STOP HIV/AIDS Annual Monitoring Report

2018

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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 *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 Karyn Gabler (karyn.gabler@vch.ca).

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Acknowledgements

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- BC Centre for Excellence in HIV/AIDS - Paul Sereda & William Chau, Analysts and Dr. Kate Heath, Epidemiologist
- Microbiology & Virology at Providence Health Care
- BC Public Health Microbiology and Reference Laboratory
- Vancouver Coastal Health STOP Outreach Team
- 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 August 10, 2019.**
- **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

VCH 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 Coastal Health since May 2003, 85% were linked to clinical monitoring and drug treatment records. The remaining 15% are diagnoses who participated in non-nominal testing or were lost to care and are therefore unable to be linked, but may still be engaged in care. 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
2018

Testing Indicators

- The number of POC tests from POC test sites engaged in STOP HIV/AIDS initiatives decreased significantly compared to previous half years, the average since STOP and year to date. The number of new positives from POC tests decreased significantly compared to the average since STOP and year to date [VCH1, VCH4a].
- Overall HIV lab testing volumes from VCH residents or those who tested in VCH were significantly higher than the average since STOP, and historical baseline. In the second half of 2018, volumes increased 30% compared to the average since STOP, and were 178% higher than the historical baseline [VCH8a].
- HIV lab test volumes from clinics in VCH were significantly higher than the average since STOP and to the historical baseline [VCH8b]. Compared to the average since STOP, Coastal Urban HSDA had the highest increases (69%), followed by Richmond (51%), Coastal Rural (39%) and Vancouver (22%). VCH clinic test volumes were 173% higher compared to the historical baseline.
- HIV lab tests among residents significantly increased in comparison to the average since STOP, and the historical baseline [VCH11a]. Compared to the average since STOP, Richmond HSDA had the highest increase (60%), followed by Vancouver (29%).
- In 2018, HIV lab tests from non-VCH residents who tested in VCH [VCH11d] increased slightly compared to the second half of 2017 and remain significantly higher than the average since STOP, and the historical baseline.
- The number of newly reported HIV positives from VCH significantly decreased in 2018 compared to 2017, since STOP and the historical baseline [VCH13a]. Eighty-six percent of cases in 2018 were reported among Vancouver residents [VCH13a.1].
- The percent positivity of HIV testing [VCH14a] significantly decreased in VCH compared to the average since STOP and the historical baseline. The decline in percent positivity since STOP 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. In 2018 percent positivity decrease may also be attributed to the increased uptake of pre-exposure prophylaxis as a means to prevent HIV infection. Due to a small number of positives in Richmond, Coastal Urban and Coastal Rural, the percent positivity is likely to fluctuate.
- In the second half of 2018, the proportion of new HIV positive cases diagnosed with a CD4 count >= 500 cells/mm^3 or with acute stage disease [VCH45a] increased compared to the average since STOP and the historical average.
- The proportion of new HIV positive cases diagnosed with a CD4 count < 200 cells/mm^3 [VCH45b] decreased in the second half of 2018. 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 partner notification 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 remained stable in comparison to the preceding periods [VCH16] and the average since STOP. 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 number of partners elicited in the first half of 2018 decreased compared to the preceding periods [VCH17], as well as since STOP. It is important to consider that the number of cases also decreased over this period of time.
- The average number of partners elicited increased compared to the preceding periods, the average since STOP and year-to-date [VCH17a]. An average of 6 partners per case was elicited in 2018.
- The proportion of partners notified remained stable compared to the previous half-year, the average since STOP and year to date [VCH19].
- The proportion of notified partners that were known to be previously HIV positive in the 2018 increased compared to preceding periods and the average since STOP [VCH24].
- The proportion of notified partners known to be tested for HIV decreased compared to the preceding half year, the average since STOP and the year to date at 38% in the second half of 2018. The decrease in testing may be attributed to the increase in partners known to be previously positive [VCH23a].
- Three new HIV positive cases were diagnosed through public health follow-up in 2018, which is similar to the preceding periods and the average since STOP [VCH23b].
- The percent positivity in 2018 overall was 5%, which is higher than in 2017 where the percent positivity was 4% [VCH23c] but lower than the average since STOP.

Treatment Indicators

- The proportion of new diagnoses linked to care within 30 days in VCH in the first half of 2018 was the highest proportion since STOP [VCH41]. Among the rest of VCH proportions 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 in VCH was 5 days in 2018 and remains below the average since STOP and the historical baseline [VCH44b].
- The proportion of HIV patients currently retained in care declined compared the average since STOP [VCH46]. 88% of Coastal Rural residents were currently retained in care, followed by Richmond (87%), Coastal Urban (80%), and Vancouver (75%).
- The proportion of patients not found in care increased when compared to the average since STOP, and the historical baseline [VCH47b]. In the most recent period, 20% of Vancouver residents were not found in care, followed by Coastal Urban (19%), Coastal Rural (14%) and Richmond (10%).
- The proportion of patients currently prescribed ARVs significantly increased compared to the historical baseline [VCH48]. Conversely, the proportion of patients who discontinued and did not restart ARVs decreased significantly compared to the historical baseline [VCH49].
- The proportion of individuals newly taking ARVs and achieving viral suppression (viral load < 200 copies/mL) within 9 months of treatment is higher for 2018 compared to 2017 [VCH51]. *It is important to note that this indicator is influenced by a lag in data capture.*
- The proportion of individuals on ARVs achieving viral suppression with viral load <200 copies/mL increased significantly compared to the average since STOP, and the historical baseline [VCH52]. The greatest proportion of individuals achieving viral suppression was observed in Coastal Urban HSDA with 96% followed by Richmond with 91% in the second half year of 2018.
- The mean monitored viral load of all known HIV positive individuals in VCH continues to decline and was significantly lower than the average since STOP and the historical baseline [VCH53].
- The proportion of individuals with a viral load >200 copies/ml (not suppressed) in VCH is significantly lower than the average since STOP, the historical baseline, and year to date [VCH54].

