STOP HIV/AIDS Semi-Annual Monitoring Report

S2 (July 1, 2013 – December 31, 2013)

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Foreword

The Seek and Treat for Optimal Prevention (STOP) of HIV/AIDS Project was a 3 year pilot (Feb 2010 – Mar 2013) funded by the British Columbia Ministry of Health to expand HIV testing, treatment and support with the goal of reducing HIV transmission in British Columbia. The pilot project was implemented in Vancouver and Prince George. Funding was provided to Vancouver Coastal Health (VCH), Providence Health Care (PHC), Northern Health (NH), the Provincial Health Services Authority (PHSA), and the British Columbia Centre for Excellence in HIV/AIDS (BCCfE). The pilot project was successfully implemented in Vancouver over the 3 year pilot period and achieved the project goals to:

- Reduce the number of new HIV/AIDS diagnoses in Vancouver (in the long term).
- Reduce the impact of HIV/AIDS through effective screening and early detection.
- Ensure timely access to high quality and safe HIV/AIDS care and treatment.
- Improve the patient experience in every step of the HIV/AIDS journey.
- Demonstrate system and cost optimization.

Following the successful implementation as a pilot project, the B.C. government announced a provincial roll out of the initiative from April 1, 2013.

The provincial project goals are to:

- Reduce the number of new HIV infections in B.C.
- Improve the quality, effectiveness, and reach of HIV prevention services.
- Increase early diagnosis of HIV.
- Reduce AIDS cases and HIV-related mortality.

Provincial level monitoring and evaluation is being conducted by the BCCfE using provincial testing data from the BC Centre for Disease Control (BCCDC) and provincial treatment data from the provincial drug treatment program at the BCCfE. Quarterly population level indicator reports are produced by the BCCDC and BCCfE for monitoring and evaluation purposes.

During the pilot, the Vancouver STOP HIV/AIDS Project *Quarterly Monitoring Report* was developed to enable VCH and PHC (Vancouver STOP partners) to report on overall changes in the project's targeted activities and display results at a population level within Vancouver Health Service Delivery Area (HSDA) and across VCH. This report provided important information to support timely and informed decision regarding project implementation, resource allocation and post-project sustainability planning.

With the expansion, we will continue to monitor the key indicators across VCH. The *Semi-Annual Monitoring Report* will provide the output to support informed decision making, and inform internal and external stakeholder groups about the VCH STOP project's impacts.

Please note the data sources used for this report are of a dynamic nature, and are subject to change on a frequent basis. Definitions of some indicators are also subject to change in order to meet the evaluation needs of the regional stakeholders. Please refer to Appendix A and consult the most recent report for the most up to date definitions. If you have any comments and queries, please forward them to Tim Chu (tim.chu@vch.ca) or Ellen Demlow (ellen.demlow@vch.ca).

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- BC Centre for Excellence in HIV/AIDS - Benita Yip & William Chau, Analysts and Dr. Kate Heath, Epidemiologist
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- Vancouver Coastal Health Communicable Disease Control - Margot Smythe, Communicable Disease Nurse Coordinator; Laura Zerr, HIV Communicable Disease Control Nurse & the Communicable Disease Control Nurses
- Vancouver Coastal Health Hope to Health Project Team

Table of Abbreviations

AIDS	Acquired Immune Deficiency Syndrome
ARVs	Antiretroviral therapy (can also be abbreviated as ART)
BC	British Columbia
BCCfE	British Columbia Centre for Excellence in HIV/AIDS
C +/-	An increase or decrease in a particular indicator for current time period compared to previous half-year
CD4	Cluster of differentiation 4, is a marker to identify a type of human T helper cell
DTES	Downtown Eastside, Vancouver
H +/-	An increase or decrease in a particular indicator for current time period compared to the historical time period (January 2008 – June 2010)
HIV	Human Immunodeficiency Virus
HSDA	Health Service Delivery Area
IDU	Injecting Drug Use
LHA	Local Health Area
mL	Milliliter
MSM	Men who have sex with men
POC	Point of Care HIV Test
PHSU	Public Health Surveillance Unit
S +/-	An increase or decrease in a particular indicator for current time period compared to STOP period
STOP	HIV/AIDS Seek and Treat for Optimal Prevention of HIV/AIDS
VCH	Vancouver Coastal Health (Authority)
vL	Viral Load
Y +/-	An increase or decrease, for a particular indicator, in current year-to-date values compared to the previous year-to-date
Q1	Quarter 1 in the calendar year
Q2	Quarter 2 in the calendar year
Q3	Quarter 3 in the calendar year
Q4	Quarter 4 in the calendar year
S1	The first half of the calendar year
S2	The second half of the calendar year

Cautions/Interpretations

- **The data sources used for this report are of a dynamic nature, and subject to change on a frequent basis. The results reported herein are current as of March 18, 2014.**
- **A number of indicators are susceptible to the longitudinal dynamic nature of the data used for this report, and therefore their values reported for the current time period are expected to change in the next reporting period. For this reason, significant differences should be interpreted with this in mind.**
- **Through individual-level data linkage this report is able to describe select measures at the population-level for a specific dataset of linked individuals with nearly complete information. Extrapolation of these results to the entire population receiving treatment within VCH, should take this into consideration. For this reason, absolute numbers in particular should be interpreted with caution.**
- **Since the changes from Quarterly Report to Semi-Annual Report, definitions on several indicators have been changed or modified. Moreover, several indicator numbers also changed to meet the new structure of the Report. Please check the definitions in the Appendix A. The following indicators have definition changes: VCH45a, VCH45b, VCH16, VCH17, VCH17a, VCH19, VCH24, VCH23a, VCH23b, VCH23c, VCH46a, VCH49, VCH52, VCH54.**
- **In this report, the proportion will not be reported if the denominator is less than 5.**

Note: Please always refer to the most recent report.

Section 1. Population Monitoring Report Overview

Population Level Monitoring Indicators
S2, 2013 (July 1 to December 31, 2013)

VCH Semi-Annual Monitoring Report Overview

The VCH STOP Evaluation Task Group approved a complete set of monitoring indicators in April 2011, to be monitored over the course of STOP. In general these indicators report data from across the HIV patient journey, but more specifically they evaluate important components of the core testing, public health management and treatment objectives of the STOP HIV/AIDS pilot project. A rationale and definition of each indicator is provided in Appendix A.

The VCH Monitoring Report presents both a summary table and a series of associated figures, maps and tables.

Summary Table

The summary table reports on the approved monitoring indicators, and is organized by testing, public health management and treatment phase of the patient journey. This table presents data from the current half-year for each indicator, and compares them to data from the preceding three half-year periods, the entire STOP HIV/AIDS pilot project period (July 1, 2010 to current), and to a historical baseline period (January 1, 2008 – June 30, 2010). The table also reports on:

- Counts (or proportions) for the current year to date, and
- Counts (or proportions) for the same time period in the previous year.

Significant differences compared to the preceding half-year (C+/-), the STOP HIV/AIDS period (S+/-), historical baseline period (H+/-), and year-to-date (Y+/-) and are noted in the far right column. Where possible, statistically significant differences ($p<0.05$) are determined; however, for some indicators significant differences are determined to be values with an increase or decrease of 10%.

Additional Figures, Maps and Tables

Graphs, maps and tables, are prepared to examine the data across different sociodemographic and clinical stratifications. Such graphs are not prepared for every indicator, but rather for a selection with important trends during the current half-year.

Data Sources

The data sources collected and compiled for this report, are described in Appendix B. Individual HIV public health surveillance records were linked using deterministic methods to the BCCfE clinical monitoring and drug treatment program data, creating a unique longitudinal dataset of the HIV continuum within VCH. Of all known HIV diagnoses reported in Vancouver since May 2003, 89% were linked to clinical monitoring and drug treatment records. The remaining 11% are diagnoses who participated in non-nominal testing and are therefore unable to be linked, but may still be engaged in care. Those individuals from the BC CfE database who did not link to HIV surveillance records were primarily (88%) diagnosed before May 2003, the remaining 12% are likely the population of non-nominal testers. Comparative analyses of unlinked individuals to the linked population verify that the linked dataset is representative of the greater population of all

known HIV positive individuals across VCH on a number of sociodemographic, clinical and epidemiological characteristics. For more detailed information please refer to the Q1 2012 report (http://www.vch.ca/media/Q1 20_012-Monitoring-Report_STOP-HIV-AIDS.pdf).

Summary Table Results
S2 (July 1 – December 31, 2013)

Testing Indicators

- The number of POC tests and new HIV positives from POC test sites engaged in STOP HIV/AIDS initiatives decreased compared to the preceding periods, the average since STOP and year-to-date [VCH1, VCH4a].
- Overall HIV lab testing volumes from VCH residents, or those who tested in VCH, continued to increase over the course of the STOP HIV/AIDS project. In S2 2013, volumes increased more than 30% compared to the average since STOP, and were 85% higher than the historical baseline [VCH8a]. Compared to 2012, there were 30,787 more HIV tests in 2013.
- HIV lab test volumes from clinics in VCH and across all VCH HSDAs also continued to increase compared to the average since STOP and in comparison to the historical baseline [VCH8b]. Compared to the historical average, Vancouver HSDA had the highest increase (102%), followed by Richmond (61%), Coastal Rural (45%) and Coastal Urban (33%).
- HIV lab tests among residents of Vancouver HSDA [VCH11a] declined slightly in comparison with the first half year of 2013 although remained high relative to the average since STOP, the historical baseline and year-to date. Tests among residents of Richmond, Coastal Urban, and Coastal Rural continued to increase in comparison to the preceding periods as well to the average since STOP, the historical baseline and year-to-date. Compared to the historical average, Vancouver HSDA had the highest increase (115%), followed by Richmond (79%), Coastal Rural (57%) and Coastal Urban (45%).
- HIV lab tests from non-VCH residents who tested in VCH [VCH11d] decreased compared to the preceding periods although remains significantly higher compared to the historical baseline.
- The number of newly reported HIV positives from VCH significantly decreased in comparison to the preceding period [VCH13a], the average since STOP and the historical baseline. The number of new cases in the second half of 2013 was similar to that in the same period of 2012; Ninety-two percent of cases were reported from Vancouver residents.
- The percent positivity of HIV testing [VCH14a] continued to decline in Vancouver HSDA. It declined by approximately 40% for Vancouver residents compared to the average since STOP and 66% compared to the historical baseline. This change may be attributed to the broader testing strategy that is generating a greater number of HIV tests in lower risk settings as well as the sustained increase in overall testing volumes. Due to a small number of positives in Richmond, Coastal Urban and Coastal Rural, the percent positivity is likely to fluctuate.
- The proportion of new HIV positive cases diagnosed with a CD4 count >= 500 cells/mm^3 or at acute stage disease [VCH45a] increased in Vancouver HSDA, and Rest of VCH compared to the two preceding periods, the average since STOP and the historical baseline. However, the changes were not statistically significant.
- The proportion of new HIV positive cases diagnosed with a CD4 count < 200 cell/mm^3 [VCH45b] remained stable in Vancouver HSDA when compared to the preceding period, the average since STOP, the historical baseline and year-to-date. The proportion of cases reported in the rest of VCH (except Vancouver), with a CD4 count <200 cell/mm^3 should be interpreted with caution due to small case numbers.

Public Health Management Indicators

These indicators were established to measure public health management activities augmented for STOP HIV/AIDS. Data are collected by public health practitioners using a contact tracing form developed for this purpose. As a result, baseline data prior to STOP HIV/AIDS are not available.

- The proportion of new positives with a record of public health follow-up significantly increased in comparison to the preceding periods [VCH16], and was the highest proportion since STOP.
- The number of contacts elicited increased compared to the preceding periods, and year-to-date [VCH17]. It is important to note that the public health management indicators are based on the case diagnosis date and therefore are likely to change as follow-up is completed over time.
- The average number of contacts elicited per positive case remained stable compared to the preceding period, the average since STOP and year-to-date [VCH17a]. An average of 4 contacts per case was elicited in the most recent period.
- The proportion of contacts notified declined when compared to the preceding periods and the average since STOP [VCH19]. In comparison with 2012, the proportion of contacts notified was significantly lower in 2013.
- The proportion of notified contacts that were known to be previously HIV positive remained stable compared to the preceding period [VCH24] and since STOP.
- The most recent period saw a significant increase in the proportion of notified contacts known to be tested for HIV compared to the preceding periods and was the highest proportion since STOP [VCH23a].
- Five new HIV positive cases were diagnosed through public health follow-up during the most recent period, which was higher than the preceding period though consistent with the average since STOP [VCH23b].
- Among notified contacts who tested for HIV in the second half of 2013, the percent positivity was 9%, which was the same as the average since STOP [VCH23c]. In 2013, percent positivity due to contact tracing was slightly higher than in 2012 although the increase was not significant.

Treatment Indicators

- The proportion of new diagnoses linked to care within 30 days increased Vancouver HSDA when compared to the average since STOP, the historical baseline and year-to-date [VCH41]. This period had similar linkage proportions to the first half of 2013 where the highest proportions were observed in Vancouver since STOP. A slight decrease was observed among the rest of VCH residents when compared to the average since STOP. This should be interpreted with caution due to a small number of new positives in Richmond, Coastal Urban and Coastal Rural.
- The median time to linkage to HIV care decreased significantly in VCH overall, in Vancouver HSDA and in the rest of VCH compared to the preceding periods, the average since STOP and the historical baseline [VCH44b].
- The proportion of HIV patients currently retained in care did not change from the preceding period, the average since STOP and year-to-date [VCH46]. 93% of Coastal Rural residents were currently retained in care, followed by Richmond (88%), Vancouver (82%) and Coastal Urban (79%).

- The proportion of patients not found in care did not change significantly in Vancouver HSDA when compared to the preceding periods, the average since STOP, the historical baseline and year-to-date [VCH47b]. The proportion of patients not found in care in Richmond and Coastal Urban increased slightly when compared to the average since STOP, and the historical average. In the most recent period, 27% of Coastal Urban residents were not found in care, followed by Vancouver (18%), Richmond (12%) and Coastal Rural (0%).
- The proportion of patients currently prescribed ARVs significantly increased in Vancouver HSDA compared to the average since STOP and the historical baseline [VCH48]. Conversely, the proportion of patients who discontinued and did not restart ARVs decreased significantly compared to the average since STOP, the historical baseline and year-to-date [VCH49].
- The proportion of individuals newly taking ARVs and achieving viral suppression (viral load < 200 copies/mL) within 9 months of treatment within Vancouver HSDA decreased significantly compared to the preceding period, the average since STOP, and the historical baseline. The same trend was seen in the rest of VCH (excluding Vancouver), but the decrease was only significant in comparison to the average since STOP and year-to-date [VCH51]. *It is important to note that this indicator is influenced by a lag in data capture.*
- Within Vancouver HSDA and Richmond HSDA, the proportion of individuals on ARVs achieving viral suppression with viral load <200 copies/mL increased significantly compared to the historical baseline. However, there was no difference from the preceding periods and the average since STOP [VCH52].
- In Vancouver HSDA, Richmond HSDA, and Coastal Urban HSDA the mean monitored viral load of all known HIV positive individuals was significantly lower than the average since STOP and the historical baseline [VCH53]. Furthermore, in Vancouver HSDA the mean monitored viral was also significantly lower than the preceding periods and year-to-date. In Coastal Rural, the mean monitored viral load increased significantly compared to the preceding period, the average since STOP and year-to-date, but decreased significantly compared to the historical average.
- The proportion of individuals with a viral load >200 copies/ml (not suppressed) decreased significantly within Vancouver HSDA, and Richmond HSDA, when compared to the average since STOP and the historical baseline [VCH54].

STOP HIV/AIDS Monitoring Indicators
Semi-Annual Summary Report
S2 (July 1 – December 31, 2013)

Vancouver CoastalHealth — Promoting wellness. Ensuring care.

Providence HEALTH CARE — How you want to be treated.

Indicator Number		Indicator Name	Counts by Half-Year				STOP HIV/AIDS (July 1, 2010 to date)			Historical Baseline (Jan 1, 2008 to Jun 30, 2010)			Year to Date Cases		Significance
			Jul-Dec 2013	Jan-Jun 2013	Jul-Dec 2012	Jan-Jun 2012	Avg	Min	Max	Avg	Min	Max	Year 2013	Year 2012	
Testing Indicators	VCH1	Number of POC tests	3622	3803	3856	3936	3887	792	8334	N/A	N/A	N/A	7425	7792	
	VCH4a	Number of new true positive POC tests	17	19	19	27	22	3	41	N/A	N/A	N/A	36	46	C-S-Y-
	VCH8a	Overall number of HIV lab tests (either from VCH residents or those who tested at a VCH clinic)	70992	73081	59764	53522	54481	39370	73081	38367	37524	39559	144073	113286	S+H+Y+
	VCH8b	Number of HIV lab tests from all clinics in VCH	69470	71422	57924	51370	52638	37467	71422	36408	35558	37579	140892	109294	S+H+Y+
	VCH8b.1	Vancouver	59361	61625	49423	43038	44265	30354	61625	29442	28682	30530	120986	92461	S+H+Y+
	VCH8b.2	Richmond	3739	3722	3092	2982	3003	2348	3739	2330	2229	2421	7461	6074	S+H+Y+
	VCH8b.3	Coastal Urban	3966	3848	3492	3491	3448	3052	3966	2975	2898	3104	7814	6983	S+H+Y+
	VCH8b.4	Coastal Rural	2404	2227	1917	1859	1921	1630	2404	1661	1619	1732	4631	3776	S+H+Y+
	VCH11a*	Number of HIV lab tests from residents of VCH	62283	63702	50576	42775	45630	32062	63702	31027	30242	32031	125985	93351	S+H+Y+
	VCH11a.1*	Vancouver	49576	51293	39912	32595	35418	23712	51293	23065	22359	23870	100869	72507	S+H+Y+
	VCH11a.2*	Richmond	5020	4941	4148	3759	3851	2962	5020	2812	2666	2915	9961	7907	S+H+Y+
	VCH11a.3*	Coastal Urban	4828	4802	4241	4246	4127	3454	4828	3329	3260	3409	9630	8487	S+H+Y+
	VCH11a.4*	Coastal Rural	2859	2666	2275	2175	2235	1870	2859	1821	1769	1873	5525	4450	S+H+Y+
	VCH11d	Number of HIV lab tests from known non-residents of VCH, who tested in VCH	8709	9379	9188	10747	8850	7308	10747	7340	7240	7575	18088	19935	H+
	VCH13a*	Number of positive HIV diagnoses for VCH residents	66	77	66	76	78	66	98	87	77	100	143	142	C-S-H-
	VCH13a.1*	Vancouver	61	70	61	70	71	61	87	80	72	94	131	131	C-S-H-
	VCH13a.2*	Richmond	0	3	3	1	3	0	5	3	2	5	3	4	C-S-H-Y-
	VCH13a.3*	Coastal Urban	2	2	1	3	2	1	4	3	3	4	4	4	S-H-
	VCH13a.4*	Coastal Rural	3	2	1	2	2	1	3	1	0	2	5	3	C+S+H+Y+
	VCH14a	Percent positivity (%) of VCH residents	0.11	0.12	0.13	0.18	0.17	0.11	0.27	0.28	0.25	0.33	0.11	0.15	S-H-Y-
	VCH14a.1	Vancouver	0.12	0.14	0.15	0.21	0.20	0.12	0.32	0.35	0.32	0.42	0.13	0.18	S-H-Y-
	VCH14a.2	Richmond	0.00	0.06	0.07	0.03	0.07	0.00	0.17	0.11	0.07	0.17	0.03	0.05	H-
	VCH14a.3	Coastal Urban	0.04	0.04	0.02	0.07	0.06	0.02	0.11	0.10	0.09	0.12	0.04	0.05	
	VCH14a.4	Coastal Rural	0.10	0.08	0.04	0.09	0.08	0.04	0.16	0.04	0.00	0.11	0.09	0.07	
	VCH45a	Proportion of all VCH HIV patients with CD4 count > 500 cells/mm3 or acute stage at diagnosis (%)	55	40	47	53	47	40	55	40	35	52	47	50	
	VCH45a.1	Vancouver	56	42	48	53	48	42	56	41	34	55	48	51	
	VCH45a.2	Rest of VCH	50	17	40	50	34	17	50	29	0	44	33	45	
	VCH45b	Proportion of all VCH HIV patients with CD4 count < 200 cells/mm3 at diagnosis (%)	22	23	20	20	20	11	25	22	16	33	23	20	
	VCH45b.1	Vancouver	19	21	18	20	19	9	25	20	14	30	20	19	
	VCH45b.2	Rest of VCH	50	50	40	17	32	17	50	34	0	80	50	27	

Notes

- *This includes testers or positives who have known residential information within VCH and those who test in VCH but do not have available residential information.
- Data used for this report are longitudinal and of dynamic nature, with many indicators being subject to a lag in time to reporting. Therefore indicator values are likely to change with continual data updating.

