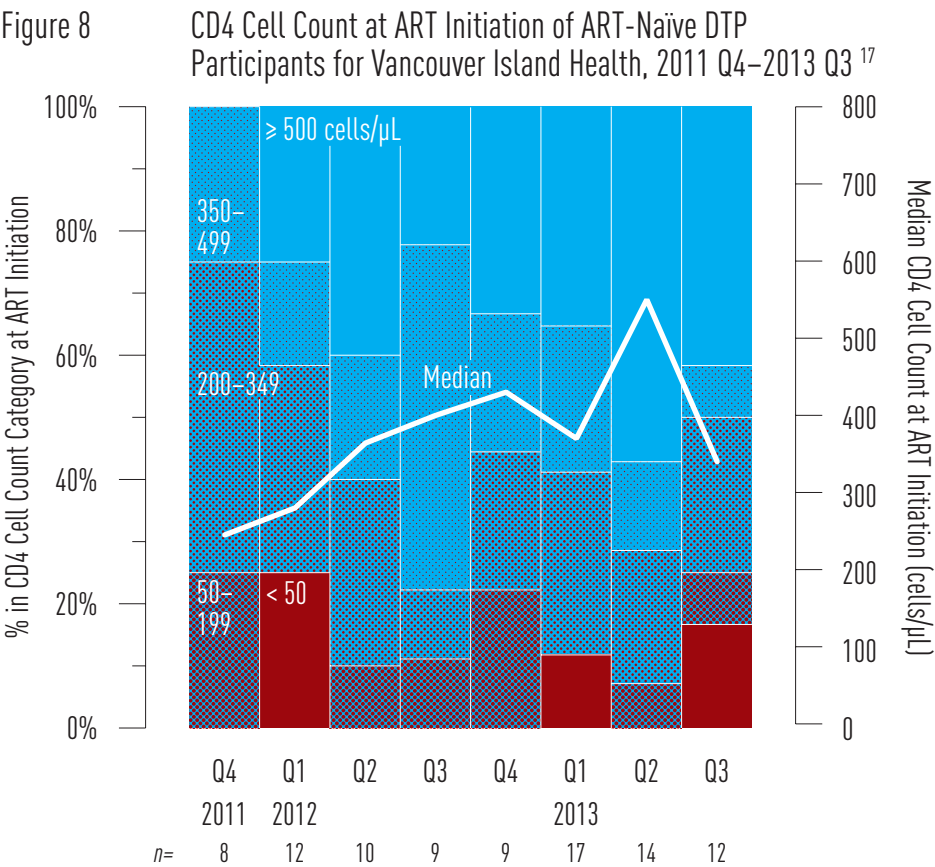
14   *Data Source: Drug Treatment Program Database*
      Limitation: DTP participants are designated to an HA based on most current residence provided by the participant.

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

Indicator 9. Active and Inactive DTP Participants

Table 3. Distribution of People on ART for Vancouver Island Health, 2013 Q3 [16]

Age	< 30	29
	30–39	96
	40–49	222
	≥ 50	410
Gender	Male	615
	Female	142
Exposure	MSM	180
	IDU	272
Total		757

Figure 9   Active and Inactive DTP Participants
for Vancouver Island Health, 2011 Q4–2013 Q3 [19]
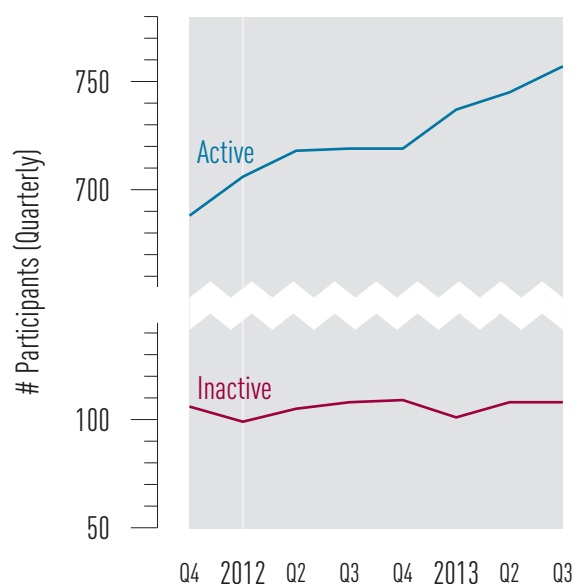
16   *Data Source: Drug Treatment Program Database*
Limitation: DTP participants are designated to an HA based on most current residence provided by the participant.