STOP HIV/AIDS Monitoring Indicators
Annual Summary Report
2018

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 2018	Jan-Jun 2018	Jul-Dec 2017	Jan-Jun 2017	Avg	Min	Max	Avg	Min	Max	Year 2018	Year 2017	
Testing Indicators	VCH1	Number of POC tests	1290	1862	2628	2490	3363	792	8669	N/A	N/A	N/A	3152	5118	C-S-Y-
	VCH4a	Number of new true positive POC tests	-	-	-	-	14	-	41	N/A	N/A	N/A	-	5	C+S+Y-
	VCH8a	Overall number of HIV lab tests (either from VCH residents or those who tested at a VCH clinic)	106871	112270	103900	108486	83211	39389	112270	38387	37557	39563	219141	212386	S+H+
	VCH8b	Number of HIV lab tests from all clinics in VCH	102806	107441	99159	104257	80072	37495	107441	36423	35572	37596	210247	203416	S+H+
	VCH8b.1	Vancouver	80638	80461	73241	77563	62505	30372	80638	29453	28692	30543	161099	150804	S+H+
	VCH8b.2	Richmond	12407	12311	10808	11154	7753	2351	12559	2331	2231	2422	24718	21962	S+H+Y+
	VCH8b.3	Coastal Urban	6440	10322	10722	11107	6582	3055	11107	2976	2898	3105	16762	21829	C-H+Y-
	VCH8b.4	Coastal Rural	3321	4347	4388	4433	3231	1635	4554	1663	1621	1734	7668	8821	C-H+Y-
	VCH11a*	Number of HIV lab tests from residents of VCH	91427	96797	89327	92458	70046	31944	96797	30955	30170	31947	188224	181785	S+H+
	VCH11a.1*	Vancouver	65868	66704	60589	62413	49823	23591	66704	22993	22292	23785	132572	123002	S+H+
	VCH11a.2*	Richmond	14188	14132	12790	13270	9162	2964	14188	2819	2674	2916	28320	26060	S+H+
	VCH11a.3*	Coastal Urban	7414	10899	11175	11709	7311	3446	11709	3333	3257	3413	18313	22884	C-H+Y-
	VCH11a.4*	Coastal Rural	3957	5062	4773	5066	3750	1856	5241	1810	1769	1860	9019	9839	C-H+
	VCH11d	Number of HIV lab tests from known non-residents of VCH, who tested in VCH	15444	15473	14573	16028	13165	7445	16864	7432	7332	7674	30917	30601	S+H+
	VCH13a*	Number of positive HIV diagnoses for VCH residents	41	46	44	51	66	41	98	87	77	99	87	95	C-S-H-
	VCH13a.1*	Vancouver	34	41	43	42	59	34	87	80	72	93	75	85	C-S-H-Y-
	VCH13a.2*	Richmond	-	-	-	5	-	0	5	-	-	5	-	6	C+S+Y-
	VCH13a.3*	Coastal Urban	-	-	-	-	-	0	5	-	-	-	5	-	C+S+Y+
	VCH13a.4*	Coastal Rural	-	-	-	-	-	0	-	-	0	-	-	-	C-S-H+Y+
	VCH14a	Percent positivity (%) of VCH residents	0.04	0.05	0.05	0.06	0.09	0.04	0.28	0.28	0.25	0.33	0.05	0.05	S-H-
	VCH14a.1	Vancouver	0.05	0.06	0.07	0.07	0.12	0.05	0.33	0.35	0.32	0.42	0.06	0.07	S-H-
	VCH14a.2	Richmond	0.02	0	0.01	0.04	0.03	0	0.17	0.11	0.07	0.17	0.01	0.02	
	VCH14a.3	Coastal Urban	0.04	0.02	0	0.02	0.03	0	0.11	0.10	0.09	0.12	0.03	0.01	
	VCH14a.4	Coastal Rural	0.03	0.06	0	0.04	0.05	0	0.16	0.04	0	0.11	0.04	0.02	
	VCH45a	Proportion of all VCH HIV patients with CD4 count > 500 cells/mm3 or acute stage at diagnosis (%)	61	46	64	45	49	40	65	41	35	53	53	54	
	VCH45a.1	Vancouver	67	47	66	48	51	42	67	42	34	56	56	57	H+
	VCH45a.2	Rest of VCH	50	40	.	75	35	0	75	25	0	67	44	75	
	VCH45b	Proportion of all VCH HIV patients with CD4 count < 200 cells/mm3 at diagnosis (%)	9	24	11	19	19	9	25	22	17	34	18	15	
	VCH45b.1	Vancouver	7	25	11	18	17	7	26	21	14	31	17	15	
	VCH45b.2	Rest of VCH	25	20	-	0	26	0	50	44	0	100	22	0	

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)
- 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.