Public Health Surveillance Unit

Interpretation

- C +/- represents an increase or decrease for current time period compared to preceding period
- S +/- represents an increase or decrease for current time period compared to STOP Period (July 1, 2010 to current)
- H +/- represents an increase or decrease for current time period compared to historical time period (January 2008-June 2010)
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- STOP HIV/AIDS average is the average of all half-years since July 1, 2010, with the minimum and maximum during all half-years since STOP. This also applies to historical baseline average.

STOP HIV/AIDS Monitoring Indicators
Semi-Annual Summary Report
S2 (July 1 – December 31, 2013)

Indicator Number		Indicator Name	Counts by Half-Year				STOP HIV/AIDS (July 1, 2010 to date)			Historical Baseline (Jan 1, 2008 to Jun 30, 2010)			Year to Date Cases		Significance
			Jul-Dec 2013	Jan-Jun 2013	Jul-Dec 2012	Jan-Jun 2012	Avg	Min	Max	Avg	Min	Max	Year 2013	Year 2012	
Public Health Management Indicators	VCH 16	Proportion of new positives with record of public health follow-up	82	57	75	70	72	57	82	N/A	N/A	N/A	69	72	C+
	VCH17	Number of contacts elicited	224	148	202	155	231	148	355	N/A	N/A	N/A	372	357	C+
	VCH17a	Average number of contacts elicited per positive case	4	3	4	3	4	3	5	N/A	N/A	N/A	4	4	C+
	VCH19	Proportion of contacts notified (%)	42	50	51	60	49	40	60	N/A	N/A	N/A	45	55	Y-
	VCH24	Proportion of notified contacts who were known to be previously HIV positive (%)	16	16	10	16	17	10	20	N/A	N/A	N/A	16	13	
	VCH23a	Proportion of notified contacts tested for HIV (%)	71	40	49	60	52	40	71	N/A	N/A	N/A	57	54	C+S+
	VCH23b	Number of notified contacts who tested HIV positive	5	4	1	7	5	1	7	N/A	N/A	N/A	9	8	C+S+Y+
	VCH23c	Percent positivity (%) due to Contact Tracing	9	16	2	15	9	2	16	N/A	N/A	N/A	11	9	

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Treatment Indicators	VCH41	Proportion of new diagnoses within VCH linked to care within 30 days of diagnosis (%)	85	86	83	75	77	68	86	64	54	71	85	79	H+
	VCH41.1	Vancouver	87	87	83	74	76	67	87	64	56	71	87	78	H+
	VCH41.2	Rest of VCH	71	71	80	83	80	71	89	60	33	70	71	82	
	VCH44b	Time to linkage to HIV care among those newly diagnosed with HIV within VCH (median days)	6	9	8	6	9	6	10	12	10	13	7	8	C-S-H-Y-
	VCH44b.1	Vancouver	6	8	8	6	8	6	10	11	9	13	7	7	C-S-H-
	VCH44b.2	Rest of VCH	8	14	15	8	12	8	15	14	8	24	14	12	C-S-H-Y+
	VCH46a	Proportion of HIV patients that currently retained in care within VCH (%)	82	82	82	82	82	81	82	79	77	79	82	82	H+
	VCH46a.1	Vancouver	82	82	83	82	82	81	83	78	77	79	82	83	
	VCH46a.2	Richmond	88	86	87	87	88	86	89	95	90	100	88	87	
	VCH46a.3	Coastal Urban	79	76	77	78	79	76	83	84	78	88	79	77	
	VCH46a.4	Coastal Rural	93	85	76	83	80	65	93	66	53	78	93	76	H+
	VCH47b	Proportion of matched HIV patients not found in care within VCH (%)	18	17	16	16	17	16	18	18	18	20	18	16	
	VCH47b.1	Vancouver	18	17	17	16	17	16	18	19	18	19	18	17	
	VCH47b.2	Richmond	12	11	8	11	10	7	12	6	3	9	12	8	
	VCH47b.3	Coastal Urban	27	25	21	22	21	13	27	16	9	21	27	21	
	VCH47b.4	Coastal Rural	0	6	7	11	7	0	12	20	5	35	0	7	H-
	VCH48	Proportion of patients who are currently prescribed ARVs within VCH (%)	68	67	66	66	64	58	68	48	40	55	68	66	S+H+
	VCH48.1	Vancouver	67	66	66	65	64	57	67	47	40	54	67	66	S+H+
	VCH48.2	Richmond	81	83	81	80	78	67	83	66	48	76	81	81	
	VCH48.3	Coastal Urban	63	61	61	65	62	59	65	55	53	57	63	61	
	VCH48.4	Coastal Rural	87	89	85	78	80	69	89	61	52	69	87	85	H+
	VCH49	Proportion of patients who have discontinued and currently not restarted ARVs within VCH (%)	9	11	12	14	15	9	25	37	29	48	9	12	S-H-Y-
	VCH49.1	Vancouver	9	11	12	14	15	9	25	38	30	49	9	12	S-H-Y-
	VCH49.2	Richmond	11	9	9	10	13	9	26	25	15	43	11	9	
	VCH49.3	Coastal Urban	15	18	16	12	15	12	18	23	18	28	15	16	
	VCH49.4	Coastal Rural	6	6	10	17	13	6	24	29	22	35	6	10	H-
	VCH51	Proportion of individuals within VCH newly taking ARVs who are virally suppressed with viral load less than 200 copies/mL within 9 months since treatment start (%)	80	86	89	91	90	80	94	90	88	91	80	89	S-H-Y-
	VCH51.1	Vancouver	82	86	89	90	90	82	93	90	87	91	82	89	
	VCH51.2	Rest of VCH	63	84	91	95	91	63	100	91	81	100	63	91	S-Y-
	VCH52	Proportion of all individuals on ARVs who are currently virally suppressed with viral load less than 200 copies/mL within VCH (%)	85	83	83	82	83	80	85	78	74	81	85	83	H+
	VCH52.1	Vancouver	85	83	82	82	82	79	85	78	74	81	85	82	H+
	VCH52.2	Richmond	96	87	85	83	84	69	96	80	71	89	96	85	H+
	VCH52.3	Coastal Urban	88	88	90	92	89	84	92	86	72	93	88	90	
	VCH52.4	Coastal Rural	79	75	79	68	78	68	93	81	64	100	79	79	
	VCH53	Mean monitored viral load (copies/mL) of all known HIV positive individuals within VCH	75	87	90	104	109	75	187	394	223	781	84	95	C-S-H-Y-
	VCH53.1	Vancouver	76	88	92	105	111	76	192	418	233	821	85	97	C-S-H-Y-
	VCH53.2	Richmond	50	54	66	82	80	50	179	266	112	635	61	68	S-H-
	VCH53.3	Coastal Urban	57	92	67	71	83	57	157	178	102	555	69	71	C-S-H-
	VCH53.4	Coastal Rural	139	91	77	200	111	77	200	178	85	404	129	95	C+S+H-Y+
	VCH54	Proportion of all individuals with viral load greater than 200 copy/mL within VCH (%)	19	21	22	25	26	19	36	47	39	58	29	32	S-H-
	VCH54.1	Vancouver	20	22	22	25	26	20	36	48	40	59	29	32	S-H-
	VCH54.2	Richmond	6	17	13	20	21	6	37	42	29	50	20	25	S-H-
	VCH54.3	Coastal Urban	17	19	15	20	21	15	31	32	22	55	25	22	
	VCH54.4	Coastal Rural	31	23	27	39	29	23	39	43	33	55	35	41	

Notes

- The analyses for most of treatment indicators are based on the individuals in a linked dataset of PHSU HIV Surveillance data and BCCfE Drug Treatment Program data. Except for indicators VCH41 and VCH44b, which use the full PHSU HIV Surveillance dataset and BCCfE Drug Treatment Program Data.
- Data used for this report is longitudinal and of a dynamic nature, with many indicators being subject to a lag in time to reporting. Therefore indicator values are likely to change with continual data updating.
- Treatment indicator denominators are described in appendix A and change overtime as new diagnoses are added and indicator restrictions adjust case population. For an example of case volume; denominators for S2 2013 VCH48 were as follows: Vancouver (n=1,909), Richmond (n=63), Coastal Urban (n=71), Coastal Rural (n=39).

Interpretation

- C +/- represents an increase or decrease for current time period compared to preceding period
- S +/- represents an increase or decrease for current time period compared to STOP Period (July 1, 2010 to current)
- H +/- represents an increase or decrease for current time period compared to historical time period (2008-2009)
- Y +/- represents an increase or decrease for current year-to-date compared to previous year-to-date

- STOP HIV/AIDS average is the average of all half-years since July 1, 2010, with the minimum and maximum during all half-years since STOP. This also applies to historical baseline average.

Section 2. Testing Indicators

Figures, Maps and Tables

Summary of Results – Testing Indicators

Figure 1. Number and Percent Positivity of HIV POC Tests

The number of POC tests decreased slightly in the second half of 2013 compared to the preceding period. The percent positivity also declined when compared to the preceding 12 month period.

Table 1. Number of HIV Lab Tests by HSDA/LHA of Testing Clinic

Lab tests from Richmond, Coastal Urban, and Coastal Rural HSDAs continued to increase, while most Vancouver LHAs experienced marginal declines in testing numbers. HIV test volumes from clinics in Vancouver South had the greatest increase by 55% in 2013 compared to 2012, followed by Vancouver Westside (46%) and Vancouver City Centre (32%).

Maps 1-3. Mean Monthly HIV Lab Tests per 10,000 population among VCH residents

Since the expansion, average monthly HIV testing rates continued to increase across most of the HSDAs/LHAs, except for Richmond and Coastal Urban. Compared to the average rate in the STOP Pilot period, most noticeable increases were observed in Howe Sound (38%), followed by Vancouver Downtown Eastside (21%) and Vancouver South (21%).

Figure 2. Number and Percent Positivity of HIV Lab Tests among VCH Residents

The number of HIV lab tests among residents of VCH increased steadily from the initiation of STOP HIV/AIDS, although a slight decline was observed in the second half year of 2013 in comparison to the first half year. Along with this steady increase in HIV lab tests, there was a declining trend in percent positivity that has levelled in 2013.

Figure 3. Number and Percent Positivity of HIV Lab Tests among VCH Residents by HSDA

The trend in HIV lab testing in Vancouver HSDA was similar to VCH overall as the majority of tests were currently conducted among Vancouver residents.

Testing volumes remained stable in Richmond, Coastal Urban, and Coastal Rural among known residents of each HSDA. Due to the small number of identified positives, the percent positivity fluctuated by year in Richmond, Coastal Urban and Coastal Rural.

Table 2. Monthly Average of HIV Lab Tests, Population Rate of HIV Lab Tests, HIV Positives and Percent Positivity among VCH residents by HSDA/LHA

Significant increases in the monthly average and rate of HIV lab tests were seen across most HSDAs/LHAs since April 2013, except Richmond, Coastal Urban, North Vancouver, West Vancouver-Bowen Island, Bella Coola Valley and Central Coast. HIV tests increased by 129% in Howe Sound compared to the historical baseline, followed by Vancouver DTES (81%), Vancouver South (75%) and Vancouver City Centre (59%).

No significant differences were observed in the monthly average of new HIV positives or in the percent positivity across the whole region.

Table 3, 4. Percent Positivity of HIV Lab Tests among VCH Residents by Gender and Age Group

Vancouver HSDA (Table 3)

The percent positivity for HIV testing increased among males aged 20-29 and 40-49 years compared to preceding half-years. In comparison with historical baseline, the percent positivity decreased among all males aged 30 or greater years. Overall, the percent positivity among males slightly increased in 2013, when compared with 2012.

While the percent positivity among female age groups are lower overall compared with males, the highest percent positivity was observed among those aged 40-49 in the second half of 2013. Percent positivity among females of all age groups decreased compared to the historical average. Furthermore, percent positivity among females decreased slightly in 2013 compared to 2012.

Rest of VCH (Table 4)

Compared to the preceding periods and the historical baseline, the percent positivity increased among males aged 50-59 years. In comparison with historical baseline, the percent positivity decreased among males of all age groups younger than 50 years. Overall, percent positivity among males in 2013 remained similar to the percent positivity observed in 2012.

No new diagnoses were made among women living in rest of VCH during the second half of 2013. Overall, the percent positivity among females increased in 2013, when compared to 2012. However, this should be interpreted with caution due to the small number of identified positives among females.

Figure 4. Proportion of New HIV Positives by Gender and Males/Females Ratio by Year of Diagnosis

Vancouver HSDA:

More males were diagnosed compared to females in 2013 (15 males to 1 female), compared with year 2012 (9 males to 1 female). The majority of new diagnosis (94%) in Vancouver continued to be in males.

Rest of VCH:

Due to the very small number of females diagnosed with HIV in rest of VCH residents, no stable trend in proportion is observed, and this should be interpreted with caution.

Table 5, 6. Proportion of HIV positives by Gender, Exposure and Year of Diagnosis

Vancouver HSDA (Table 5):

Proportionally, more new diagnoses were seen among males with MSM exposure in 2010-2013 compared to all other exposure groups. The proportion of new diagnoses among MSM has increased since 2003-2005, while those with IDU exposure and heterosexual exposure has declined.

The proportion of females with IDU exposure decreased in 2010-2013 compared to previous years, while females with heterosexual exposure increased.

Rest of VCH (Table 6):

For males, the same exposure trends were observed as seen in Vancouver HSDA. The proportion of new diagnoses among MSM has increased since 2003-2005, while those with IDU exposure and heterosexual exposure continued to decline.

Due to the very small number of females diagnosed with HIV in rest of VCH residents, no stable trend in proportion is observed, and this should be interpreted with caution.

Figure 5, 6. Number and Proportion of Patients' CD4 Cell Count and Disease Stage at Diagnosis by Year of Diagnosis

There was a decline in number of patients newly diagnosed with HIV in the second half of 2013, compared to the preceding period. However, a continuous declining trend in the overall number of new positives since 2003 was observed (Figure 5).

In the second half of 2013, the proportion of HIV patients diagnosed at acute stage of infection increased, compared to the first half of 2013. In the second half of 2013, the highest proportion of new diagnoses with a CD4 count > 500 or acute stage disease at time of diagnosis was observed since 2003 (56%). There was no noticeable decline in the proportion of HIV patients diagnosed with a CD4 count <200 cells/mm^3 in the second half of 2013 when compared to the preceding three periods (Figure 6).

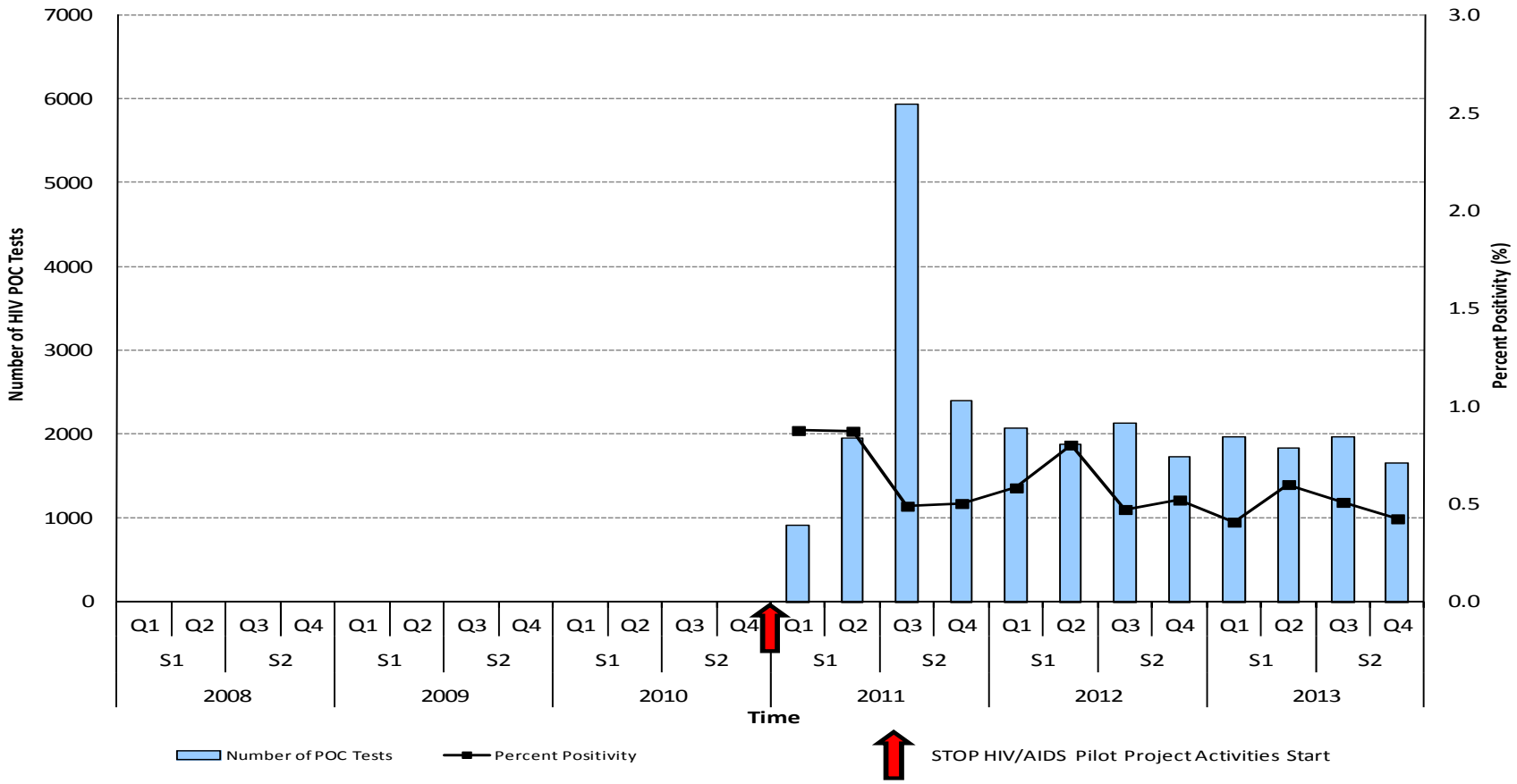
Figure 7. Proportion and Ratio of Patients Diagnosed with CD4 > 500/Acute Stage and CD4 < 200 by Year of Diagnosis

The proportion of patients diagnosed with a CD4 count <200 cells/mm^3 in 2013 was the highest since 2009. Conversely, the proportion of patients diagnosed with CD4 counts>=500 cells/mm^3 or diagnosed at the acute stage continued to exhibit an increasing trend, though a slight decline is observed in 2013 compared to 2012. Since the STOP project began, the ratio of those diagnosed with a CD4>500/acute stage vs. a CD4 < 200 peaked in 2011 with a declining trend through 2013.