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 Vancouver Island Health, 2011 Q4–2013 Q3 [20]
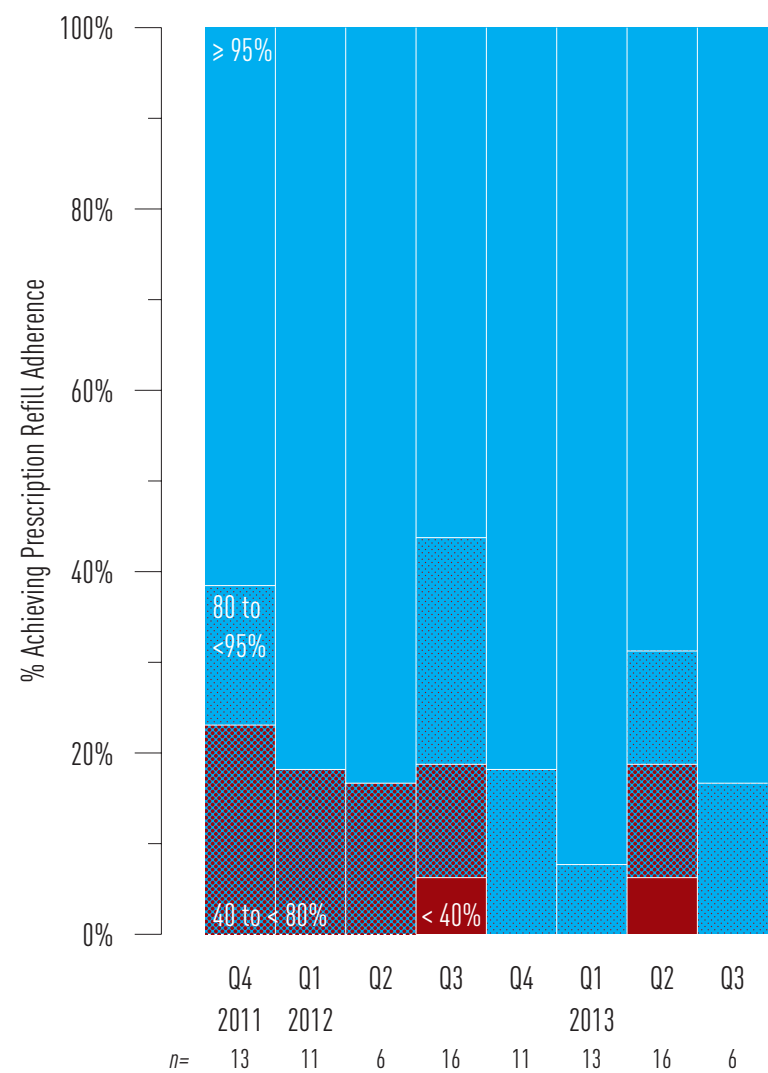
Indicator 11. Resistance Testing and Results