STOP HIV/AIDS Monitoring Indicators
Annual Summary Report
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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 2018	Jan-Jun 2018	Jul-Dec 2017	Jan-Jun 2017	Avg	Min	Max	Avg	Min	Max	Year 2018	Year 2017	
Public Health Management Indicators	VCH 16	Proportion of new positives with record of public health follow-up	90	98	98	96	94	63	100	N/A	N/A	N/A	94	97	S-Y-
	VCH17	Number of partners elicited	340	147	194	183	244	139	395	N/A	N/A	N/A	468	377	C+S+Y+
	VCH17a	Average number of partners elicited per positive case	9	3	5	4	4	3	13	N/A	N/A	N/A	7	4	C+S+Y+
	VCH19	Proportion of partners notified (%)	39	50	55	55	46	34	59	N/A	N/A	N/A	44	55	C-Y-
	VCH24	Proportion of notified partners who were known to be previously HIV positive (%)	15	19	7	23	17	7	23	N/A	N/A	N/A	16	15	
	VCH23a	Proportion of notified partners tested for HIV (%)	38	37	68	65	59	37	81	N/A	N/A	N/A	38	66	S-Y-
	VCH23b	Number of notified partners who tested HIV positive	0	-	-	-	-	0	7	N/A	N/A	N/A	-	5	C-S-Y-
	VCH23c	Percent positivity (%) due to Partner Notification	0	14	3	6	6	0	14	N/A	N/A	N/A	5	4	

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			Jul-Dec 2018	Jan-Jun 2018	Jul-Dec 2017	Jan-Jun 2017	Avg	Min	Max	Avg	Min	Max	Year 2018	Year 2017	
Treatment Indicators	VCH41	Proportion of new diagnoses within VCH linked to care within 30 days of diagnosis (%)	66	87	75	76	77	66	87	64	54	71	77	76	C-
	VCH41.1	Vancouver	62	88	74	74	76	62	88	64	56	71	76	74	C-
	VCH41.2	Rest of VCH	86	80	100	89	86	75	100	60	33	70	83	90	
	VCH44b	Time to linkage to HIV care among those newly diagnosed with HIV within VCH (median days)	6	4	5	5	7	4	10	12	10	13	5	5	C+S-H-
	VCH44b.1	Vancouver	6	4	5	5	6	4	10	11	9	13	5	5	C+H-
	VCH44b.2	Rest of VCH	8	6	10	5	10	4	15	14	8	24	7	5	C+S-H-Y+
	VCH46a	Proportion of HIV patients who are currently retained in care within VCH (%)	76	77	77	78	80	76	82	79	77	79	76	77	S-
	VCH46a.1	Vancouver	75	76	76	77	79	75	83	78	77	79	75	76	S-
	VCH46a.2	Richmond	87	84	88	89	88	84	92	95	90	100	87	88	
	VCH46a.3	Coastal Urban	80	81	81	78	80	76	83	84	78	88	80	81	
	VCH46a.4	Coastal Rural	88	88	80	83	83	65	93	66	53	78	88	80	
	VCH47b	Proportion of matched HIV patients not found in care within VCH (%)	20	19	19	18	17	15	20	17	16	19	20	19	S+
	VCH47b.1	Vancouver	20	20	20	19	18	15	20	18	17	19	20	20	S+
	VCH47b.2	Richmond	10	10	12	9	8	5	12	2	0	7	10	12	
	VCH47b.3	Coastal Urban	19	17	13	13	18	12	23	14	8	19	19	13	
	VCH47b.4	Coastal Rural	14	8	8	8	9	0	15	22	6	41	14	8	
	VCH48	Proportion of patients who are currently prescribed ARVs within VCH (%)	65	66	66	68	68	58	71	48	40	55	65	66	H+
	VCH48.1	Vancouver	65	65	65	67	67	58	70	47	39	54	65	65	H+
	VCH48.2	Richmond	76	77	79	80	82	67	91	67	50	76	76	79	
	VCH48.3	Coastal Urban	69	76	78	74	70	61	78	56	54	58	69	78	
	VCH48.4	Coastal Rural	77	77	82	82	81	67	90	57	44	67	77	82	
	VCH49	Proportion of patients who have discontinued and currently not restarted ARVs within VCH (%)	14	14	15	14	16	13	29	41	32	51	14	15	H-
	VCH49.1	Vancouver	15	15	16	14	16	14	29	41	33	52	15	16	H-
	VCH49.2	Richmond	8	10	8	8	10	4	28	26	17	43	8	8	H-
	VCH49.3	Coastal Urban	11	8	6	11	16	6	27	30	26	35	11	6	H-
	VCH49.4	Coastal Rural	7	12	10	10	11	6	29	35	26	47	7	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 (%)	96	94	95	90	92	88	98	90	88	91	96	95	
	VCH51.1	Vancouver	95	93	94	90	92	87	97	90	87	92	95	94	
	VCH51.2	Rest of VCH	100	100	100	90	96	86	100	93	82	100	100	100	
	VCH52	Proportion of all individuals on ARVs who are currently virally suppressed with viral load less than 200 copies/mL within VCH (%)	90	89	90	90	86	79	90	78	74	81	90	90	S+H+
	VCH52.1	Vancouver	89	89	90	90	86	79	90	78	73	81	89	90	S+H+
	VCH52.2	Richmond	91	93	95	89	88	68	98	81	75	88	91	95	
	VCH52.3	Coastal Urban	96	93	93	88	92	83	98	86	71	93	96	93	0
	VCH52.4	Coastal Rural	89	83	94	85	85	65	94	83	67	100	89	94	0
	VCH53	Mean monitored viral load (copies/mL) of all known HIV positive individuals within VCH	50	51	50	50	74	50	196	424	239	868	51	51	S-H-
	VCH53.1	Vancouver	50	52	51	51	75	50	200	449	249	910	52	52	S-H-
	VCH53.2	Richmond	54	40	36	37	58	36	196	276	124	635	54	36	C+H-Y+
	VCH53.3	Coastal Urban	49	44	45	48	65	40	176	195	109	612	52	45	S-H-Y+
	VCH53.4	Coastal Rural	41	44	50	42	67	36	199	208	92	628	41	49	S-H-Y-
	VCH54	Proportion of all individuals with viral load greater than 200 copy/mL within VCH (%)	8	10	9	9	17	8	37	49	40	60	13	12	S-H-
	VCH54.1	Vancouver	9	10	9	9	17	9	37	50	41	61	13	13	S-H-
	VCH54.2	Richmond	8	6	3	7	13	3	39	42	31	48	12	8	H-
	VCH54.3	Coastal Urban	7	10	7	10	14	6	33	34	24	57	13	11	H-
	VCH54.4	Coastal Rural	3	14	6	14	16	3	39	38	27	53	16	14	H-