Maps 4, 5. Median CD4 Cell Count (cells/mm^3) at diagnosis for HIV positive individuals

Compared to the historical baseline (Map 4), the median CD4 cell count at diagnosis for residents of Richmond, Coastal Rural, Vancouver Westside, and Vancouver South had declined since the STOP initiative. Meanwhile the median CD4 cell count at diagnosis had increased in Coastal Urban and Vancouver Midtown. There were no noticeable changes in other regions of VCH though small variations were observed (Map 5).

Figure 1. Number of HIV POC Tests and Percent Positivity of HIV POC Tests



POC test counts include only volumes reported from sites engaged in STOP HIV/AIDS activities.
POC positive test counts include only positive tests reported to VCH CDC Department HIV Nurse.
Source: HIV Point of Care (POC) Data.
Prepared by: Vancouver Coastal Health, Public Health Surveillance Unit. April 16, 2014.

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Table 1. Number of HIV Lab Tests by HSDA/LHA of Testing Clinic

Region	Counts				STOP HIV/AIDS (July 1, 2010 to date)			Historical Baseline (Jan 1, 2008 to Jun 30, 2010)			Year to Date		Significance
	Jul-Dec 2013	Jan-Jun 2013	Jul-Dec 2012	Jan-Jun 2012	Avg	Min	Max	Avg	Min	Max	Year 2013	Year 2012	
Richmond	3739	3722	3092	2982	3003	2348	3739	2330	2229	2421	7461	6074	S+H+Y+
Coastal Urban	3966	3848	3492	3491	3448	3052	3966	2975	2898	3104	7814	6983	S+H+Y+
LHA 44 North Vancouver	3144	3043	2761	2815	2762	2484	3144	2364	2341	2421	6187	5576	S+H+Y+
LHA45 West Vancouver-Bowen Island	822	805	731	676	686	568	822	611	553	683	1627	1407	S+H+Y+
Coastal Rural	2404	2227	1917	1859	1921	1630	2404	1661	1619	1732	4631	3776	S+H+Y+
LHA 46 Sunshine Coast	771	538	505	508	504	395	771	400	375	439	1309	1013	C+S+H+Y+
LHA 47 Powell River	435	333	341	361	348	309	435	309	296	333	768	702	C+S+H+
LHA 48 Howe Sound	1059	1241	953	876	951	782	1241	853	815	903	2300	1829	S+H+Y+
LHA 49 Bella Coola Valley	71	69	69	74	68	60	74	50	37	63	140	143	H+
LHA 83 Central Coast	68	46	49	40	50	40	68	49	43	58	114	89	C+S+H+Y+
Vancouver	59365	61624	49424	43039	44239	30284	61624	29285	28454	30442	120989	92463	S+H+Y+
LHA 161 City Centre	38725	39308	32448	26796	27766	18195	39308	17153	16333	18207	78033	59244	S+H+Y+
LHA 162 DTES	3767	4271	3857	3882	3567	2812	4271	2730	2519	3030	8038	7739	H+
LHA 163 North East	3133	3328	2922	2933	2568	1629	3328	1682	1591	1722	6461	5855	S+H+Y+
LHA 164 Westside	5606	6100	4176	3827	4305	3253	6100	3137	3069	3210	11706	8003	S+H+Y+
LHA 165 Midtown	3983	4103	3030	3016	3163	2478	4103	2646	2481	2756	8086	6046	S+H+Y+
LHA 166 South	4151	4514	2991	2585	2871	1865	4514	1937	1798	2037	8665	5576	S+H+Y+
Total	69477	71423	57925	51371	52639	37467	71423	36408	35558	37579	140900	109296	S+H+Y+

Source: Provincial Public Health Microbiology and Reference Laboratory (Misys Laboratory Database) & Providence Health Care Virology Laboratory.

Prepared by: Vancouver Coastal Health, Public Health Surveillance Unit. April 16, 2014.

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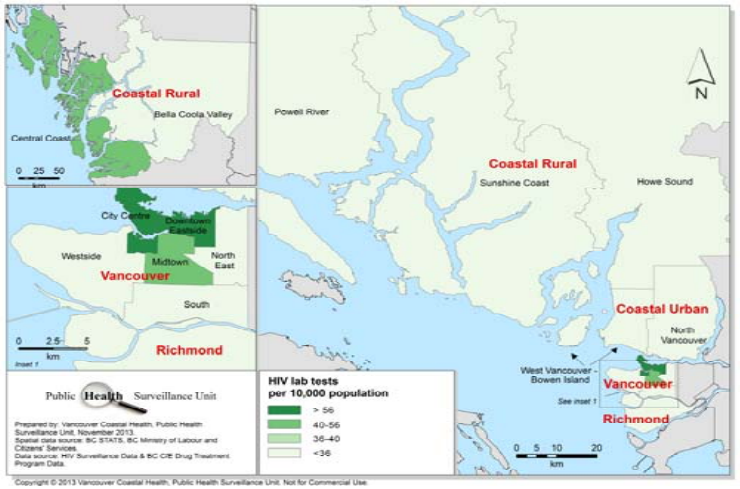
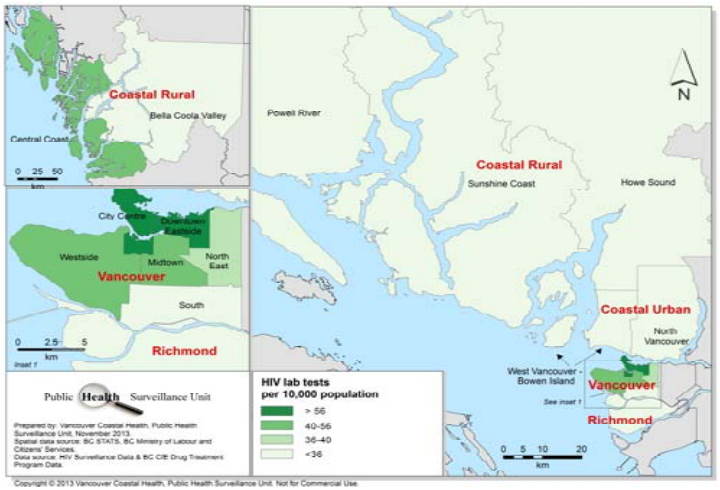
Mean Monthly HIV Lab Tests per 10,000 Population by LHA

Map 1. Historical Period (January 2008 – June 2010)



Map 2. Stop Pilot (July 2010 – March 2013)



Map 3. Stop Expansion (Apr 2013 – December 2013)

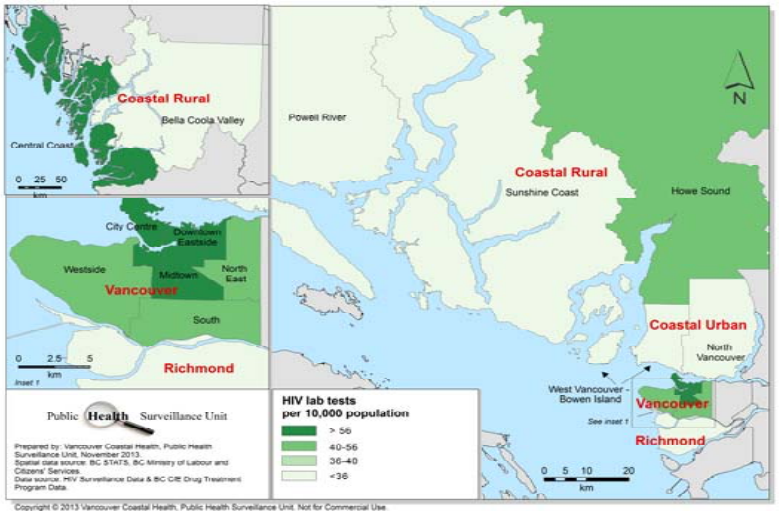
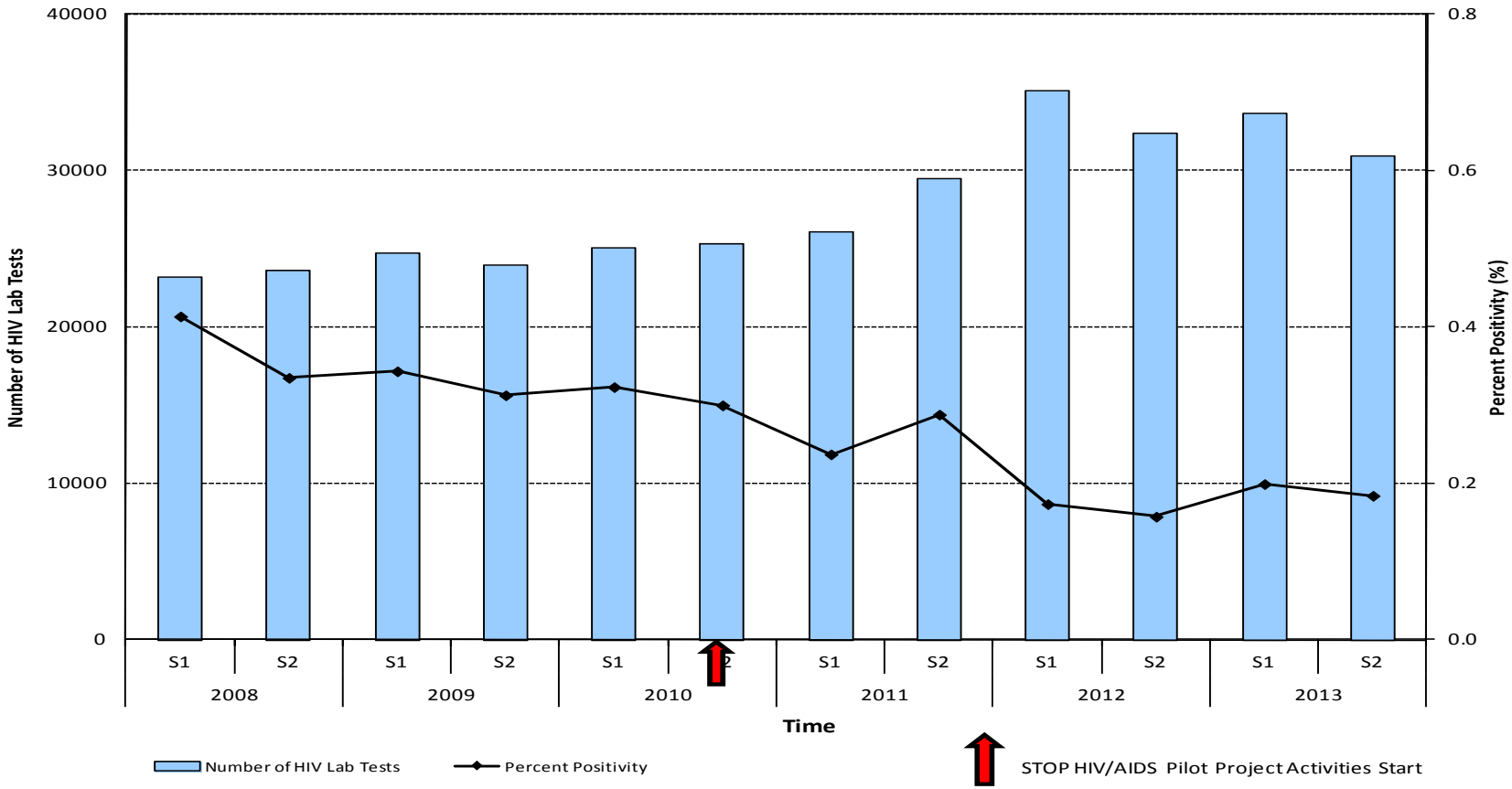


Figure 2. Number and Percent Positivity of HIV Lab Tests among VCH Residents



Source: Public Health Surveillance Unit (HIV Surveillance Data, Provincial Public Health Microbiology and Reference Laboratory (Misys Laboratory Database) & Providence Health Care Virology Laboratory Database.
Prepared by: Vancouver Coastal Health, Public Health Surveillance Unit. April 16, 2014.

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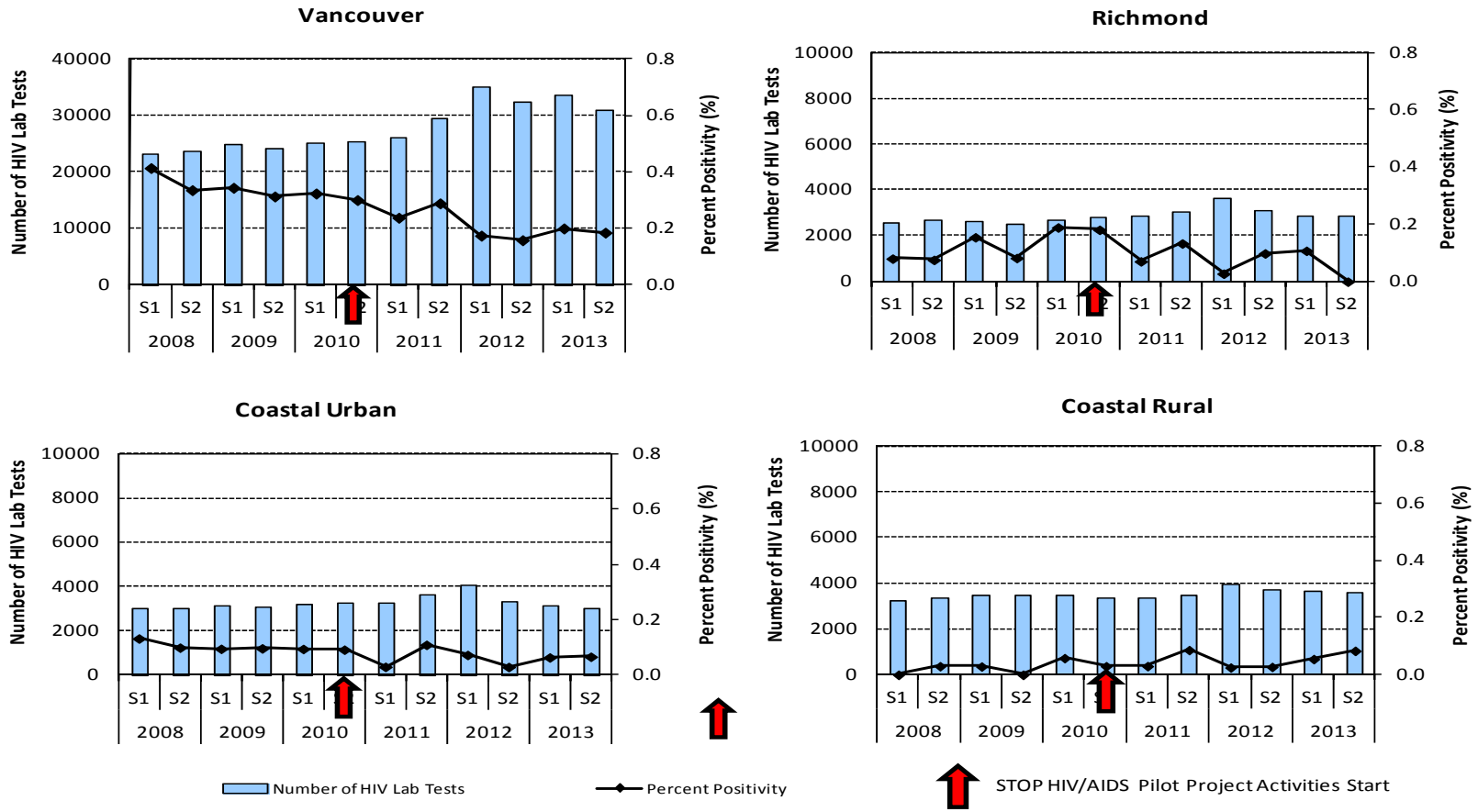
Figure 3. Number and Percent Positivity of HIV Lab Tests among VCH Residents by HSDA



Note: Axis values are not equal across all graphs. Compare test volumes with caution.
Source: Public Health Surveillance Unit (HIV Surveillance Data, Provincial Public Health Microbiology and Reference Laboratory (Misys Laboratory Database) & Providence Health Care Virology Laboratory Database.
Prepared by: Vancouver Coastal Health, Public Health Surveillance Unit. April 16, 2014.

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Table 2. Monthly Average of HIV Lab Tests, Population Rate of HIV Lab Tests, HIV Positives and Percent Positivity among VCH Residents by HSDA/LHA

Providence HEALTH CARE
How you want to be treated.

Region	HIV Lab Tests			HIV Lab Tests per 10,000 population			Positive HIV Lab Tests			Percent Positivity		
	Stop Expansion (Apr 2013 to date)	STOP Pilot (July 2010- Mar 2013)	Historical (Jan 2008- Jun 2010)	Stop Expansion (Apr 2013 to date)	STOP Pilot (July 2010- Mar 2013)	Historical (Jan 2008- Jun 2010)	Stop Expansion (Apr 2013 to date)	STOP Pilot (July 2010- Mar 2013)	Historical (Jan 2008- Jun 2010)	Stop Expansion (Apr 2013 to date)	STOP Pilot (July 2010- Mar 2013)	Historical (Jan 2008- Jun 2010)
Richmond	468	502	425	23.4	25.3	22.1	0.1	0.5	0.5	0.0	0.1	0.1
Coastal Urban	373	450	434	18.9	22.9	22.9	0.1	0.2	0.3	0.0	0.0	0.1
LHA 44 North Vancouver	368	434	394	25.5	30.3	28.5	0.1	0.2	0.5	0.0	0.0	0.1
LHA45 West Vancouver- Bowen Island	137	140	117	25.8	26.3	22.8	0.1	0.2	0.0	0.1	0.2	0.0
Coastal Rural	599	591	563	64.4	64.2	63.9	0.4	0.2	0.1	0.1	0.0	0.0
LHA 46 Sunshine Coast	85	82	71	27.9	27.0	24.0	0.1	0.0	0.1	0.1	0.0	0.1
LHA 47 Powell River	49	36	31	24.4	18.0	15.5	0.1	0.0	0.0	0.2	0.1	0.0
LHA 48 Howe Sound	206	128	92	54.5	34.6	26.7	0.2	0.1	0.0	0.1	0.1	0.0
LHA 49 Bella Coola Valley	8	9	6	28.4	30.9	22.1	0.0	0.0	0.0	0.0	0.0	0.0
LHA 83 Central Coast	10	8	7	69.4	52.8	46.7	0.0	0.1	0.0	0.0	0.8	0.0
Vancouver	3765	3333	2520	55.0	49.4	39.3	9.9	9.4	12.1	0.3	0.3	0.5
LHA 161 City Centre	988	855	664	79.9	70.1	56.1	3.1	3.2	4.2	0.3	0.4	0.6
LHA 162 DTES	666	539	374	91.9	75.3	58.1	1.7	1.4	1.9	0.3	0.3	0.5
LHA 163 North East	427	409	326	39.3	38.1	31.3	0.2	0.8	0.7	0.1	0.2	0.2
LHA 164 Westside	628	566	437	44.6	40.8	32.8	0.7	0.5	0.4	0.1	0.1	0.1
LHA 165 Midtown	519	476	361	52.0	49.0	41.2	1.0	0.7	0.6	0.2	0.1	0.2
LHA 166 South	533	485	356	38.3	35.3	26.7	0.4	0.7	0.7	0.1	0.1	0.2
Total*	5337	4999	4019	45.4	43.0	36.2	10.7	10.6	13.3	0.2	0.2	0.3

*Total may not equal to sum of all LHAs due to missing assignment of LHA coding in original data.
Source: Public Health Surveillance Unit (HIV Surveillance Data), Provincial Public Health Microbiology and Reference Laboratory (Misys Laboratory Database) & Providence Health Care Virology Laboratory.
Prepared by: Vancouver Coastal Health, Public Health Surveillance Unit. April 16, 2014.