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 in Vancouver Island Health, 2011 Q4–2013 Q3 [21]
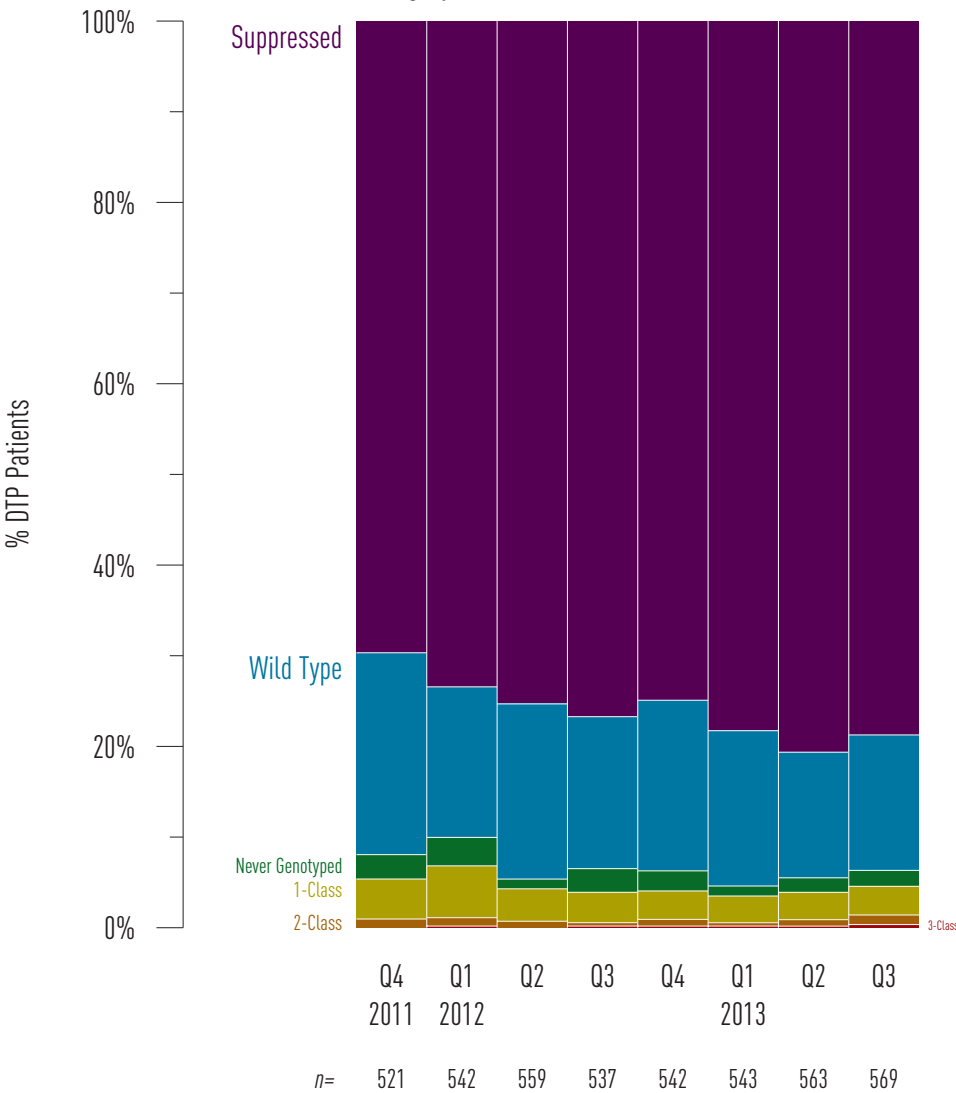
| n= | 521 | 542 | 559 | 537 | 542 | 543 | 563 | 569 |

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 Vancouver Island Health, 2005–2012 [22]

		2005	2006	2007	2008	2009	2010	2011	2012
CD4<200 at ART initiation	CASES	21	29	23	21	20	18	6	6
	PER 100K	2.9	4.0	3.1	2.8	2.7	2.4	0.8	0.8
AIDS: DTP Reports	CASES	20	28	21	13	20	17	23	6
	PER 100K	2.8	3.9	2.9	1.8	2.7	2.2	3.0	0.8
AIDS: BCCDC Reports	CASES	11	24	12	12	15	14	12	–
	PER 100K	1.5	3.3	1.6	1.6	2.0	1.8	1.6	–