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 2015 VCH48 were as follows: Vancouver (n=2,131), Richmond (n=75), Coastal Urban (n=78), Coastal Rural (n=46).

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

Figure 1. Number and Percent Positivity of HIV POC Tests

The number of POC tests decreased significantly in the 2018 compared to the preceding periods, the average since STOP and year to date. Additionally, the percent positivity declined compared to the preceding periods, the average since STOP and year to date.

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

Coastal Urban and Coastal Rural HSDAs experienced marginal declines in HIV lab tests in the second half of 2018. Almost all LHAs experienced marginal declines in HIV test volumes except for Powell River, Bella Coola Valley and Vancouver Westside in the second half of 2018 compared to the first half of 2018.

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 and had remained stable since 2016. As HIV lab tests increased since 2011, there has been a declining trend in percent positivity.

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 conducted among Vancouver residents. Testing volumes increased substantially in Richmond since 2014. There has been a gradual increase observed in Coastal Urban between 2014 and 2017 followed by a decrease in 2018. The decrease may reflect changes in data capture and could fluctuate in future. A slight increase in 2014 followed by steady volumes was observed in Coastal Rural. Due to the small number of identified positives, the percent positivity fluctuates by year in Richmond, Coastal Urban and Coastal Rural.

Figure 4. Number of HIV Diagnoses and Testing Yield by Year among VCH Residents

There has been a steady decrease in the number of new HIV diagnoses since 2014. In 2017 and 2018 the number of new HIV diagnoses was below 100 per year. The testing yield has been declining since 2011. This may be attributed to the steady increase in the number of tests and the decrease in new HIV diagnoses.

Table 2, 3. Percent Positivity of HIV Lab Tests among VCH Residents by Gender and Age Group

Vancouver HSDA (Table 2)

The percent positivity for HIV testing is highest among males aged 30-39 in the second half of 2018 followed by males aged 20-29 years. The percent positivity in males aged 30-39 was 0.25% in the second half of 2018. In comparison with historical baseline, the percent positivity decreased among all males.

While the percent positivity among female age groups are lower overall compared with males, the highest percent positivity was observed among those aged 20-29 in the second half of 2018. Percent positivity among females in total decreased compared to the historical average.

Rest of VCH (Table 3)

The percent positivity across age groups among males continues to fluctuate each period due to low volumes of new diagnoses. The overall percent positivity for this most recent period among men is below the average since STOP HIV/AIDS and the historical baseline. The percent positivity across age groups among both males and females continues to fluctuate each period due to low volumes of new diagnoses.

Figure 5. 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 2018 (11 males to 1 female). The majority of new diagnoses (79%) in Vancouver continue to be among 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 4, 5. Proportion of HIV positives by Gender, Exposure and Year of Diagnosis

Vancouver HSDA (Table 4):

More new diagnoses were seen among males with MSM exposure in 2014-2018 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 in 2014-2018 was similar to the proportion in 2010-2013 despite an overall declining trend since 2003. Females with a heterosexual exposure declined in 2014-2018 compared to 2010-2013.

Rest of VCH (Table 5):

For males, the proportion of new diagnoses among MSM in 2014-2018 has declined since 2010-2013, while those with heterosexual exposure have increased.