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Table 3. Percent Positivity of HIV Lab Tests among *Vancouver* Residents by Gender and Age Group

Gender	Age	Current Half-Year	Previous Half-Years		STOP HIV-AIDS	Historical Baseline	Year to Date	
		Jul 2013-Dec 2013	Jan 2013-Jun 2013	Jul 2012-Dec 2012	Jul 2010-Jun 2013	Jan 2008-Jun 2010	2013	2012
Male	0-9	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	10-19	0.00	1.04	1.21	0.22	0.16	0.49	0.58
	20-29	1.03	0.61	0.42	0.53	0.85	0.81	0.49
	30-39	0.41	0.95	0.28	1.01	1.16	0.69	0.43
	40-49	0.98	0.59	0.79	1.12	1.62	0.77	0.68
	50-59	0.30	0.40	0.49	0.78	0.88	0.35	0.50
	60+	0.07	0.09	0.12	0.45	0.44	0.08	0.11
	Subtotal*	0.48	0.47	0.41	0.80	1.06	0.48	0.43
Female	0-9	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	10-19	0.00	0.00	0.00	0.00	0.17	0.00	0.00
	20-29	0.00	0.00	0.00	0.07	0.07	0.00	0.04
	30-39	0.03	0.05	0.05	0.03	0.08	0.04	0.05
	40-49	0.06	0.05	0.12	0.13	0.15	0.06	0.12
	50-59	0.00	0.16	0.00	0.00	0.44	0.08	0.00
	60+	0.05	0.00	0.00	0.30	0.12	0.02	0.00
	Subtotal*	0.03	0.04	0.03	0.06	0.11	0.03	0.05

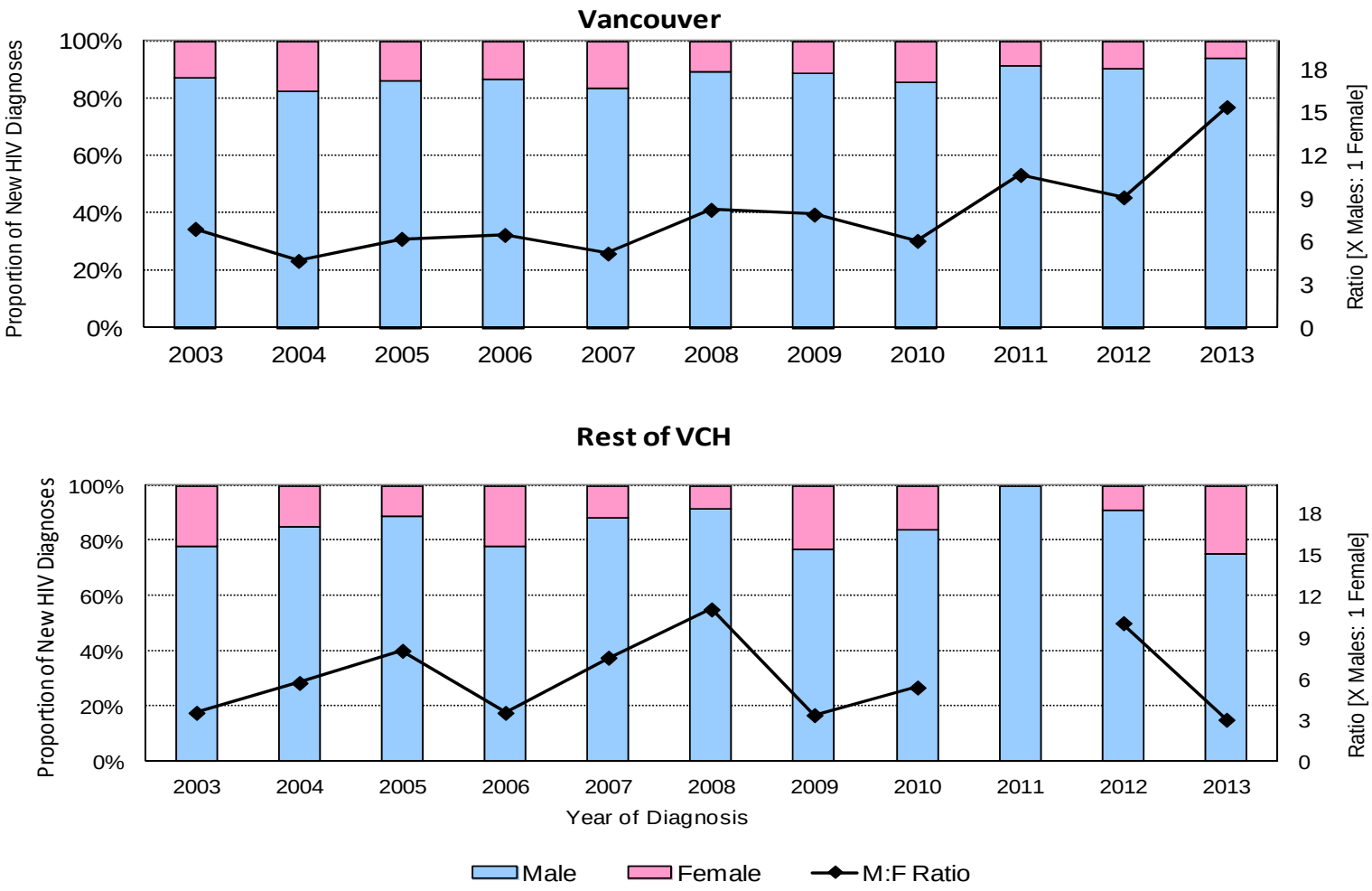
*Subtotal may not equal to sum of all LHAs due to missing values in the original data.
Source: Public Health Surveillance Unit (HIV Surveillance Data), Provincial Public Health Microbiology and Reference Laboratory (Misys Laboratory Database) & Providence Health Care Virology Laboratory.
Prepared by: Vancouver Coastal Health, Public Health Surveillance Unit. April 16, 2014.

Table 4. Percent Positivity of HIV Lab Tests among *Rest of VCH* Residents by Gender and Age Group

Gender	Age	Current Half-Year	Previous Half-Years		STOP HIV-AIDS	Historical Baseline	Year to Date	
		Jul 2013-Dec 2013	Jan 2013-Jun 2013	Jul 2012-Dec 2012	Jul 2010-Jun 2013	Jan 2008-Jun 2010	2013	2012
Male	0-9	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	10-19	0.00	0.00	0.00	0.22	0.13	0.00	0.00
	20-29	0.00	0.22	0.18	0.17	0.09	0.11	0.17
	30-39	0.00	0.00	0.00	0.15	0.07	0.00	0.00
	40-49	0.00	0.13	0.00	0.31	0.33	0.07	0.06
	50-59	0.42	0.00	0.28	0.26	0.18	0.21	0.22
	60+	0.22	0.11	0.00	0.18	0.21	0.17	0.07
	Subtotal*	0.12	0.09	0.09	0.21	0.15	0.11	0.10
Female	0-9	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	10-19	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	20-29	0.00	0.00	0.00	0.00	0.01	0.00	0.00
	30-39	0.00	0.06	0.00	0.00	0.02	0.03	0.00
	40-49	0.00	0.13	0.13	0.00	0.09	0.07	0.06
	50-59	0.00	0.19	0.00	0.00	0.07	0.10	0.00
	60+	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Subtotal*	0.00	0.06	0.02	0.00	0.03	0.03	0.01

*Subtotal may not equal to sum of all LHAs due to missing values in the original data.
Source: Public Health Surveillance Unit (HIV Surveillance Data), Provincial Public Health Microbiology and Reference Laboratory (Misys Laboratory Database) & Providence Health Care Virology Laboratory.
Prepared by: Vancouver Coastal Health, Public Health Surveillance Unit. April 16, 2014.

Figure 4. Proportion of New HIV Positives by Gender and Year of Diagnosis and Males/Females Ratio by Year of Diagnosis



Source: Public Health Surveillance Unit (HIV Surveillance Data).
Prepared by: Vancouver Coastal Health, Public Health Surveillance Unit. April 16, 2014.

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Table 5. Proportion of HIV Positives By Gender, Exposure and Year of Diagnosis *(Vancouver HSDA)*

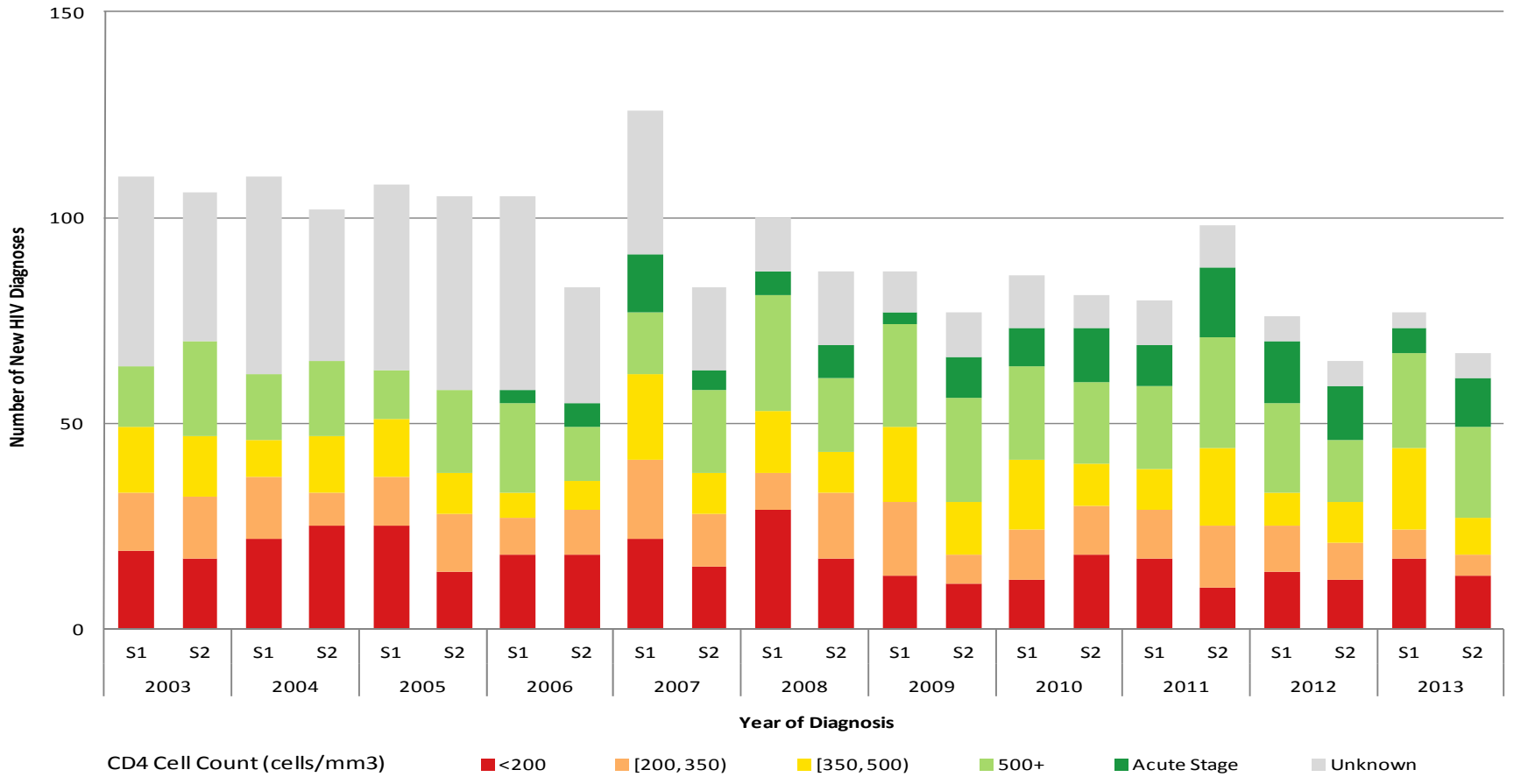
Gender	Exposure	Year of Diagnosis 2003-2005	2006-2009	2010-2013
Male	MSM	62.6	68.8	74.1
	MSM/IDU	5.6	4.1	2.7
	IDU	17.3	12.4	7.2
	Heterosexual	12.9	11.4	9.9
	Other*	1.4	1.7	0.6
	Unknown	0.2	1.7	5.6
Female	IDU	61.6	49.5	30.4
	Heterosexual	34.9	47.3	64.3
	Other*	3.5	2.2	1.8
	Unknown	0.0	1.1	3.6

Table 6. Proportion of HIV Positives by Gender, Exposure and Year of Diagnosis *(Rest of VCH)*

Gender	Exposure	Year of Diagnosis 2003-2005	2006-2009	2010-2013
Male	MSM	53.2	60.5	66.0
	IDU	12.8	11.6	4.0
	Heterosexual	27.7	20.9	20.0
	Other*	4.3	7.0	2.0
	Unknown	2.1	0.0	8.0
Female	IDU	22.2	12.5	28.6
	Heterosexual	66.7	87.5	42.9
	Other*	11.1	0.0	28.6

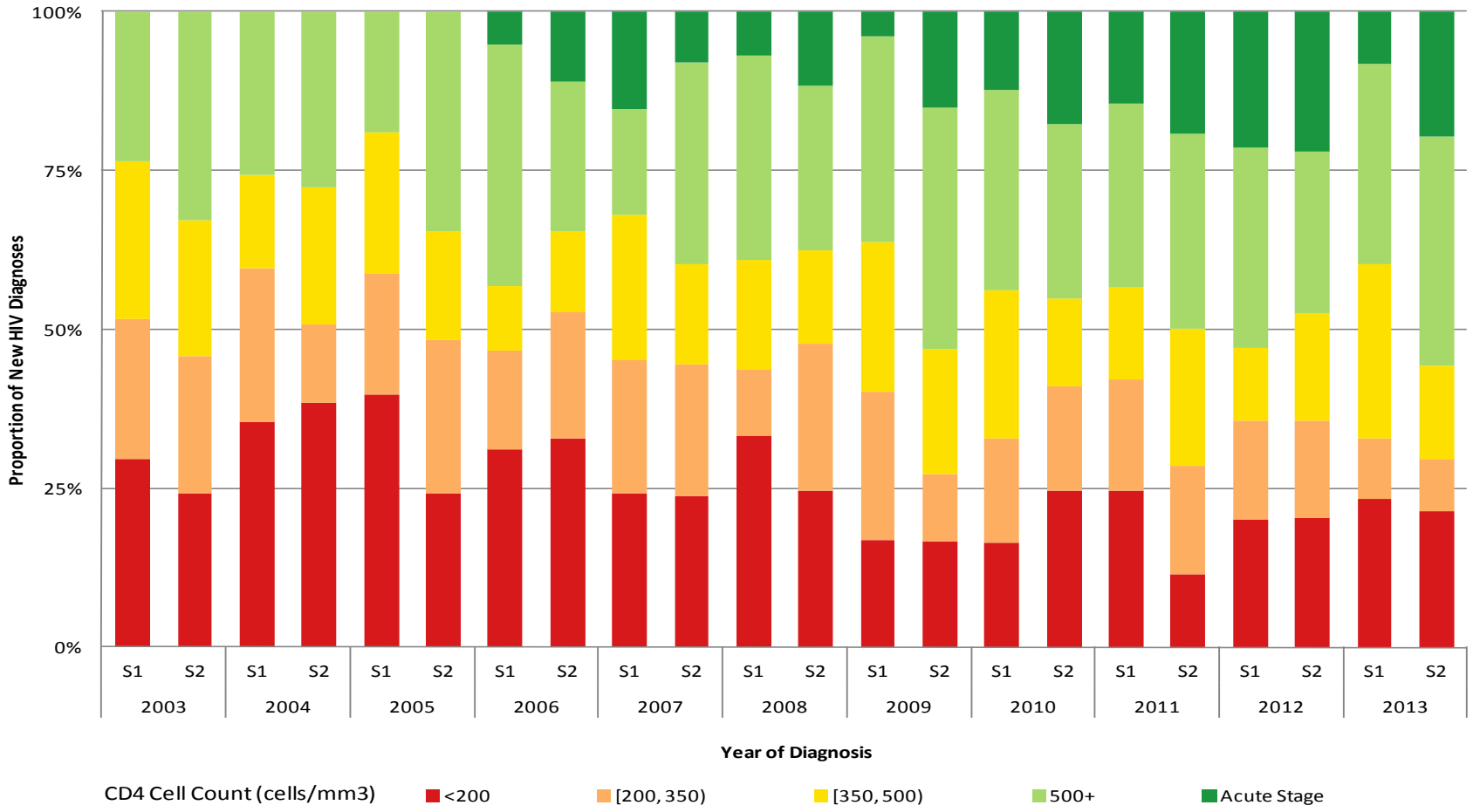
*Other includes blood/blood products, occupational, perinatal and other exposures
Source: Public Health Surveillance Unit (HIV Surveillance Data).
Prepared by: Vancouver Coastal Health, Public Health Surveillance Unit. April 16, 2014

Figure 5. Number of Patients' CD4 Cell Count and Disease Stage at Diagnosis by Year of Diagnosis



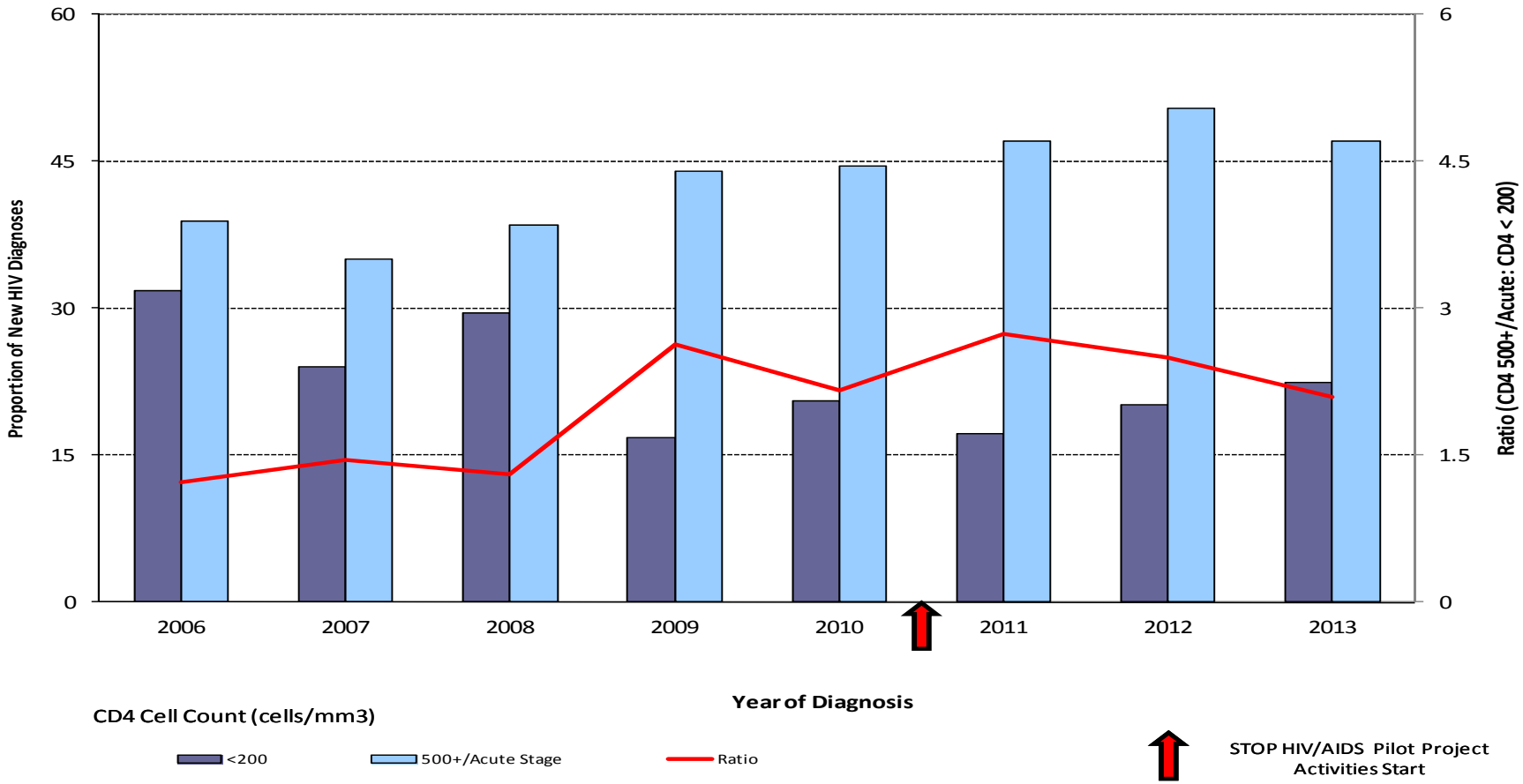
Source: Public Health Surveillance Unit (HIV Surveillance Data) & BC CfE Drug Treatment Program Data.
Prepared by: Vancouver Coastal Health, Public Health Surveillance Unit. April 16, 2014.