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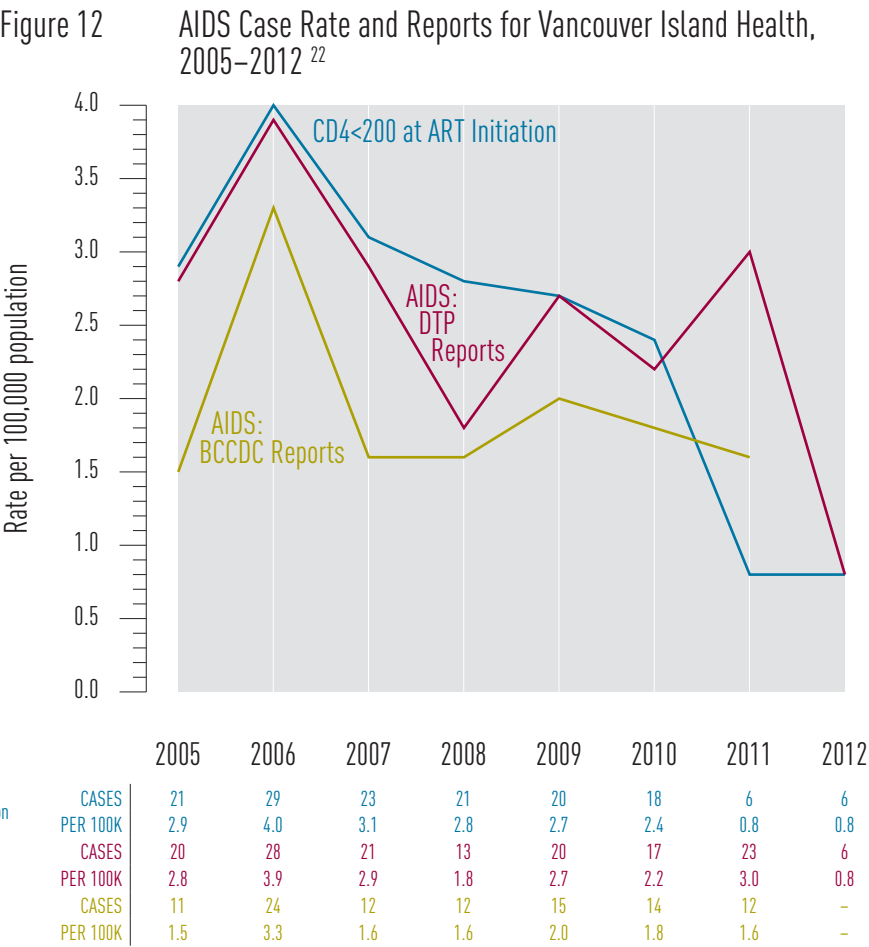
20   *Data Source: Drug Treatment Program Database*

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 Vancouver Island Health, 2004–2011 [20]