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

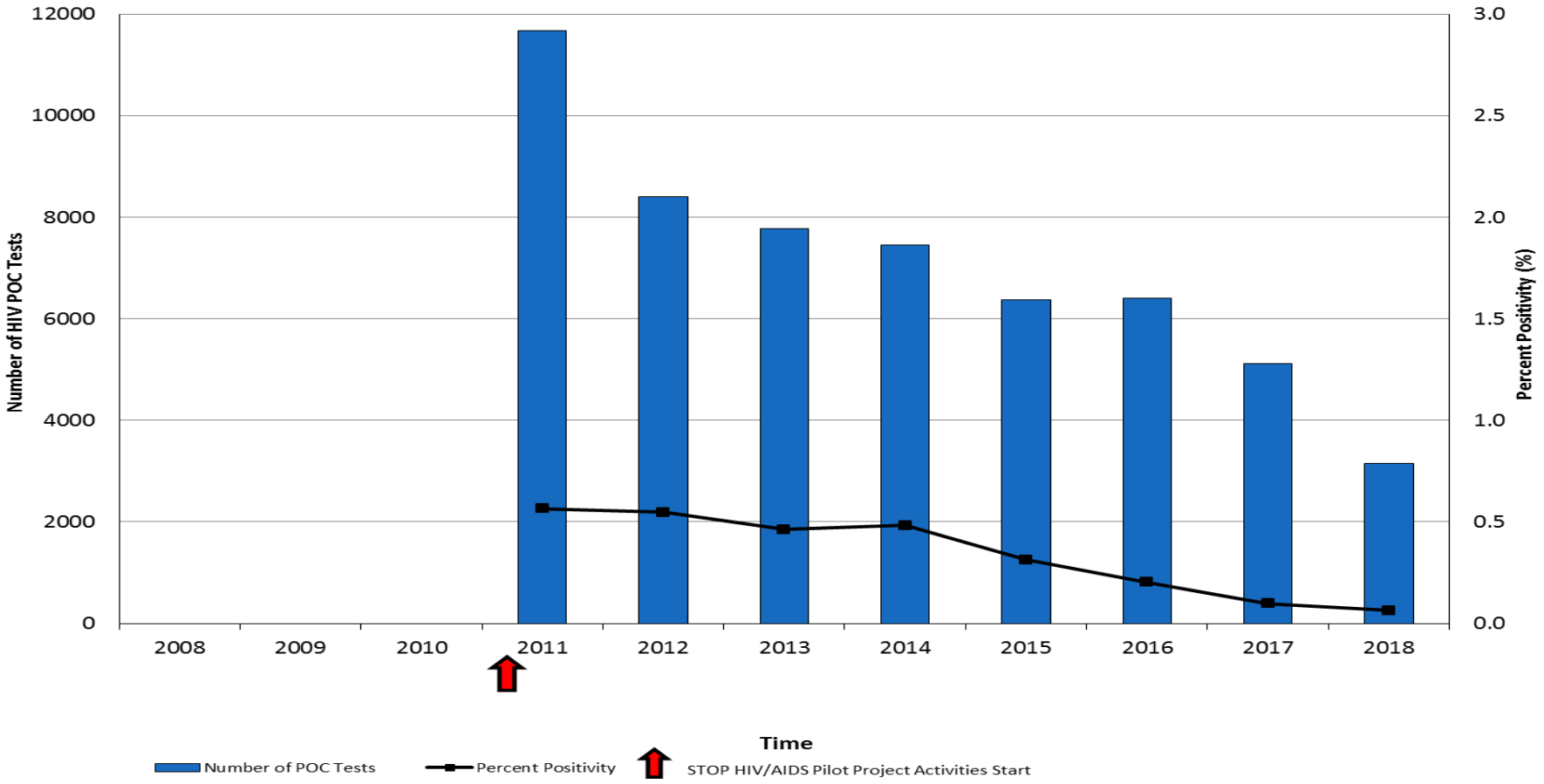
In 2018, the number of patients newly diagnosed with HIV declined compared to the number diagnosed in 2017. There is an overall declining trend in number of new positives since 2003(Figure 6).

In 2018, the proportion of new diagnoses with a CD4 count > 500 or acute stage disease at time of diagnosis remained below 50%, similar to the proportion in 2017. Furthermore, a decrease in the proportion of HIV patients diagnosed with a CD4 count <200 cells/mm^3 in 2018 was observed compared to the preceding period (Figure 7).

Maps 1-3. 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 has declined in the STOP expansion period (Map 6) for residents of Richmond HSDA as well as Midtown LHA. Meanwhile, the median CD4 cell count at diagnosis has increased in Coastal Urban HSDA and in the Downtown Eastside, North East and South Vancouver LHAs.

Figure 1. Number 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. August 12, 2019.