Figure 6. Proportion of Patients' CD4 Cell Count and Disease Stage at Diagnosis by Year of Diagnosis



Source: Public Health Surveillance Unit (HIV Surveillance Data) & BC CfE Drug Treatment Program Data.
Prepared by: Vancouver Coastal Health, Public Health Surveillance Unit. April 16, 2014.

Figure 7. Proportion and Ratio of Patients Diagnosed with CD4 > 500/Acute Stage and CD4 < 200 by Year of Diagnosis

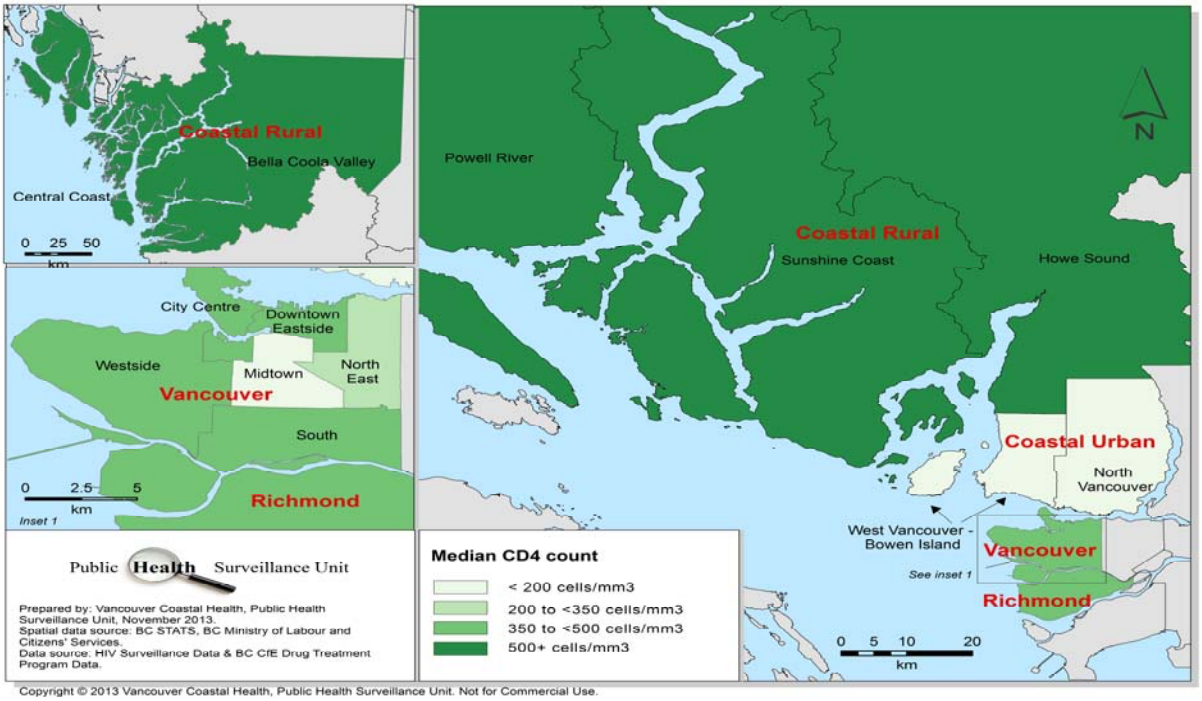


Source: Public Health Surveillance Unit (HIV Surveillance Data) & BC CfE Drug Treatment Program Data.
Prepared by: Vancouver Coastal Health, Public Health Surveillance Unit. April 16, 2014.

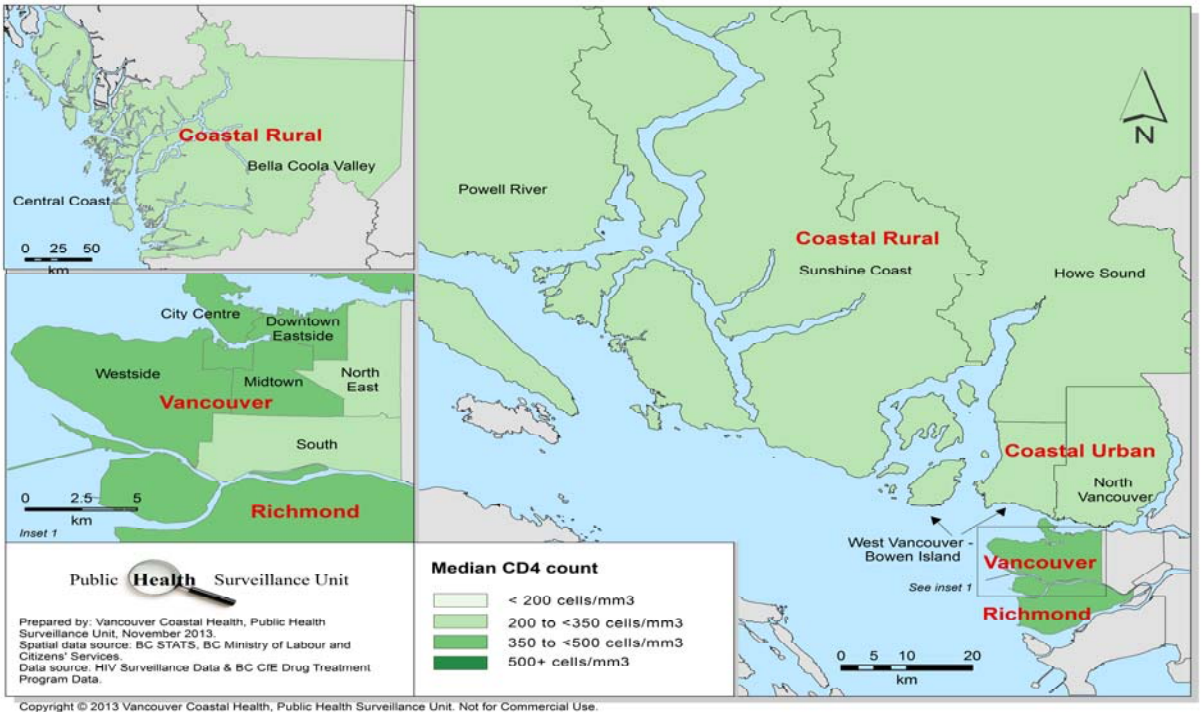
Public Health Surveillance Unit

Median CD4 Cell Count (cell/mm^3) at Diagnosis for HIV Positive Individuals

Map 4. Historical half-year average (January 2008 – June 2010)



Map 5. Average since Stop initiative (July 2010 – December 2013)



Section 3. Public Health Management Indicators

Figures, Maps and Tables

Summary of Results – Public Health Management Indicators

Figure 8. Proportion of New Diagnoses with Records of Public Health Follow-up

Compared to the preceding half year, the proportion of new positives with a record of public health follow-up significantly increased from 57% (S1 2013) to 82% (S2 2013). It is important to note that a record of public health follow up is dependent on the health authority or agency initiating follow up and therefore minor fluctuations between periods is expected.

Figure 9. Total Number of Contacts Elicited, Contacts per HIV Case and Contacts Notified

Compared to the preceding period, there was an increase in the total number of contacts elicited from HIV index cases in the second half of 2013.

The proportion of all contacts that were known to be notified of their exposure to HIV was significantly lower in 2013 compared to 2012.

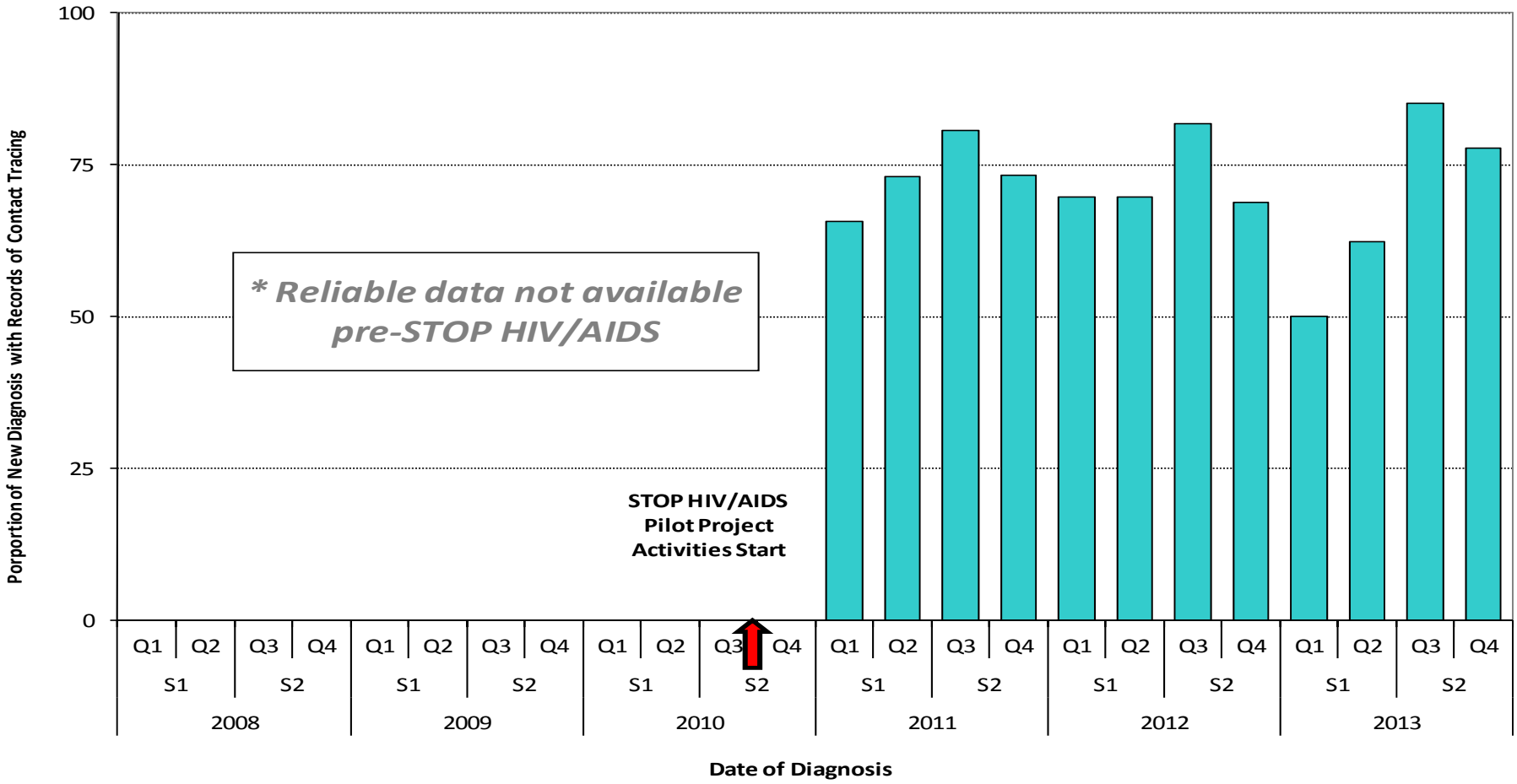
Figure 10. Proportion of Known Contact and Average Number of Anonymous Contacts per Index Case

In the second half of 2013, the proportion of known contacts was significantly lower than the previous period while a noticeable increase was observed in the average number of anonymous contacts per index case.

Figure 11. Number of Contacts Notified and Tested for HIV and Percent Positivity due to Contact Tracing

The total number of contacts that were tested for HIV as a result of public health follow-up increased in the second half of 2013, compared to the preceding period. Five new positives were identified in the second half of 2013, yielding a percent positivity of 9% due to contact tracing among notified contacts tested for HIV.

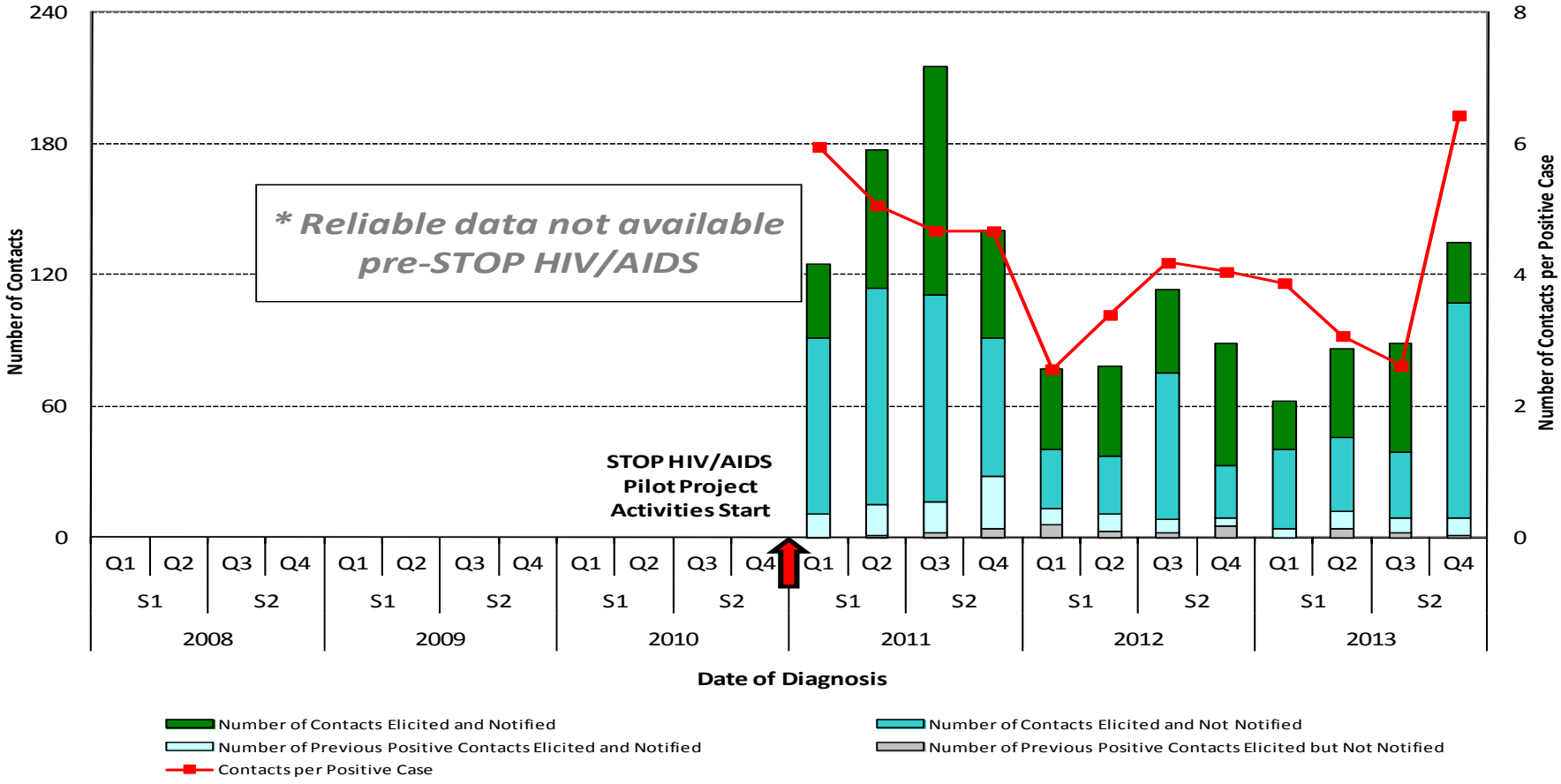
Figure 8. Proportion of New Diagnoses with Records of Public Health Follow-up



Source: Enhanced HIV Contact Tracing Form.
Prepared by: Vancouver Coastal Health, Public Health Surveillance Unit. April 16, 2014.

Public Health Surveillance Unit

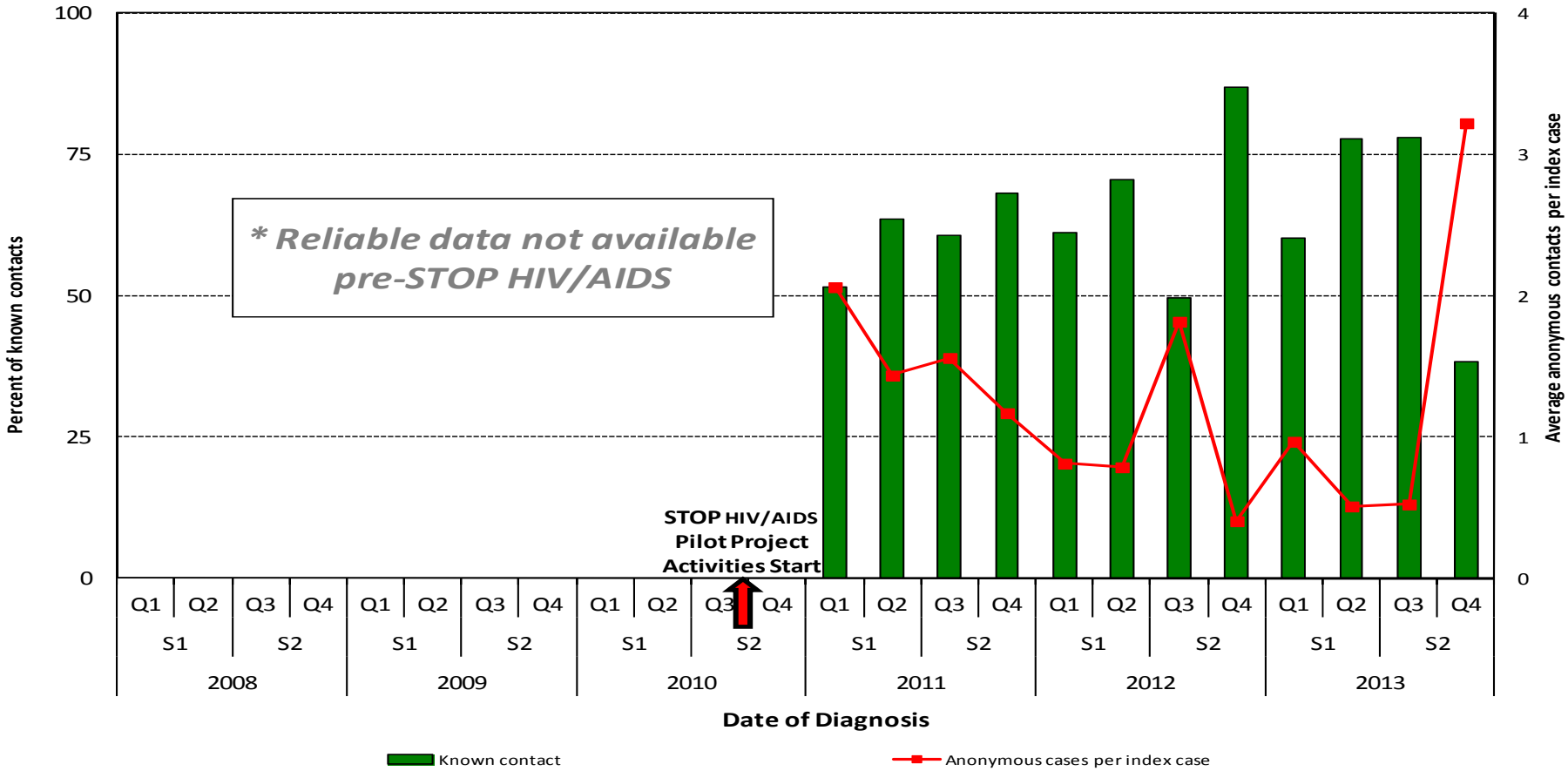
**Figure 9. Total Number of Contacts Elicited
Number of Contacts Elicited per Case and
Number of Contacts Notified**



Source: Enhanced HIV Contact Tracing Form.
Prepared by: Vancouver Coastal Health, Public Health Surveillance Unit. April 16, 2014.