	2004	2005	2006	2007	2008	2009	2010	2011
HIV-Related Deaths	16	18	22	18	17	11	7	14
Per 100 HIV+ Population	2.25	2.49	2.98	2.40	2.29	1.47	0.92	1.84
Per 100,000 Population	1.42	1.57	1.89	1.52	1.40	0.89	0.55	1.09
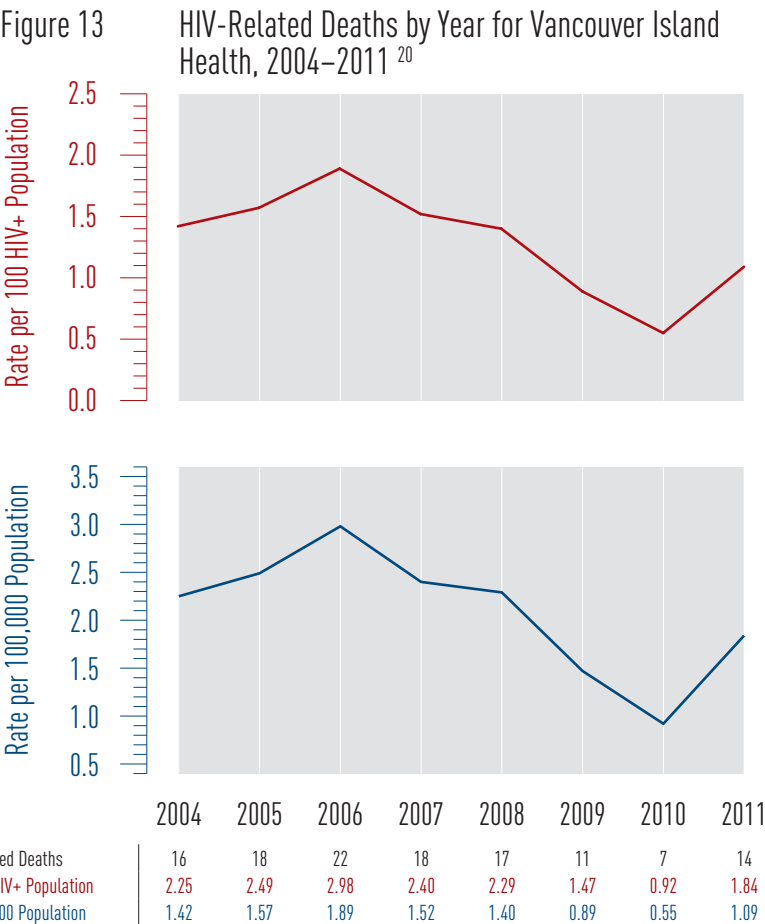
21   *Data Source: BC Vital Statistics*

   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.

Appendices

Indicator 1: Test Episodes (thousands)

		2009 Q1	Q2	Q3	Q4	2010 Q1	Q2	Q3	Q4	2011 Q1	Q2	Q3	Q4	2012 Q1	Q2	Q3	Q4	2013 Q1	Q2	Q3
Vancouver Island Health		6.2	5.1	5.2	4.7	5.6	5.3	5.3	5.3	5.8	5.0	5.3	5.1	5.8	5.3	5.5	5.6	5.9	6.2	6.0
Gender	Female	4.0	3.4	3.4	3.1	3.7	3.4	3.5	3.5	3.8	3.2	3.5	3.3	3.7	3.5	3.6	3.6	3.8	3.9	3.8
	Male	2.2	1.7	1.7	1.6	1.9	1.9	1.8	1.8	2.0	1.7	1.8	1.7	2.0	1.8	1.9	1.8	2.0	2.1	2.0
	Other	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Female (Prenatal)		1.7	1.5	1.6	1.5	1.7	1.5	1.6	1.6	1.9	1.5	1.7	1.6	1.8	1.6	1.6	1.6	1.7	1.6	1.6
Female (Non-prenatal)		2.2	1.9	1.8	1.6	2.0	1.8	1.8	1.8	1.9	1.7	1.8	1.7	1.9	1.8	1.9	2.0	2.1	2.2	2.1
Age	< 30	2.6	2.3	2.4	2.2	2.5	2.3	2.3	2.5	2.5	2.1	2.3	2.2	2.4	2.1	2.3	2.3	2.4	2.3	2.3
	30–39	1.9	1.6	1.6	1.4	1.8	1.6	1.6	1.6	1.9	1.5	1.7	1.6	1.9	1.7	1.7	1.8	1.9	1.9	1.9
	40–49	0.8	0.6	0.7	0.6	0.7	0.7	0.7	0.6	0.7	0.7	0.6	0.6	0.7	0.7	0.7	0.7	0.7	0.7	0.7
	≥ 50	0.9	0.6	0.5	0.5	0.6	0.7	0.6	0.6	0.7	0.6	0.6	0.6	0.8	0.7	0.7	0.8	0.9	1.0	0.9
POC HIV Tests (number not in thousands)									22	21	17	42	12	24	41	90	164	135	200	194
Central Vancouver Isl.		1.6	1.5	1.6	1.4	1.7	1.5	1.6	1.5	1.8	1.6	1.6	1.6	1.7	1.5	1.7	1.6	1.9	1.9	1.8
South Vancouver Island		3.9	3.0	3.0	2.8	3.2	3.1	3.0	3.1	3.3	2.9	3.2	3.0	3.4	3.2	3.4	3.5	3.5	3.8	3.6
North Vancouver Island		0.7	0.6	0.6	0.5	0.7	0.6	0.6	0.7	0.7	0.5	0.5	0.4	0.6	0.5	0.5	0.5	0.5	0.5	0.5