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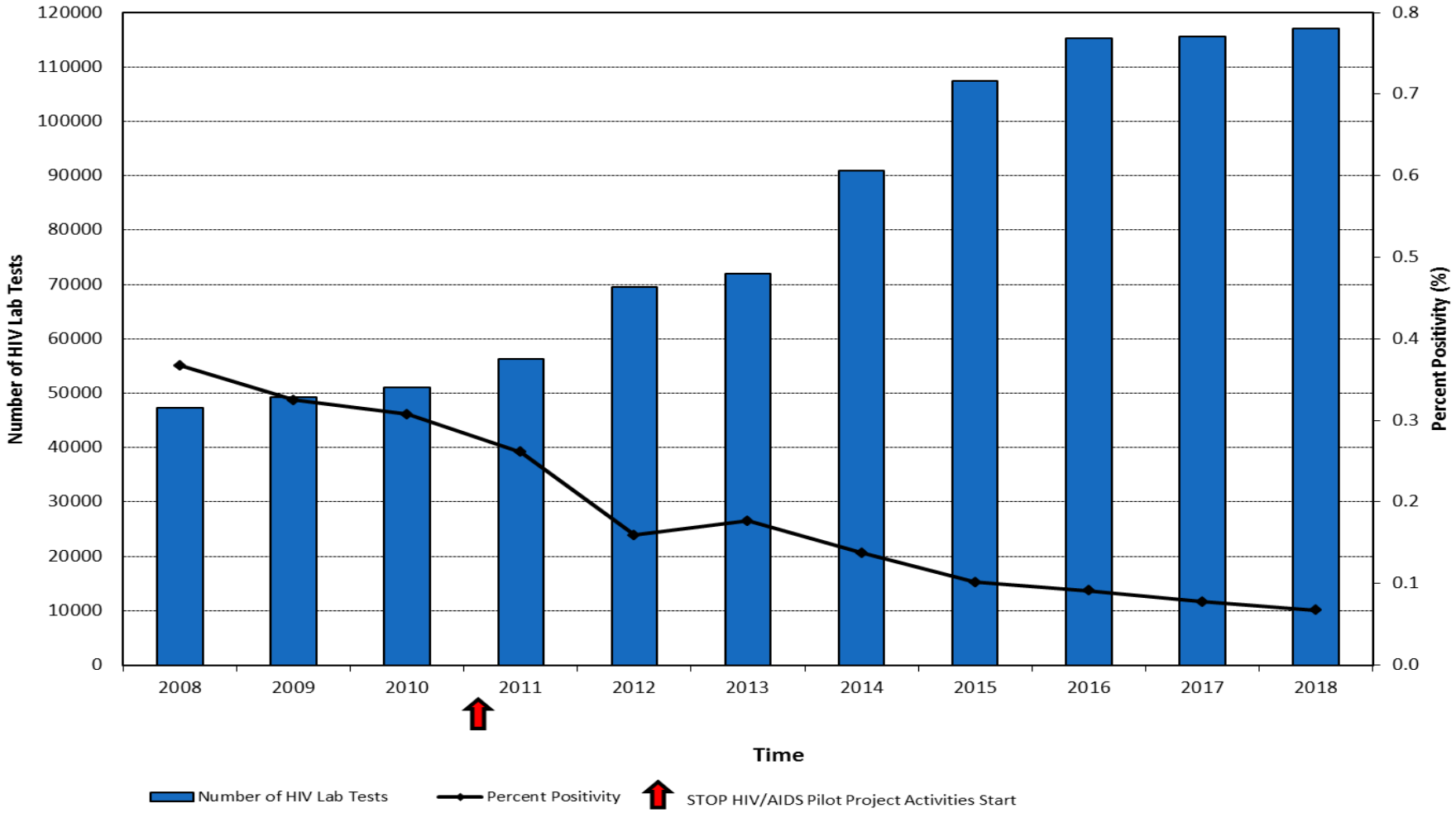
Table 1. Number of HIV Lab Tests by HSDA/LHA of Testing Clinic

Providence HEALTH CARE
How you want to be treated.

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 2018	Jan-Jun 2018	Jul-Dec 2017	Jan-Jun 2017	Avg	Min	Max	Avg	Min	Max	Year 2018	Year 2017	
Richmond	12407	12311	10808	11154	7753	2351	12559	2331	2231	2422	24718	21962	S+H+Y+
Coastal Urban	6440	10322	10722	11107	6582	3055	11107	2976	2898	3105	16762	21829	H+
LHA 44 North Vancouver	5390	9111	9551	9713	5557	2487	9713	2365	2342	2422	14501	19264	H+
LHA45 West Vancouver-Bowen Island	1050	1211	1171	1394	1025	568	1486	611	553	683	2261	2565	H+
Coastal Rural	3321	4347	4388	4433	3231	1635	4554	1663	1621	1734	7668	8821	H+
LHA 46 Sunshine Coast	977	1104	1063	1146	843	398	1239	400	375	440	2081	2209	S+H+
LHA 47 Powell River	1612	1475	1388	1314	929	309	1612	309	296	334	3087	2702	S+H+Y+
LHA 48 Howe Sound	503	1474	1630	1804	1289	503	1987	853	815	903	1977	3434	
LHA 49 Bella Coola Valley	115	113	150	95	94	60	150	50	37	63	228	245	S+H+
LHA 83 Central Coast	114	181	157	74	75	40	181	50	45	58	295	231	S+H+Y+
Vancouver	80638	80461	73241	77563	62494	30302	80638	29296	28464	30455	161099	150804	S+H+
LHA 161 City Centre	54628	55078	49726	52739	41348	18206	55078	17158	16337	18214	109706	102465	S+H+
LHA 162 DTES	5147	4592	3786	4276	3935	2812	5147	2731	2520	3031	9739	8062	C+S+H+Y+
LHA 163 North East	3764	3829	3742	3793	3219	1632	3959	1685	1599	1726	7593	7535	S+H+
LHA 164 Westside	7354	6783	6592	5992	5530	3256	7354	3139	3070	3211	14137	12584	S+H+Y+
LHA 165 Midtown	5771	6124	5643	6741	4830	2480	6938	2646	2481	2757	11895	12384	S+H+
LHA 166 South	3974	4055	3752	4022	3633	1865	4508	1938	1798	2038	8029	7774	H+
Total	102806	107441	99159	104257	80073	37495	107441	36423	35572	37596	210247	203416	S+H+