Public Health Surveillance Unit

Figure 10. Proportion of Known Contacts and Average Number of Anonymous Contacts per Index Case



Source: Enhanced HIV Contact Tracing Form.
Prepared by: Vancouver Coastal Health, Public Health Surveillance Unit. April 16, 2014

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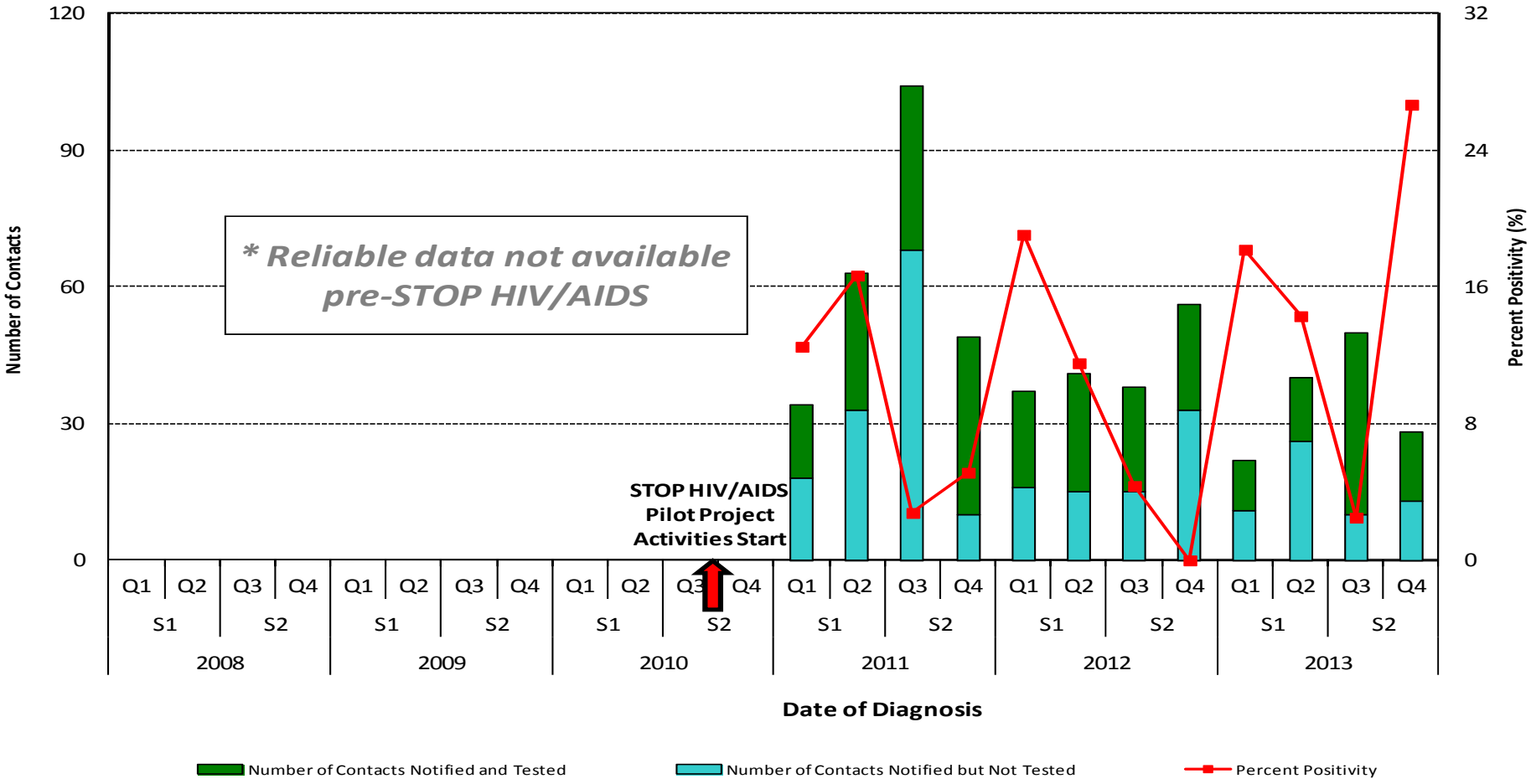
Figure 11. Number of Contacts Notified and Tested for HIV and Percent Positivity due to Contact Tracing



Source: Enhanced HIV Contact Tracing Form.
Prepared by: Vancouver Coastal Health, Public Health Surveillance Unit. April 16, 2014

Public Health Surveillance Unit

Section 4. Treatment Indicators

Figures, Maps and Tables

Table 7,8. Proportion of Patients Linked to Care within 30 Days by Gender, Exposure and Year of Diagnosis

Vancouver HSDA (Table 7):

The proportion of males with heterosexual exposure linked to care within 30 days of diagnosis substantially increased in 2010-2013 compared to previous years and compared to other exposure groups. In the period of 2010-2013, time to linkage to care was longest among males with MSM/IDU exposure, although the median days to linkage decreased in this group compared to previous years.

The proportion of females with IDU exposure linked to care within 30 days increased in 2010-2013 compared to previous years. The time to linkage to care was substantially shorter among the females with IDU exposure compared to females with heterosexual exposure.

Rest of VCH (Table 8):

The proportion of males with heterosexual exposure linked to care within 30 days of diagnosis substantially increased in 2010-2013 compared to previous years. While there was a slight increase in time to linkage among those with heterosexual exposure, a significant decline was observed in median days to linkage to care among males with MSM exposure.

The proportion of females linked to care within 30 days increased in 2010-2013 compared to previous years. However, not enough cases were available to detect a trend.

In general, linkage to care times in the rest of VCH are greater than median times to linkage in Vancouver across all exposure groups.

Table 9,10. Proportion of Patients Linked to Care within 30 Days by Gender, Age Group and Year of Diagnosis

Vancouver HSDA (Table 9):

The proportion of males in all age groups linked to care within 30 days of diagnosis substantially increased in 2010-2013 compared to previous years. The proportion of patients linked to care also increased with age. The lowest proportion was observed among individuals aged 15-29 years. Males aged 40-59 years had the fastest median days to linkage with 7 days, while males aged 60 years or older at diagnosis had the slowest median days to linkage with 11 days.

The proportion of females aged 15-29 years, 30-39 years and 50-59 years linked to care within 30 days increased in 2010-2013 compared to previous years. However time to linkage to care was noticeably longer among the 15-29 age group and the 50-59 age group.

Rest of VCH (Table 10):

The proportion of males in all age groups linked to care within 30 days of diagnosis substantially increased in 2010-2013 compared to previous years. All age groups except those aged 30-39 took longer to link with care in comparison with Vancouver Residents.

There are not enough cases to classify by age group for females. But overall, an increase in the proportion of patients linked to care within 30 days after diagnosis was observed.

Table 11,12. Proportion of Patients Currently Retained in Care by Gender, Exposure and Year of Care

Vancouver HSDA (Table 11)

Proportionally more males with MSM/IDU exposure were currently retained in care compared to other risk groups in the recent six years. Males with “other” exposure were least likely to be

retained in care compared to other exposure groups. Compared to 2009 and earlier, a slight increase in the proportion of patients currently retained in care was observed among patients with exposure identified as MSM/IDU, IDU and heterosexual.

In 2013, females with heterosexual and "other" exposure were more likely to be retained in care than those with IDU exposure. No noticeable changes were observed among females with IDU exposure, compared to the previous two years.

Rest of VCH (Table 12)

In 2013, more males with heterosexual exposure were currently retained in care compared to other risk groups.

A slight increase among females with heterosexual exposure was observed, compared to the previous two years.

Overall, there were no changes in the proportion of male and females currently retained in care in the recent 5 years.

Table 13,14. Proportion of Patients Currently Prescribed ARVs by Gender, Exposure and Year of Care

Vancouver HSDA (Table 13)

Among males with MSM/IDU and heterosexual exposures, the greatest proportions of individuals were prescribed ARVs in the first half of 2013. Compared to previous years, the proportion of males in all exposure categories, except those with unknown exposure, who were prescribed ARVs, has consistently increased since 2003.

Among all exposure groups, except the unknown exposure, the proportion of females who were prescribed ARVs continued to increase through 2013.

Rest of VCH (Table 14)

Males with IDU exposure had the greatest proportion of individuals who were prescribed ARVs in 2013. Since 2003, the proportion of males who were prescribed ARVs has consistently increased among those with MSM, IDU or heterosexual exposures.

There are not enough female cases to categorize by exposure.

Overall, there was an increasing trend in the proportion of males and females currently prescribed ARVs.

Table 15, 16. Mean Monitored Viral Load and Proportion of HIV Positive Individuals Not Fully Suppressed with Viral Load > 200 Copies/mL

Vancouver HSDA (Table 15)

The table shows a steady decline in the mean monitored viral load (copies/ml) since 2008. This corresponds with a steady increase in the proportion of HIV positive individuals with a prescription for antiretroviral therapy. The inverse relationship was observed for decline in both the proportion and absolute number of individuals with a viral load > 200 copies/ml since 2008.

Rest of VCH (Table 16)

Similar to Vancouver HSDA, the same trends were observed in the rest of VCH with increasing individuals on ARVs and decreasing monitored viral load since 2008.

Figure 12. Mean Monitored Viral Load (copies/ml) and Proportion of HIV Positive Individuals not Fully Suppressed with Viral Load > 200 Copies/mL

From 2008 to 2013, the mean monitored viral load (copies/ml) had been steadily on the decline in both Vancouver HSDA and the rest of VCH. This trend was similarly observed in the proportion of those with unsuppressed viral loads. The mean monitored viral load was below detectable levels (<200 copies/ml) since the initiation of STOP HIV/AIDS.

Maps 6, 7. Mean Monitored viral load (copies/ml) by LHAs

From July 1, 2010 to 2013, the mean monitored viral load across all LHAs decreased to less than 200 copies/mL, except Powell River. There were noticeable changes for Richmond, Howe Sound, Vancouver City Centre, Vancouver DTES, Vancouver Midtown, and Vancouver South which all saw average reductions in mean monitored viral load of 65% or more since prior to the STOP HIV/AIDS pilot project.

Table 7. Proportion of Patients Linked to Care within 30 Days of Diagnosis by Gender, Exposure and Year of Diagnosis *(Vancouver HSDA)*

Gender	Exposure	Year of Diagnosis 2003-2005		2006-2009		2010-2013	
		Linked to Care	Median Days to Linkage	Linked to Care	Median Days to Linkage	Linked to Care	Median Days to Linkage
Male	MSM	56.6	14	63.9	12	73.2	9
	MSM/IDU	60.7	16	60.0	17	64.3	10
	IDU	43.0	13	61.3	12.5	72.2	6.5
	Heterosexual	60.9	13	71.0	9	94.1	7
	Other*	57.1	18.5	40.0	13	–	–
	Unknown	–	–	20.0	1	76.9	7
	SubTotal	54.9	14	63.1	12	74.9	8
Female	IDU	30.2	18.5	42.2	13	64.7	2
	Heterosexual	53.3	13	86.0	12	77.8	9
	Other*	–	–	–	–	–	–
	Unknown	–	–	–	–	–	–
	SubTotal	39.5	14	63.7	12.5	74.5	9

Table 8. Proportion of Patients Linked to Care within 30 Days of Diagnosis by Gender, Exposure and Year of Diagnosis *(rest of VCH)*

Gender	Exposure	Year of Diagnosis 2003-2005		2006-2009		2010-2013	
		Linked to Care	Median Days to Linkage	Linked to Care	Median Days to Linkage	Linked to Care	Median Days to Linkage
Male	MSM	64.0	20	46.2	13.5	78.8	11.5
	IDU	33.3	9.5	40.0	13	–	–
	Heterosexual	53.8	13	55.6	14	80.0	16
	Other*	–	–	–	–	–	–
	Unknown	–	–	–	–	50.0	0
	SubTotal	55.3	15	51.2	14	76.9	12.5
Female	IDU	–	–	–	–	–	–
	Heterosexual	66.7	22.5	85.7	12.5	–	–
	Other*	–	–	–	–	–	–
	SubTotal	66.7	22.5	75.0	12.5	85.7	16

*Other includes blood/blood products, occupational, perinatal and other exposures
Source: Public Health Surveillance Unit (HIV Surveillance Data).
Prepared by: Vancouver Coastal Health, Public Health Surveillance Unit. April 16, 2014.

Table 9. Proportion of Patients Linked to Care within 30 Days of Diagnosis by Gender, Age Group and Year of Diagnosis *(Vancouver HSDA)*

Gender	Age Group	Year of Diagnosis 2003-2005		2006-2009		2010-2013	
		Linked to Care	Median Days to Linkage	Linked to Care	Median Days to Linkage	Linked to Care	Median Days to Linkage
Male	15-29	43.0	19.0	55.4	13.0	66.4	9.0
	30-39	56.3	14.0	60.1	13.0	68.4	9.0
	40-49	53.1	13.0	64.2	11.5	83.3	7.0
	50-59	62.5	12.0	76.1	12.0	80.6	7.0
	60+	74.1	13.0	83.3	8.0	100.0	11.0
	SubTotal	54.9	14.0	63.1	12.0	74.9	8.0
Female	15-29	38.5	11.0	40.6	11.0	66.7	13.0
	30-39	56.5	18.0	72.4	14.0	73.3	1.0
	40-49	25.9	15.0	78.6	19.0	73.3	7.0
	50-59	40.0	21.0	77.8	7.0	100.0	12.5
	60+	–	–	80.0	6.5	–	–
	SubTotal	38.8	14.0	62.9	12.5	74.5	9.0

Table 10. Proportion of Patients Linked to Care within 30 Days of Diagnosis by Gender, Age Group and Year of Diagnosis *(rest of VCH)*

Gender	Age Group	Year of Diagnosis 2003-2005		2006-2009		2010-2013	
		Linked to Care	Median Days to Linkage	Linked to Care	Median Days to Linkage	Linked to Care	Median Days to Linkage
Male	15-29	57.1	25.0	50.0	14.0	71.4	14.5
	30-39	40.0	10.5	55.6	16.0	66.7	8.5
	40-49	65.0	13.0	41.2	12.0	83.3	13.5
	50-59	40.0	22.0	42.9	13.0	85.7	12.5
	60+	60.0	22.0	–	–	66.7	11.0
	SubTotal	55.3	15.0	51.2	14.0	76.9	12.5
Female	15-29	–	–	–	–	–	–
	30-39	–	–	–	–	–	–
	40-49	–	–	–	–	–	–
	50-59	–	–	–	–	–	–
	60+	–	–	–	–	–	–
	SubTotal	62.5	22.0	75.0	12.5	85.7	16.0

*Other includes blood/blood products, occupational, perinatal and other exposures
*Individual Aged less than 14 was excluded from the table
Source: Public Health Surveillance Unit (HIV Surveillance Data).
Prepared by: Vancouver Coastal Health, Public Health Surveillance Unit. April 16, 2014.

Table 11. Proportion of Patients Currently Retained in Care by Gender, Exposure and Year of Care *(Vancouver HSDA)*

Gender	Exposure	Year of Care										
		2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Male	MSM	94.7	86.9	83.4	81.4	82.6	81.4	80.2	82.3	82.1	82.7	81.8
	MSM/IDU	–	61.5	80.0	76.5	75.0	78.6	81.8	86.7	85.7	82.7	87.0
	IDU	69.2	72.1	70.1	62.4	71.8	76.1	77.1	76.1	78.0	78.6	76.4
	Heterosexual	100.0	66.7	78.4	72.1	76.6	78.7	78.8	83.0	84.3	83.5	82.9
	Other*	–	–	80.0	87.5	66.7	44.4	45.5	61.5	69.2	66.7	73.3
	Unknown	–	–	–	–	–	–	–	71.4	71.4	71.4	80.0
	Subtotal	91.4	78.8	80.0	76.8	79.5	79.7	79.1	81.4	81.8	82.0	81.4
Female	IDU	66.7	66.7	55.3	57.7	56.1	60.8	68.8	73.4	79.3	80.7	79.8
	Heterosexual	83.3	64.3	85.0	78.6	80.0	84.3	79.3	78.3	79.0	90.0	84.0
	Other*	–	–	–	–	–	–	–	100.0	100.0	100.0	100.0
	Subtotal	75.0	67.6	66.7	64.6	65.7	70.9	74.1	76.5	79.8	86.0	82.5

Table 12. Proportion of Patients Currently Retained in Care by Gender, Exposure and Year of Care *(rest of VCH)*

Gender	Exposure	Year of Care										
		2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Male	MSM	–	84.6	72.7	85.2	79.4	82.5	83.3	86.0	81.0	84.3	83.3
	MSM/IDU	–	–	–	–	–	–	–	–	–	–	–
	IDU	–	–	80.0	50.0	50.0	63.6	80.0	80.0	60.0	75.0	83.3
	Heterosexual	–	100.0	77.8	80.0	66.7	91.7	93.8	83.3	85.7	68.2	87.0
	Other*	–	–	–	–	–	–	–	–	–	–	–
	Unknown	–	–	–	–	–	–	–	–	–	–	–
	Subtotal	100.0	86.4	75.7	79.5	71.7	81.3	85.5	85.0	80.2	80.2	84.8
Female	IDU	–	–	–	–	–	–	–	–	–	–	–
	Heterosexual	–	–	60.0	66.7	66.7	90.0	84.6	92.9	78.6	78.6	81.3
	Other*	–	–	–	–	–	–	–	–	–	–	–
	Subtotal	–	60.0	62.5	66.7	72.7	91.7	87.5	89.5	84.2	84.2	87.0

*Other includes blood/blood products, occupational, perinatal and other exposures.
Source: Public Health Surveillance Unit (HIV Surveillance Data) & BCCfE Drug Treatment Program Data.
Prepared by: Vancouver Coastal Health, Public Health Surveillance Unit. April 16, 2014.