Indicator 2: Rate of HIV Testing per 100,000

		2009	2010	2011	2012
Vancouver Island Health		2720.4	2702.2	2659.9	2769.6
Central Vancouver Island		2474.5	2518.5	2516.7	2500.7
South Vancouver Island		3087.3	3001.4	2993.3	3257.5
North Vancouver Island		2134.2	2183.4	1944.2	1858.7
Gender	Female	3471.8	3428.8	3382.7	3528.8
	Male	1913.3	1928.9	1895.8	1967.7
Age	< 30	3695.0	3663.0	3520.5	3558.4
	30–39	7309.1	7349.7	7500.6	7739.6
	40–49	2376.7	2415.7	2383.5	2529.3
	≥ 50	829.4	813.4	824.7	948.3

Indicator 3: New HIV Diagnoses

		2009 Q1	Q2	Q3	Q4	2010 Q1	Q2	Q3	Q4	2011 Q1	Q2	Q3	Q4	2012 Q1	Q2	Q3	Q4	2013 Q1	Q2	Q3
Vancouver Island Health	By Client Residence	9	9	7	14	6	13	8	6	5	2	7	7	6	3	5	12	4	10	12
	By Provider Address	*11*	*9*	*7*	*14*	*6*	*12*	*8*	*5*	*5*	*3*	*6*	*6*	*3*	*3*	*5*	*12*	*5*	*10*	*12*
Gender	Female	1	2	1	4	1	3	1	2	1	0	3	1	2	0	0	0	1	1	4
	Male	8	7	6	10	5	10	7	4	4	2	4	6	4	3	5	12	3	9	8
Age	< 30	3	4	1	6	1	2	1	0	1	0	0	1	2	2	1	2	1	2	2
	30–39	1	1	1	2	1	5	3	2	1	1	1	1	2	1	1	2	1	2	3
	40–49	2	3	3	4	3	6	0	4	3	1	3	1	2	0	1	5	1	1	5
	≥ 50	3	1	2	2	1	0	4	0	0	0	3	4	0	0	2	3	1	5	2
Exposure	MSM	6	4	2	4	2	6	4	1	3	1	3	1	2	2	4	8	2	–	–
	IDU	1	3	1	5	1	4	2	2	1	0	2	0	2	0	0	1	0	–	–
	HET	1	1	2	4	3	2	2	3	1	1	2	5	2	0	1	3	1	–	–
	Other	0	0	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	–	–
	NIR	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	–	–
Central Vancouver Island	By Client Residence	2	2	1	3	1	5	2	0	1	0	1	3	2	1	1	4	2	3	5
	By Provider Address	*3*	*0*	*0*	*2*	*1*	*3*	*2*	*0*	*1*	*0*	*0*	*3*	*1*	*1*	*1*	*4*	*2*	*3*	*5*
South Vancouver Island	By Client Residence	7	6	6	11	5	7	5	4	4	2	6	2	3	2	3	6	2	5	7
	By Provider Address	*8*	*9*	*7*	*12*	*5*	*7*	*5*	*5*	*4*	*3*	*6*	*1*	*2*	*2*	*3*	*6*	*3*	*5*	*7*
North Vancouver Island	By Client Residence	0	1	0	0	0	1	1	2	0	0	0	2	1	0	1	2	0	2	0
	By Provider Address	*0*	*0*	*0*	*0*	*0*	*2*	*1*	*0*	*0*	*0*	*0*	*2*	*0*	*0*	*1*	*2*	*0*	*2*	*0*