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. August 1, 2019.

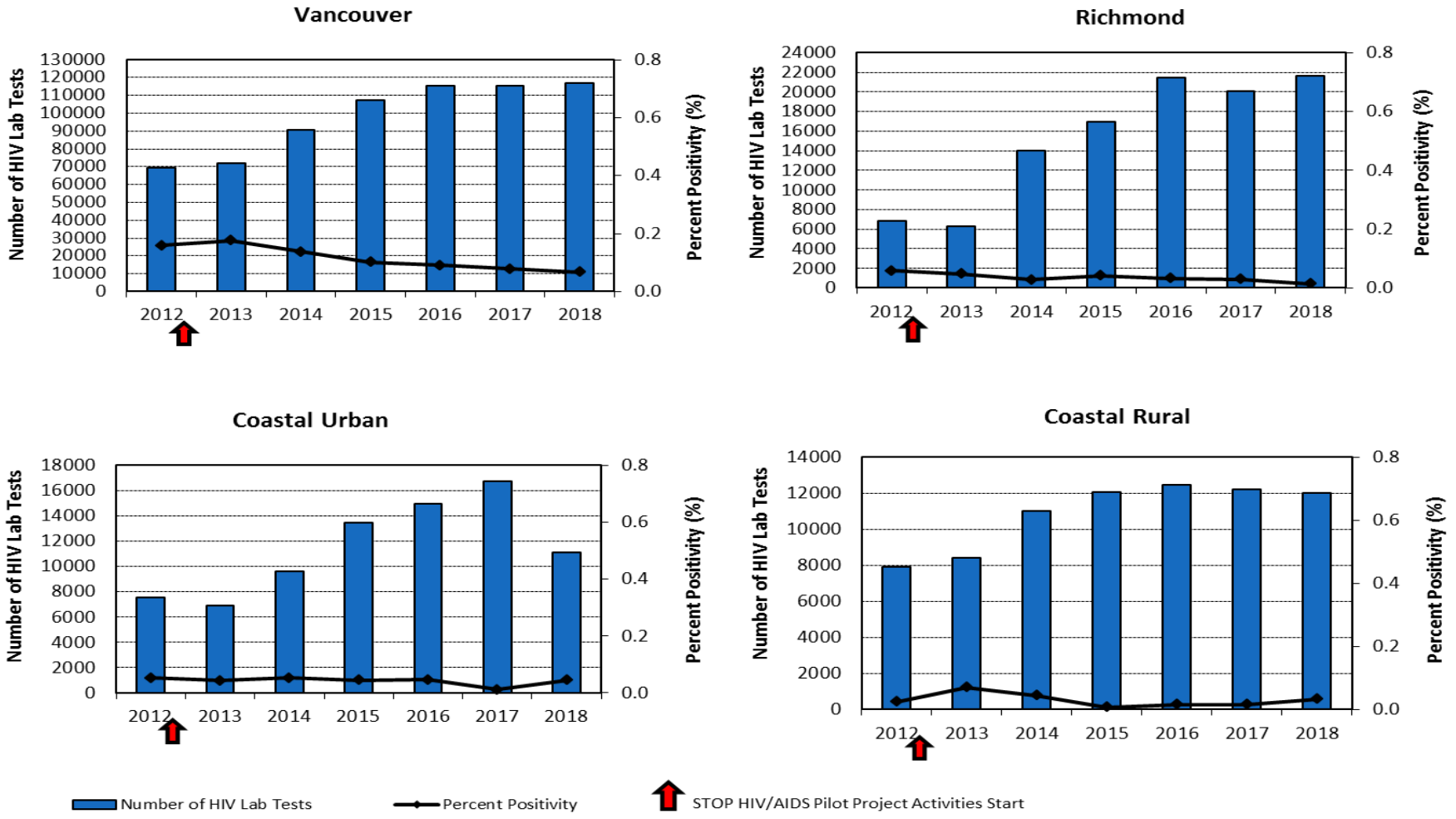
Figure 2. Number and Percent Positivity of HIV Lab Tests among VCH Residents



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. August 12, 2019.

Public Health Surveillance Unit

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. August 12, 2019.