Table 13. Proportion of Patients Currently Prescribed ARVs by Gender, Exposure and Year of Care *(Vancouver HSDA)*

Gender	Exposure	Year of Care										
		2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Male	MSM	17.9	22.2	27.7	30.2	36.6	42.3	50.3	57.7	62.2	65.4	67.2
	MSM/IDU	14.3	11.1	17.9	28.2	33.3	45.5	53.1	66.7	70.2	71.2	70.5
	IDU	5.6	19.4	22.7	33.0	37.4	43.9	50.3	55.8	62.2	66.5	69.0
	Heterosexual	32.3	34.0	38.1	45.1	50.5	58.8	60.2	63.3	69.8	71.2	71.7
	Other*	—	—	40.0	45.5	53.8	43.8	50.0	54.5	58.3	56.0	68.0
	Unknown	—	50.0	50.0	52.9	54.2	45.0	46.3	57.6	56.6	55.7	50.0
	Subtotal	18.4	23.1	28.2	33.2	39.0	44.7	51.4	58.4	63.0	65.7	66.6
Female	IDU	0.0	8.6	9.1	10.1	18.8	25.3	33.7	43.9	58.8	62.6	65.0
	Heterosexual	20.0	12.5	19.4	25.6	29.3	42.4	46.1	52.3	62.0	66.4	75.2
	Other*	—	—	—	—	—	83.3	75.0	77.8	77.8	88.9	88.9
	Unknown	—	—	—	—	—	60.0	60.0	33.3	50.0	55.6	66.7
	Subtotal	11.1	11.1	13.3	16.4	24.2	35.1	41.4	48.7	60.7	65.2	70.9

Table 14. Proportion of Patients Currently Prescribed ARVs by Gender, Exposure and Year of Care *(rest of VCH)*

Gender	Exposure	Year of Care										
		2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Male	MSM	50.0	27.8	34.6	37.5	46.5	52.1	62.3	61.5	68.0	75.6	74.1
	MSM/IDU	—	—	—	—	—	—	—	—	—	—	—
	IDU	—	—	33.3	28.6	27.3	63.6	90.9	81.8	91.7	92.3	92.3
	Heterosexual	—	12.5	18.2	45.5	41.7	62.5	73.7	69.6	68.0	72.0	76.9
	Other*	—	—	—	—	—	—	—	—	—	—	—
	Unknown	—	—	—	—	—	33.3	62.5	57.1	62.5	70.0	81.3
	Subtotal	35.3	27.3	29.2	38.2	41.4	53.7	67.4	64.5	68.9	75.2	76.4
Female	IDU	—	—	—	—	—	—	—	—	60.0	60.0	100.0
	Heterosexual	—	20.0	50.0	50.0	50.0	63.6	46.2	64.3	75.0	70.6	72.2
	Other*	—	—	—	—	—	—	—	—	—	—	—
	Unknown	—	—	—	—	—	—	—	—	—	—	—
	Subtotal	—	28.6	44.4	45.5	46.2	66.7	50.0	61.9	70.8	65.4	69.0

*Other includes blood/blood products, occupational, perinatal and other exposures

Source: Public Health Surveillance Unit (HIV Surveillance Data) & BCCfE Drug Treatment Program Data.

Prepared by: Vancouver Coastal Health, Public Health Surveillance Unit. April 16, 2014.

Table 15. Mean Monitored Viral Load and Proportion of HIV Positive Individuals Not Fully Suppressed with Viral Load > 200 Copies/mL *(Vancouver HSDA)*

Year	Half years	VCH53		VCH54		
		Mean Monitored vL (copies/mL)	Proportion on ARVs (%)	Proportion of all HIV positive individuals with viral load (>200 copies/mL)	Numerator/Denominator of VCH54	Proportion on ARVs (%)
2008	Jan-Jun	831	55	60	(396/661)	29
	July-Dec	596	61	53	(376/706)	31
2009	Jan-Jun	388	66	50	(378/758)	35
	July-Dec	315	70	44	(355/804)	35
2010	Jan-Jun	244	76	40	(342/852)	44
	July-Dec	205	77	37	(341/919)	44
2011	Jan-Jun	145	83	31	(294/949)	50
	July-Dec	129	86	30	(312/1025)	57
2012	Jan-Jun	110	89	26	(276/1074)	62
	July-Dec	98	90	23	(258/1111)	63
2013	Jan-Jun	95	91	23	(266/1171)	65
	July-Dec	81	93	21	(250/1197)	68

Source: Public Health Surveillance Unit (HIV Surveillance Data) & BCCfE Drug Treatment Program Data.
Prepared by: Vancouver Coastal Health, Public Health Surveillance Unit. April 16, 2014.

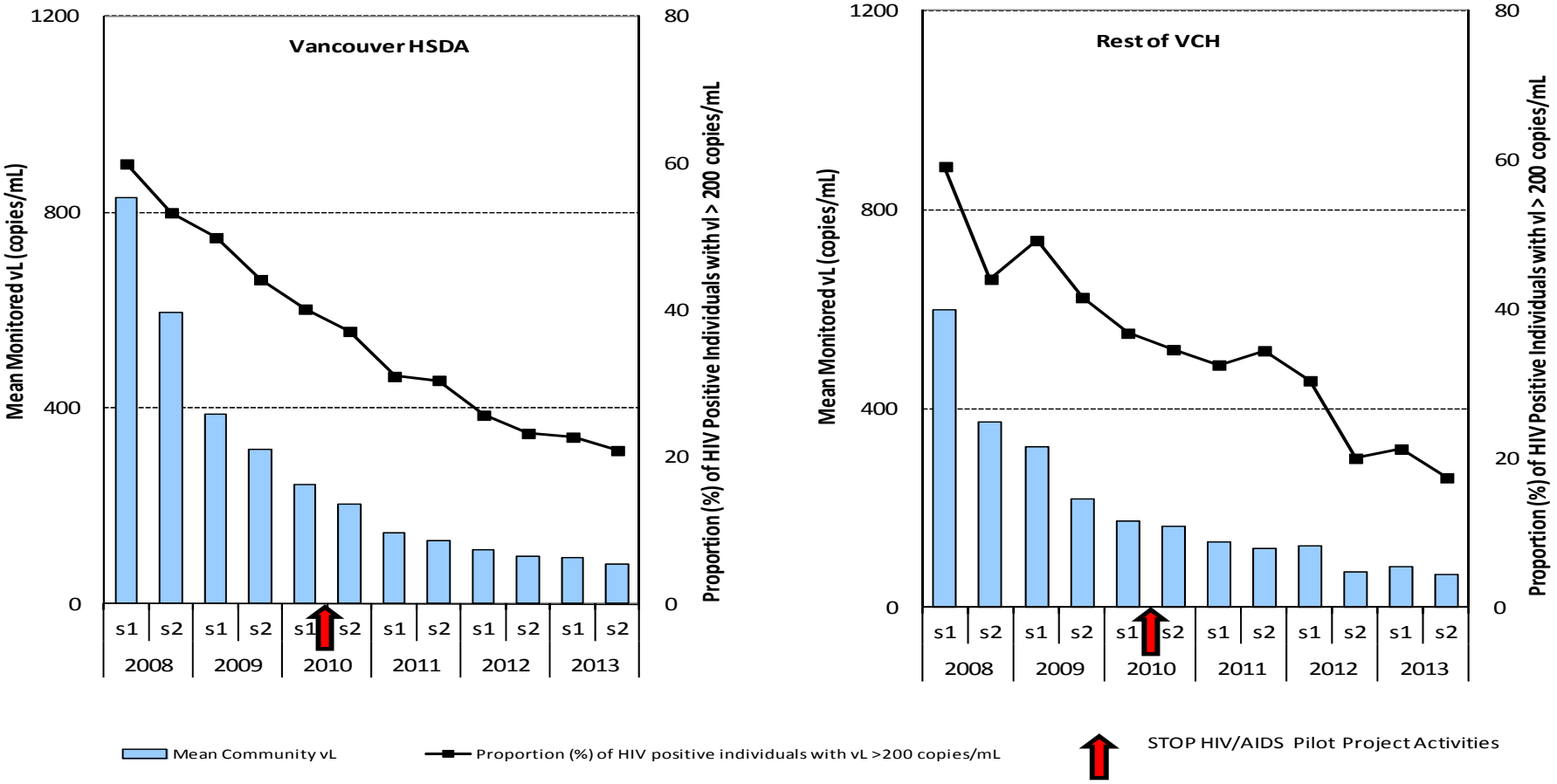
Table 14. Mean Monitored Viral Load and Proportion of HIV Positive Individuals Not Fully Suppressed with Viral Load > 200 Copies/mL *(rest of VCH)*

Year	Half years	VCH53		VCH54		
		Mean Monitored vL (copies/mL)	Proportion on ARVs (%)	Proportion of all HIV positive individuals with viral load (>200 copies/mL)	Numerator/Denominator of VCH54	Proportion on ARVs (%)
2008	Jan-Jun	599	61	59	(26/44)	35
	July-Dec	372	66	44	(22/50)	36
2009	Jan-Jun	322	70	49	(30/61)	47
	July-Dec	219	75	42	(27/65)	48
2010	Jan-Jun	173	78	37	(25/68)	48
	July-Dec	163	77	35	(28/81)	46
2011	Jan-Jun	131	83	33	(26/80)	54
	July-Dec	120	80	34	(32/93)	50
2012	Jan-Jun	124	86	30	(31/102)	61
	July-Dec	71	92	20	(22/110)	68
2013	Jan-Jun	82	91	21	(24/113)	67
	July-Dec	67	96	17	(20/115)	85

Source: Public Health Surveillance Unit (HIV Surveillance Data) & BCCfE Drug Treatment Program Data.
Prepared by: Vancouver Coastal Health, Public Health Surveillance Unit. April 16, 2014

Public Health Surveillance Unit

Figure 12. Mean Monitored Viral Load (vL) and Proportion of HIV Positive Individuals Not Fully Suppressed with Viral Load > 200 Copies/mL

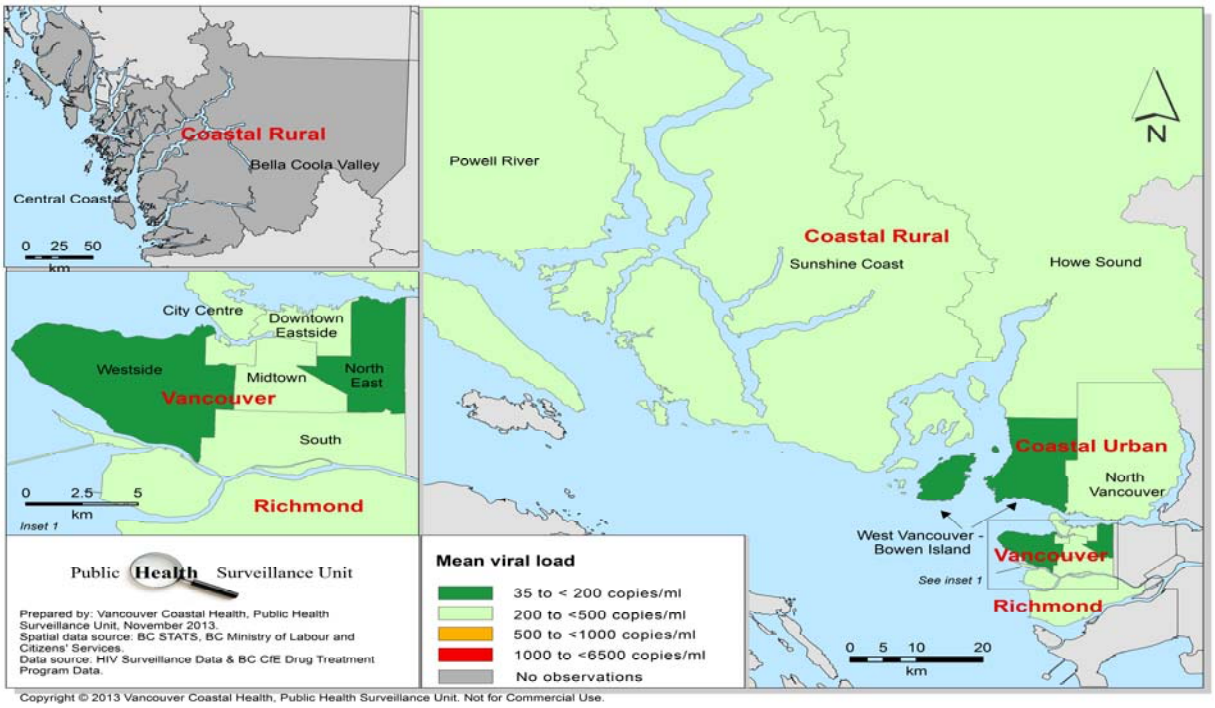


Source: Public Health Surveillance Unit (HIV Surveillance Data) & BCCfE Drug Treatment Program Data.
Prepared by: Vancouver Coastal Health, Public Health Surveillance Unit. April 16, 2014.

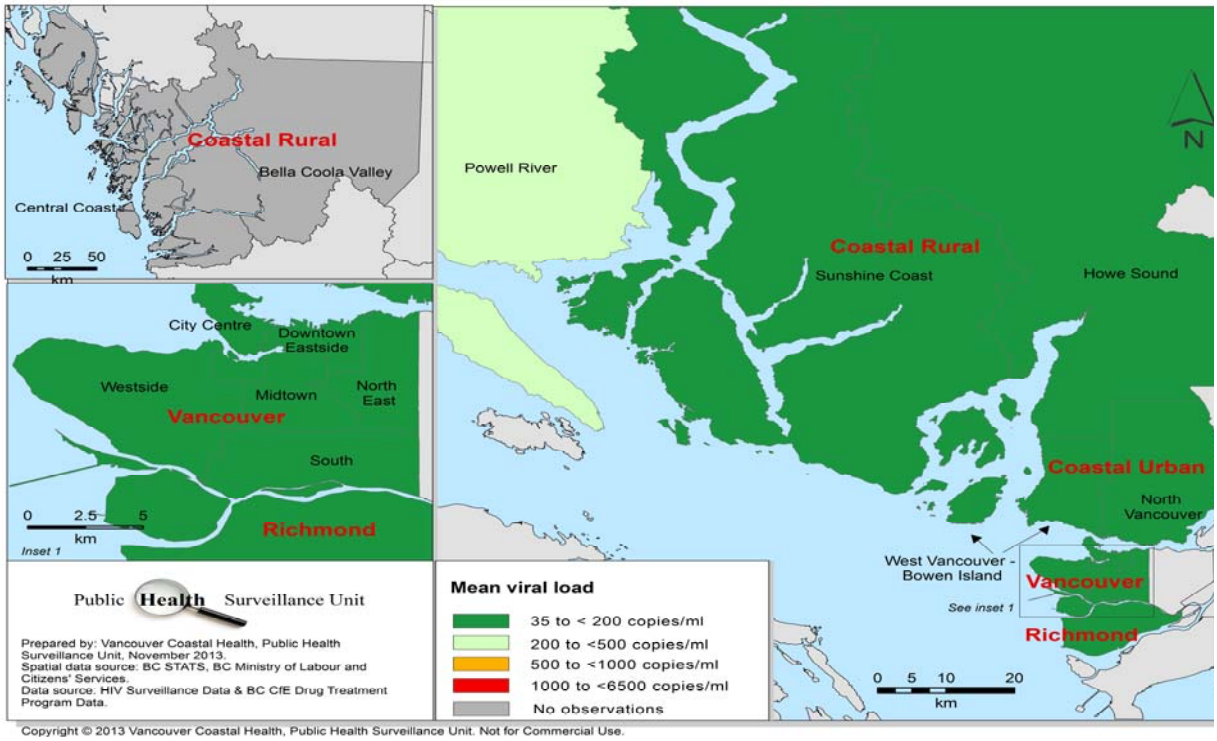
Public Health Surveillance Unit

Mean Monitored Viral Load (copies/ml) by Local Health Area

Map 6. Historical Average (January 2008 – June 2010)



Map 7. Average since Stop Initiative (July 2010 – December 2013)



Appendix A. Indicator Definitions and Rationale

Testing Indicators

VCH 1. Number of Point of Care Tests

Total number of Point of Care HIV tests administered by all sites engaged in STOP HIV/AIDS memorandums of understanding (in a given time period).

Rationale: Point-of-Care testing allows rapid on-site assessment of potentially HIV positive individuals, it improves access to care which may lead to increased case-finding, and reduced number of individuals who are unaware of their HIV status.

Data Source: HIV Point-of-Care (POC) Data

VCH4a. Number of New Positive POC Tests

Number of unique individuals who have had a positive POC HIV test in a given time period.

Rationale: Assessment of this indicator provides a measure of the success of testing initiatives and activities under the STOP HIV/AIDS Pilot Project.

Additional Selection Criteria:

- Previous positives are excluded.

Data Source: HIV Point-of-Care (POC) Data

VCH8a. Overall number of HIV lab tests (either from VCH residents or those who tested at a VCH clinic)

Total number of HIV lab tests, either from VCH residents or a VCH clinic including non-VCH residents who test in VCH.

Rationale: A primary objective of the STOP HIV/AIDS project is to increase testing across VCH Region. Assessing this indicator over time will provide a picture of how STOP HIV/AIDS is influencing HIV testing among clinical practices.

Data Source: HIV Laboratory Testing Data

VCH8b: Number of HIV lab tests from all clinics in VCH and HSDAs

Total number of HIV lab tests ordered from a clinic in VCH and HSDAs.

Rationale: A primary objective of the STOP HIV/AIDS project is to increase testing across VCH Region. Assessing this indicator over time will provide a picture of how STOP HIV/AIDS is influencing HIV testing among clinical practices.

Additional Selection Criteria:

- HIV lab testing records without a known clinic address are excluded.

Data Source: HIV Laboratory Testing Data

VCH11a: Number of HIV lab tests from residents of VCH and HSDAs

Total number of HIV lab tests ordered from residents of Vancouver Coastal Health Authority.

Rationale: Often people from outside the Health Authority will visit VCH to undergo HIV testing, this indicator is a measure of the testing volumes among residents of this Health Authority.

Additional Selection Criteria:

- HIV lab testing records without available residency information are included.

Data Source: HIV Laboratory Testing Data

VCH11d: Number of HIV lab tests from non-residents of VCH who tested in VCH.

Total number of HIV lab tests ordered from non-residents of Vancouver Coastal Health Authority.

Rationale: Often people from outside the Health Authority will visit VCH to undergo HIV testing, this indicator will measure this trend.

Additional Selection Criteria:

- HIV lab testing records without available residency information are excluded.

Data Source: HIV Laboratory Testing Data

VCH13a. Number of positive HIV diagnoses for residents of VCH and HSDAs

Total number of new unique HIV positive diagnoses within VCH as a whole and each HSDA.

Rationale: Increased case finding to reduce the number of individuals who are unaware of their HIV positive status is a primary objective of the STOP HIV/AIDS pilot project. This indicator is a direct measure of the success of the project.

Additional Selection Criteria:

- Individuals who may have been previously HIV positive are excluded.
- Individuals who tested in VCH without residency information are included.

Data Source: PHSU Reportable HIV Surveillance Data

VCH14a. Percent positivity of residents of VCH and HSDAs

The proportion of positive individuals diagnosed per HIV lab test administered for VCH residents.

Rationale: Increased case finding to reduce the number of individuals who are unaware of their HIV positive status is a primary objective of the STOP HIV/AIDS pilot project. This indicator will measure if STOP HIV/AIDS is indeed finding these individuals.

Additional Selection Criteria:

- Individuals who may have been previously HIV positive are excluded.
- Individuals who tested in VCH without residency information are included.

Data Source: PHSU Reportable HIV Surveillance Data and HIV Laboratory Testing Data

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VCH45a. Proportion of HIV patients with CD4 count > 500 cells/mL or acute stage at time of diagnosis

Proportion of individuals diagnosed HIV positive in a given time period who have a CD4 cell count of >500 cells/mL or acute stage at the time of diagnosis.

Rationale: Diagnosing individuals earlier on in the course of disease enables them to get on treatment earlier, improves patient quality of life and reduce the transmission in the community.

Analytical Definition

- Numerator: A subset of the denominator with a first CD4 cell count at diagnosis is >500 cells/mL or in acute stage.
- Denominator: All new HIV positive cases diagnosed in a given time period with a CD4 test on record.