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

	VIH 2010	2011	2012	Female 2010	2011	2012	Male 2010	2011	2012	< 30 years 2010	2011	2012	30–39 years 2010	2011	2012	40–49 years 2010	2011	2012
Stage 0	4	0	8	0	0	1	4	0	7	1	0	3	1	0	3	2	0	2
Stage 1	9	5	6	2	0	1	7	5	5	1	0	1	4	2	1	1	2	4
Stage 2a	1	1	1	0	0	0	1	1	1	0	0	0	0	0	0	0	1	1
Stage 2b	1	2	2	1	0	0	0	2	2	0	0	0	0	0	1	1	0	1
Stage 3	7	9	5	2	4	0	5	5	5	0	2	1	2	1	1	4	3	0
Unknown	11	4	4	2	1	0	9	3	4	2	0	1	4	1	1	5	2	0
Total	33	21	26	7	5	2	26	16	24	4	2	6	11	4	7	13	8	8

	≥ 50 years 2010	2011	2012	MSM 2010	2011	2012	Heterosexual 2010	2011	2012	IDU 2010	2011	2012	Other Exposure 2010	2011	2012	NIR/Unknown 2010	2011	2012
Stage 0	0	0	0	4	0	6	0	0	2	0	0	0	0	0	0	0	0	0
Stage 1	3	1	0	4	3	4	3	1	1	2	1	1	0	0	0	0	0	0
Stage 2a	1	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0
Stage 2b	0	2	0	0	0	0	1	2	1	0	0	1	0	0	0	0	0	0
Stage 3	1	3	3	1	2	3	2	6	2	4	1	0	0	0	0	0	0	0
Unknown	0	1	2	3	2	2	4	0	0	3	1	1	1	1	1	0	0	0
Total	5	7	5	13	8	16	10	9	6	9	3	3	1	1	1	0	0	0

Indicator 5: **HIV Cascade of Care**

			DIAGNOSED	LINKED	RETAINED	ON ART	ADHERENT	SUPPRESSED
Vancouver Island Health			886	847	789	740	666	496
Age Category	< 30		44	37	28	24	19	13
	30–39		99	91	89	80	70	51
	40–49		256	247	228	214	189	125
	≥ 50		487	472	444	422	388	307
Age Category and MSM Status	MSM	< 30	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5
		30–39	6	6	6	6	4	3
		40–49	44	43	41	40	36	22
		≥ 50	144	142	139	134	123	103
	Non-MSM	< 30	6	5	4	3	3	3
		30–39	43	43	43	38	31	22
		40–49	100	99	95	89	74	46
		≥ 50	162	159	156	147	132	98
	Unknown	< 30	36	29	20	19	14	8
		30–39	50	42	39	36	35	26
		40–49	111	105	92	85	79	57
		≥ 50	180	171	149	141	133	106
Gender	Male		714	685	636	604	554	415
	Female		172	162	153	136	112	81
Injection Drug Use	IDU		295	291	285	265	227	151
	Non-IDU		422	415	409	394	365	297
	Unknown		168	141	95	81	74	48
MSM Status	MSM		198	195	190	182	165	130
	Non-MSM		311	305	299	277	240	169
	Unknown		377	347	300	281	261	197
Health Authority	Central Vancouver Island		217	206	204	190	169	129
	North Vancouver Island		92	90	85	79	70	49
	South Vancouver Island		578	552	500	471	427	318

Indicator 6: **Programmatic Compliance Score (PCS)**

	2011 Q4	2012 Q1	Q2	Q3	Q4	2013 Q1	Q2	Q3
< 3 CD4 Tests	32.4%	27.8%	24.2%	15.6%	12.9%	16.1%	22.9%	22.6%
< 3 Viral Load Tests	8.8%	11.1%	12.1%	12.5%	12.9%	6.5%	17.1%	16.1%
No Baseline Genotype	17.6%	22.2%	24.2%	18.8%	22.6%	12.9%	8.6%	6.5%
Baseline CD4 < 200 cells/μL	44.1%	38.9%	33.3%	21.9%	22.6%	19.4%	17.1%	16.1%
Non-Recommended ART	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.2%
Non Viral suppression at 9 Mo.	32.4%	30.6%	33.3%	34.4%	38.7%	35.5%	40.0%	41.9%
PCS Score: 0	8	10	11	12	9	11	11	10
PCS Score: 1	15	15	12	13	14	14	15	12
PCS Score: 2	6	5	4	3	4	4	5	6
PCS Score: 3	2	3	3	3	4	2	4	3
PCS Score: 4 or more	3	3	3	1	0	0	0	0
Total (n=)	**34**	**36**	**33**	**32**	**31**	**31**	**35**	**31**

Indicator 7: **New DTP ARV Participants**

	2011 Q4	2012 Q1	Q2	Q3	Q4	2013 Q1	Q2	Q3
First Starts	8	12	10	9	9	17	16	13
Experienced Starts	12	17	15	6	6	11	9	15

Indicator 8: **CD4 Cell Count at ART Initiation for ARV-Naïve DTP Participants**

CD4 ≥ 500	0	3	4	2	3	6	8	5
CD4 350–499	2	2	2	5	2	4	2	1
CD4 200–349	4	4	3	1	2	5	3	3
CD4 50–199	2	0	1	1	2	0	1	1
CD4 < 50	0	3	0	0	0	2	0	2
CD4 Median (cells/μL)	*245*	*280*	*364*	*400*	*430*	*370*	*550*	*340*
Total (n=)	**8**	**12**	**10**	**9**	**9**	**17**	**14**	**12**

Indicator 9: **Active and Inactive DTP Participants**

Active DTP Participants	688	706	717	719	719	736	744	756
Inactive DTP Participants	118	112	115	118	119	110	117	118

Indicator 10: **Antiretroviral Adherence**

≥ 95%	8	9	5	9	9	12	11	5
80% to < 95%	2	0	0	4	2	1	2	1
40% to < 80%	3	2	1	2	0	0	2	0
< 40%	0	0	0	1	0	0	1	0
Total (n=)	**13**	**11**	**6**	**16**	**11**	**13**	**16**	**6**

Indicator 11: **Resistance Testing and Results**

Suppressed	363	398	421	412	406	425	454	448
Wild Type	116	90	108	90	102	93	78	85
Never Genotyped	14	17	6	14	12	6	9	10
1-Class	23	31	20	18	17	16	17	18
2-Class	5	5	4	2	4	2	4	6
3-Class	0	1	0	1	1	1	1	2
Total (n=)	**521**	**542**	**559**	**537**	**542**	**543**	**563**	**569**

Indicator 12: **AIDS-Defining Illness**

		2005	2006	2007	2008	2009	2010	2011	2012
CD4 < 200 at	Cases	21	29	23	21	20	18	6	6
ART initiation	*Rate per 100,000*	*2.9*	*4.0*	*3.1*	*2.8*	*2.7*	*2.4*	*0.8*	*0.8*
AIDS Cases	Cases	20	28	21	13	20	17	23	6
(DTP Reports)	*Rate per 100,000*	*2.8*	*3.9*	*2.9*	*1.8*	*2.7*	*2.2*	*3.0*	*0.8*
AIDS Cases	Cases	11	24	12	12	15	14	12	–
(BCCDC Reports)	*Rate per 100,000*	*1.5*	*3.3*	*1.6*	*1.6*	*2.0*	*1.8*	*1.6*	–

Indicator 13: **HIV-Related Mortality**

	2004	2005	2006	2007	2008	2009	2010	2011
Vancouver Island Health	16	18	22	18	17	11	7	14
Per 100 HIV+ Population	2.25	2.49	2.98	2.40	2.29	1.47	0.92	1.84
Per 100,000 Population	1.42	1.57	1.89	1.52	1.40	0.89	0.55	1.09