Additional Selection Criteria:

- The CD4 count at time of diagnosis is selected from the testing which was closest to the diagnosis date. And testing should be within 1 year after diagnosis.
- CD4 testing records with either missing dates or missing values are excluded from this analysis.

Data Source: PHSU Reportable HIV Surveillance Data and BCCfE Drug Treatment Data.

VCH45b. Proportion of HIV patients with CD4 count < 200 cells/mL at diagnosis

Proportion of individuals diagnosed HIV positive in a given time period who have a CD4 cell count <200 cells/mL at the time of diagnosis.

Rationale: Finding HIV positive individuals before late stage is an important objective of the STOP HIV/AIDS program. Diagnosing individuals earlier on in the course of disease enables them to get on treatment earlier, and improves patient quality of life. It is also an indication that we are reducing the number of individuals in the population who are unaware of their HIV infection.

Analytical Definition

- Numerator: A subset of the denominator with a first CD4 cell count < 200 cell/mL at diagnosis and not at acute stage at time of diagnosis.
- Denominator: All new HIV positive cases diagnosed in a given time period with a CD4 test on record.

Additional Selection Criteria:

- The CD4 count at time of diagnosis is selected from the value on the testing date which was closest to the diagnosis. The test should also be within 1 year after diagnosis.
- CD4 testing records with either missing dates or missing values are excluded from this analysis.

Data Source: PHSU Reportable HIV Surveillance Data and BCCfE Drug Treatment Data.

Public Health Management Indicators

VCH16. Proportion of new positives with record of public health follow-up

The proportion of unique new positives who have documentation of public health follow-up

Rationale: Contact tracing aims to reduce transmission of HIV, and is also effective in reducing the incidence of HIV in the population. This is an important public health strategy to reach individuals who may not be aware of their HIV status. Initiating contact tracing is to elicit partner information from an index case is a critical first step and will be important to track STOP HIV/AIDS success.

Data Source: PHSU Reportable HIV Surveillance Data and Enhanced HIV Contact Tracing Form

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VCH17. Number of contacts elicited

Total number of unique contacts elicited from HIV positive clients in a given time period.

Rationale: see VCH16.

Data Source: PHSU Reportable HIV Surveillance Data and Enhanced HIV Contact Tracing Form

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VCH17a. Average number of contacts elicited per HIV positive case

Average number of unique contacts elicited per HIV positive client in a given time period.

Rationale: see VCH16

Analytical Definition

- Numerator: Total number of unique contacts elicited in a given time period (VCH17)
- Denominator: Total number of unique HIV index cases of all contacts elicited in the given time period.

Data Source: PHSU Reportable HIV Surveillance Data and Enhanced HIV Contact Tracing Form

VCH19. Proportion of contacts notified

Proportion of unique contacts notified of their potential exposure to HIV in a given time period.

Rationale: Managing infection in people with more than one current sexual partner will have a significant impact on the spread of HIV, thus assessing the success of partner notification practice will be an important measure. Moreover, evidence suggests that the method of partner notification is associated with the rate of partners presenting for medical evaluation.

Analytical Definition

- Numerator: Total number of unique contacts notified in a given time period.
- Denominator: Total number of unique contacts elicited from HIV positive clients in a given time period.

Data Source: PHSU Reportable HIV Surveillance Data and Enhanced HIV Contact Tracing Form

VCH23a. Proportion of notified contacts tested for HIV

Proportion of Contacts tested for HIV in a given time period.

Rationale: The goal of contact tracing is to inform contacts of their risk of infection, encourage contacts to be tested for HIV and identify individuals who are HIV positive. This indicator will be an important measure of the success of the enhanced public health efforts under STOP HIV/AIDS pilot project.

Analytical Definition

- Numerator: Number of contacts tested for HIV in a given time period.
- Denominator: Number of contacts notified of their potential exposure to HIV.

Additional Selection Criteria:

- Contacts known to be previously positive are excluded.

Data Source: PHSU Reportable HIV Surveillance Data and Enhanced HIV Contact Tracing Form

VCH23b. Number of notified contacts who tested HIV positive

Number of contacts who tested HIV positive in a given time period.

Rationale: A second measure of case-finding and contact tracing success is identifying individuals who are HIV positive.

Additional Selection Criteria:

- Contacts known to be previously positive are excluded.

Data Source: PHSU Reportable HIV Surveillance Data and Enhanced HIV Contact Tracing Form

VCH23c. Percent positivity (%) due to Contact Tracing

The proportion of positive contacts diagnosed per contact tested for HIV.

Rationale: A second measure of case-finding and contact tracing success is identifying individuals who are HIV positive, and the yield of positive cases from these efforts.

Analytical Definition

- Numerator: Number of unique contacts tested for HIV who tested positive
- Denominator: Proportion of contacts tested for HIV in a given time period

Additional Selection Criteria:

- Exclude contacts known to be previously positive.

Data Source: PHSU Reportable HIV Surveillance Data and Enhanced HIV Contact Tracing Form

VCH24. Proportion of notified contacts who were known to be previously positive

Proportion of contacts who were previously positive in a given time period.

Rationale: Identifying partners in the latent period of infection may identify those from whom infection was acquired, but overall this indicator will provide a picture of the HIV population in VCHA.

Analytical Definition

- Numerator: Number of contacts known/determined to be previously positive in a given time period.
- Denominator: Proportion of unique contacts notified of their potential exposure to HIV in a given time period.

Data Source: PHSU Reportable HIV Surveillance Data and Enhanced HIV Contact Tracing Form

Treatment Indicators

VCH41. Proportion of new diagnoses linked to care within 30 days of diagnosis

Proportion of individuals with an HIV positive test in a given time period, who have at least a HIV viral load (vL) or a CD4 test on record within 30 days of diagnosis.

Rationale: It is vital that linkage to HIV-care occur as soon after diagnosis as possible so that a clinical evaluation can be conducted, eligibility for ARV therapy and linkage to other services can be established to minimize the risk of transmission. Standard care for persons with HIV includes regular clinical and laboratory assessment. As part of enhanced HIV guidelines, new HIV diagnoses should receive a vL test or a CD4 test within 30 days of diagnosis.

Analytical Definition

- Numerator: A subset of the denominator having a CD4 or a vL test within 30 days of diagnosis.
- Denominator: Total number of new HIV positive cases diagnosed in a given time period.

Additional Selection Criteria:

- CD4 and/or vL testing records that occurred prior to diagnosis date are excluded from this analysis.
- Individuals deceased by the end of the half year are excluded.
- CD4 or viral load testing records with either missing dates or missing values are excluded from this analysis.

Data Source: PHSU Reportable HIV Surveillance Data and BCCfE Drug Treatment Data.

VCH44b. Time to linkage to HIV care among those newly diagnosed with HIV (median days).

The interval between first HIV positive test and first HIV CD4 or viral load, among all individuals diagnosed in the given time period.

Rationale: It is vital that linkage to HIV-care occur as soon after diagnosis as possible so that a clinical evaluation can be conducted, eligibility for ARV therapy and linkage to other services can be established to minimize the risk of transmission. Standard care for persons with HIV includes regular clinical and laboratory assessment. As part of enhanced HIV guidelines, new HIV diagnoses should receive a vL test or a CD4 test within 30 days of diagnosis. This indicator provides a picture of how quickly HIV positive individuals are in fact receiving the appropriate care.

Additional Selection Criteria:

- CD4 or viral load testing records that occurred prior to diagnosis date are excluded from this analysis.
- Individuals deceased by the end of the half year are excluded.
- CD4 or viral load testing records with either missing dates or missing values are excluded from this analysis.

Data Source: PHSU Reportable HIV Surveillance Data and BCCfE Drug Treatment Data.

VCH46a. Proportion of HIV patients currently retained in care

Proportion of HIV positive individuals in the database who have had the recommended number of vL tests in a given time period.

Rationale: Because HIV disease progression is highly variable and can occur rapidly, and treatment requires constant evaluation for efficacy and safety, HIV patients need to be closely monitored on a regular basis. Standard practice requires a minimum of 3 visits/laboratory assignments annually.

Analytical Definition

- Numerator: Total number of newly diagnosis cases who having at least 2 vL or CD4 test and with at least 3 month apart in a year, or at least 1 vL or CD4 test for those diagnosed less than 1 year.
- Denominator: Total number of newly diagnosis in the dataset.
- Year to Date: take the value from the current half-year and previous half-year.

Additional Selection Criteria:

- This cohort will retrospectively select back over the past 12 months.
- Only individuals linked with BCCfE Drug Treatment Data are included.
- Individuals without any CD4 or vL test since diagnosis are excluded.
- Individuals diagnosed less than half year for a given time period are excluded.
- Individuals deceased before the end of a given time period are excluded.
- CD4 and Viral load testing records that occurred prior to diagnosis date are excluded from this analysis.
- CD4 and Viral load testing records with either missing dates or missing values are excluded from this analysis.

Data Source: PHSU Reportable HIV Surveillance Data and BCCfE Drug Treatment Data.

VCH47b. Proportion of matched HIV patients not found in care

Proportion of all known HIV positive individuals in the population who have been diagnosed for at least 9 months, and have not had a vL test within the past 9 months.

Rationale: Due to the need for long-term monitoring of both disease progression and the efficacy of any therapy, as well as the status of comorbid conditions or lifestyle factors, long-term retention in HIV-related care is imperative to minimize the risk of HIV-related morbidity and mortality.

Analytical Definition

- Numerator: Number of HIV patients in the denominator who have not had a vL for at least 9 months
- Denominator: All individuals in the dataset who have been HIV positive for at least 9 months.
- Year to Date: take the value from the current half-year and previous half-year.

Additional Selection Criteria:

- Only individual linked with BCCfE Drug Treatment Data are included.
- Individuals diagnosed less than 9 months from the end of a given time period are excluded.
- Individuals deceased before by the end of a given time period are excluded.

Data Source: PHSU Reportable HIV Surveillance Data and BCCfE Drug Treatment Data.

VCH48. Proportion of patients who are currently prescribed ARVs

Total alive HIV positive individuals who have a prescription for ARVs in a given time period.

Rationale: A primary objective of the STOP HIV/AIDS program is to ensure that more HIV positive individuals are actively engaged in care and on antiretroviral therapy.

Analytical Definition

- Numerator: Total number of individuals who have a prescription for ARVs in the last two months of the given time period.
- Denominator: Total alive HIV positive individuals in a given time period.

- Year to Date: take the value from the current half-year and previous half-year.

Additional Selection Criteria:

- Individuals deceased by the end of a given time period are excluded.

Data Source: PHSU Reportable HIV Surveillance Data and BCCfE Drug Treatment Data.

VCH49. Proportion of patients who have discontinued and currently not restarted ARVs

Proportion of alive HIV positive individuals who have not had a prescription for ARVs for at least 2 consecutive months, and not resumed it in the coming month.

Rationale: Not only is it important to ensure that more HIV positive individuals are actively engaged and retained on ARV treatment, it is equally critical for STOP HIV/AIDS pilot project success to reduce the barriers to optimal treatment adherence and the number of people who discontinue ARVs.

Analytical Definition

- Numerator: Number of individuals who have not had a prescription for ARVs for at least 2 consecutive months AND have not resumed taking ARVs during the given time period.
- Denominator: All alive HIV positive individuals who have ever been on ARV treatment.
- Year to Date: take the value from the current half-year and previous half-year.

Additional Selection Criteria:

- The last four month ARV value will be considered in a given time period.
- Records with ARV prescription prior to HIV diagnosis are excluded.
- Individuals deceased by the end of the given time period are excluded.

Data Source: PHSU Reportable HIV Surveillance Data and BCCfE Drug Treatment Data.

VCH51. Proportion of individuals newly taking ARVs who achieve viral suppression within 9 months since treatment starts

Proportion of individuals who are taking ARVs for the first time and who achieve viral suppression within 9 months.

Rationale: Adherence to treatment protocols is essential to reducing the morbidity and mortality associated with HIV and AIDS. The majority of individuals who adhere to ARV treatment protocols achieve virologic suppression, and thus measuring this status serves as a proxy measurement for treatment adherence.

Analytical Definition

- Numerator: A subset of the denominator with having two consecutive viral load record of <200 copies per/mL both taken after therapy start and at least one of which is taken within the first nine months of therapy
- Denominator: All HIV positive individuals initiating first ever ARV treatment in a given time period and who have at least two viral load tests on record.
- Year to Date: take the value from the current half-year and previous half-year.

Additional Selection Criteria:

- This cohort will retrospectively select back over the past 12 months.

- Individuals deceased by the end of the given time period are excluded.
- Individuals with first initiative ARV prescription prior to HIV diagnosis are excluded.
- Viral load testing records that occurred prior to diagnosis date are excluded from this analysis.

Data Source: PHSU Reportable HIV Surveillance Data and BCCfE Drug Treatment Data.

VCH52. Proportion of all individuals on ARVs who currently virally suppressed with viral load less than 200 copies/mL

Proportion of all individuals who are prescribed ARVs and achieved viral suppression.

Rationale: Adherence to treatment protocols is essential to reducing the morbidity and mortality associated with HIV and AIDS. The majority of individuals who adhere to ARV treatment protocols achieve virologic suppression, and thus measuring this status serves as a proxy measurement for treatment adherence. It is important to know the measure of this indicator in both new ARV starts and all individuals on ARV treatment.

Analytical Definition

- Numerator: A subset of the denominator who have two consecutive viral load records of <200 copies per/mL and with at least 3 month apart in the given time period after therapy start.
- Denominator: All HIV positive individuals who were on ARV treatment in a given time period and who have at least 2 viral load tests on record.
- Year to Date: take the value from the current half-year and previous half-year.

Additional Screening Criteria:

- This cohort will retrospectively select back over the past 12 months.
- Individuals deceased by the end of the given time period are excluded.
- Individuals with first initiative ARV prescription prior to HIV diagnosis are excluded.
- Viral load testing records that occurred prior to diagnosis are excluded from this analysis.

Data Source: PHSU Reportable HIV Surveillance Data and BCCfE Drug Treatment Data.

VCH53. Mean monitored viral load of all known HIV positive individuals within VCH

Mean vL values of all HIV positive individuals in the dataset within a given time period.

Rationale: Mean monitored viral load is an indicator of the average viral burden for a particular population of HIV-positive persons, and is related to treatment effectiveness and transmission risk.

Additional Selection Criteria:

- Individuals deceased by the end of the given time period are excluded.
- Viral load testing records with either missing dates or missing values are excluded from this analysis.

Data Source: PHSU Reportable HIV Surveillance Data and BCCfE Drug Treatment Data.

VCH54. Proportion of all individuals with viral load greater than 200 copies/mL

The proportion of HIV positive individuals who have two vL tests >20 copies/mL within the given time period.

Rationale: HIV positive individuals with vL levels >200 copies/mL on record are considered to be infective, as opposed to suppressed individuals who are less likely to transmit HIV. This indicator also provides a measure of monitored viral load.

Analytical Definition

- Numerator: A subset of the denominator who have at least a viral load >200 copies/mL within a given time period.
- Denominator: All alive HIV positive individuals in the dataset

Additional Selection Criteria:

- Individuals deceased by the end of the given time period are excluded.
- Viral load testing records with either missing dates or missing values are excluded from this analysis.

Data Source: PHSU Reportable HIV Surveillance Data and BCCfE Drug Treatment Data.

Further Graphs, Maps and Tables

Mean Monitored Viral Load

Rationale: Community viral load is a population-based measure of HIV-infected individual's concentration of plasma HIV-1 RNA (viral load). It is an attractive indicator to monitor the progress of HIV care and treatment when assessed over time. However there is some confusion over the definition and measurement of this indicator. In August of 2011, the US CDC issued a guideline on measurement of community viral load. The document proposed a family of viral load measurements, including population viral load, community viral load, in-care viral load and monitored viral load. **In this report, we will use the monitored viral load to track the progress of HIV care and treatment.** Monitored Viral Load is limited to the readily observable HIV viral loads of persons who have been diagnosed with HIV infection, who are receiving HIV medical care and disease monitoring through viral load testing, and whose test results are available for surveillance. The guideline also suggests using the most recent viral load result per person for the analysis in the given time period.

Additional Selection Criteria:

- The most recent viral load is used to the analysis in a given time period.
- Individuals deceased by the end of the given time period are excluded.
- Viral load testing records with either missing dates or missing values are excluded from this analysis.

Data Source: PHSU Reportable HIV Surveillance Data and BC CfE Drug Treatment Data.

Appendix B. Population Monitoring Data Sources

Appendix B – Population Monitoring Data Sources

HIV Point-of-Care (POC) Data

POC testing volumes reported from VCH sites engaged in STOP HIV/AIDS activities through Vancouver Coastal Health Authority Memorandums of Understanding.

Limitations: This data is not representative of all clinics in Vancouver HSDA or VCH, and thus testing volumes of clinics conducting POC tests outside of STOP HIV/AIDS initiatives are not captured. For this reason, the data likely reflect an underestimate of the true counts for POC testing volumes within the VCH population.

Data on POC preliminary positives, false positives and previous positives is received from VCH CD Control Department. All clinics in VCH who do conduct POC testing report any preliminary positive HIV tests to VCH CD Control Department. VCH CD Control Department conducts follow-up on a reported POC positives to determine if confirmation testing has been completed, and notes any previous and false positives.

Limitations: This process is relatively new, and as a result not all sites conducting POC testing are reporting these data to VCH CD Control Department. For this reason, the data likely reflect an underestimate of the true counts for preliminary positives, false positives and previous positives.

HIV Laboratory Testing Data

Data on HIV laboratory testing volumes is captured from both the PHSA Public Health Microbiology and Reference Laboratory (for all HIV confirmatory western blot analyses in the province of BC) and Providence Health Care (for first-step HIV confirmatory testing for all HIV tests ordered at St. Paul's Hospital).

Limitations: PHSA Public Health Microbiology Reference Laboratory testing data is raw data on all HIV tests conducted within VCH, and analyses were produced using aggregate counts. This data does take into account multiple HIV tests for same sample, but do not take into account multiple HIV tests conducted for an individual within a 30-day period, and thus does not determine test counts by "testing episodes". Data capture for all HIV testing done at St Paul's Hospital was initiated in April 2008, and thus results reported herein for Q1 of 2008 do not include counts done at St. Paul's Hospital.

PHSU Reportable HIV Surveillance Data

Data on all HIV positive tests in VCH is reported to the Public Health Surveillance Unit at Vancouver Coastal Health Authority. This data is captured on a monthly basis, and includes information on sociodemographic characteristics, place of HIV testing, address of residence at time of diagnosis, HIV risk factors and stage of HIV disease at diagnosis. This data does not report on individuals who tested in VCH but are non-residents of VCH.

HIV Clinical Monitoring Data

Clinical monitoring data includes information on viral load (vL) testing information and CD4 testing information that are captured by the BC Centre for Excellence in HIV/AIDS. Viral load data and CD4 data are captured for all HIV positive individuals having such clinical monitoring completed in the province of BC. These data are to be updated in real time, however in some instances there may be small lag times between sample draw date and the time the result ends up in the data base (typically less than 15 days).

Limitations: Real time updates has not always been in place for CD4 values. From 2007 and earlier only annual updates of CD4 measurements were received. Furthermore, all CD4 results are not consistently captured and uploaded into the BC CfE database, as not all sites completing these tests have been linked to source data.

Drug Treatment Program Data

Treatment of nearly all HIV positive individuals in the province of BC is delivered or coordinated through the BC Centre for Excellence Drug Treatment Program. As a result information on treatment regimens, date of treatment starts and restarts is captured for all HIV positive individuals involved in this program.

Limitations: Raw data from the CfE Drug Treatment Program is not provided for these analyses, instead some data have been cleaned and rolled into aggregate counts. As a result, there are some assumptions that have been made in order to work with this data format. These are described in the data definitions.