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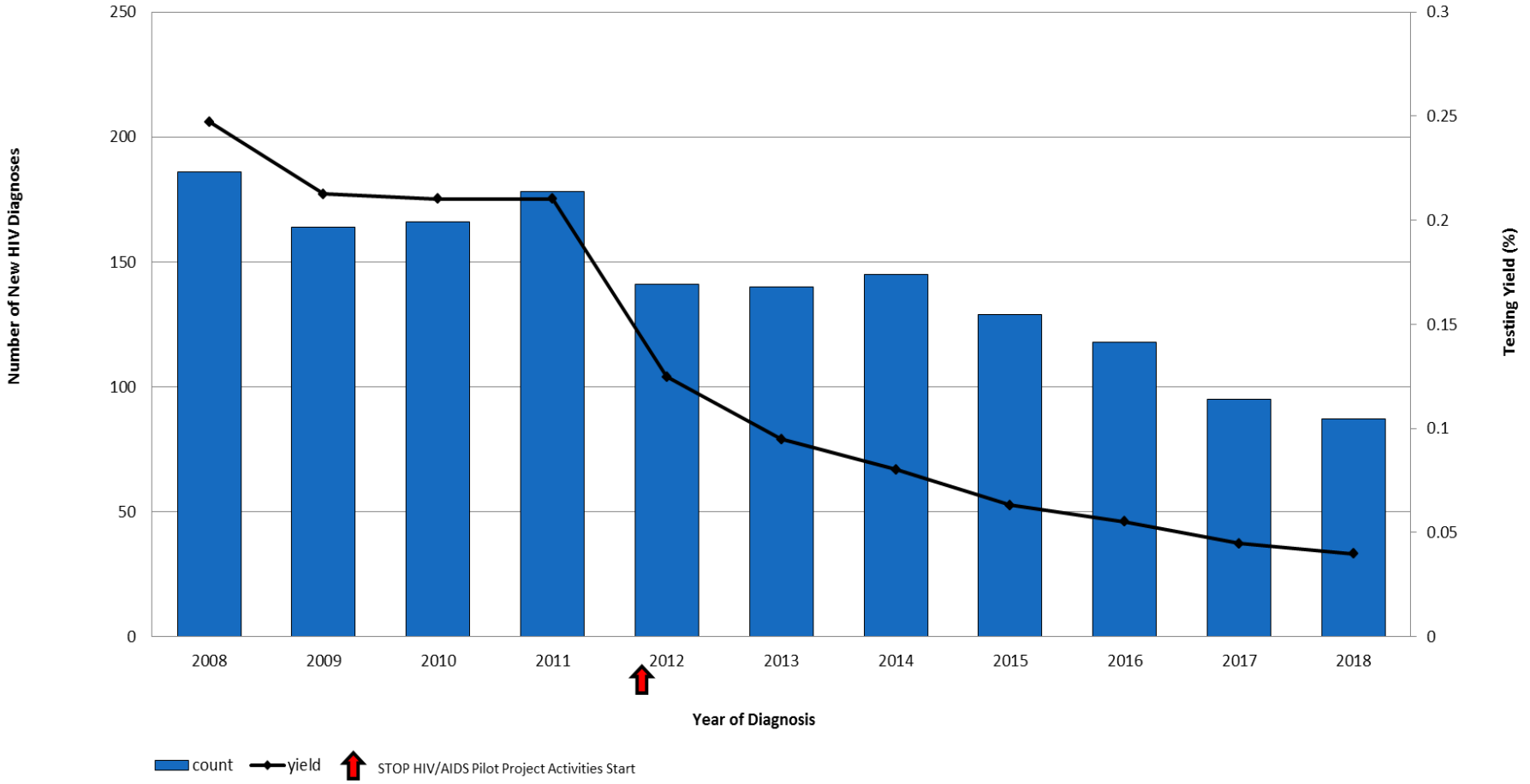
Figure 4. Number of HIV Diagnoses and Testing Yield by Year among VCH Residents



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. August 12, 2019.

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Table 2. Percent Positivity 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 2018-Dec 2018	Jan 2018-Jun 2018	Jul 2017-Dec 2017	Jul 2010- Dec 2018	Jan 2008-Jun 2010	2018	2017
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	0.11	0.15	0.00	0.00
	20-29	0.22	0.23	0.36	0.45	0.83	0.22	0.36
	30-39	0.25	0.18	0.39	0.48	1.13	0.25	0.39
	40-49	0.18	0.32	0.30	0.49	1.60	0.18	0.30
	50-59	0.11	0.14	0.16	0.32	0.87	0.11	0.16
	60+	0.04	0.04	0.02	0.07	0.43	0.04	0.02
	Subtotal*	0.15	0.16	0.22	0.33	1.04	0.15	0.22
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	0.16	0.00	0.00
	20-29	0.03	0.00	0.06	0.03	0.07	0.03	0.06
	30-39	0.02	0.02	0.02	0.04	0.08	0.02	0.02
	40-49	0.00	0.09	0.09	0.07	0.15	0.00	0.09
	50-59	0.00	0.05	0.00	0.03	0.43	0.00	0.00
	60+	0.00	0.00	0.00	0.01	0.11	0.00	0.00
	Subtotal*	0.01	0.02	0.03	0.03	0.10	0.01	0.03

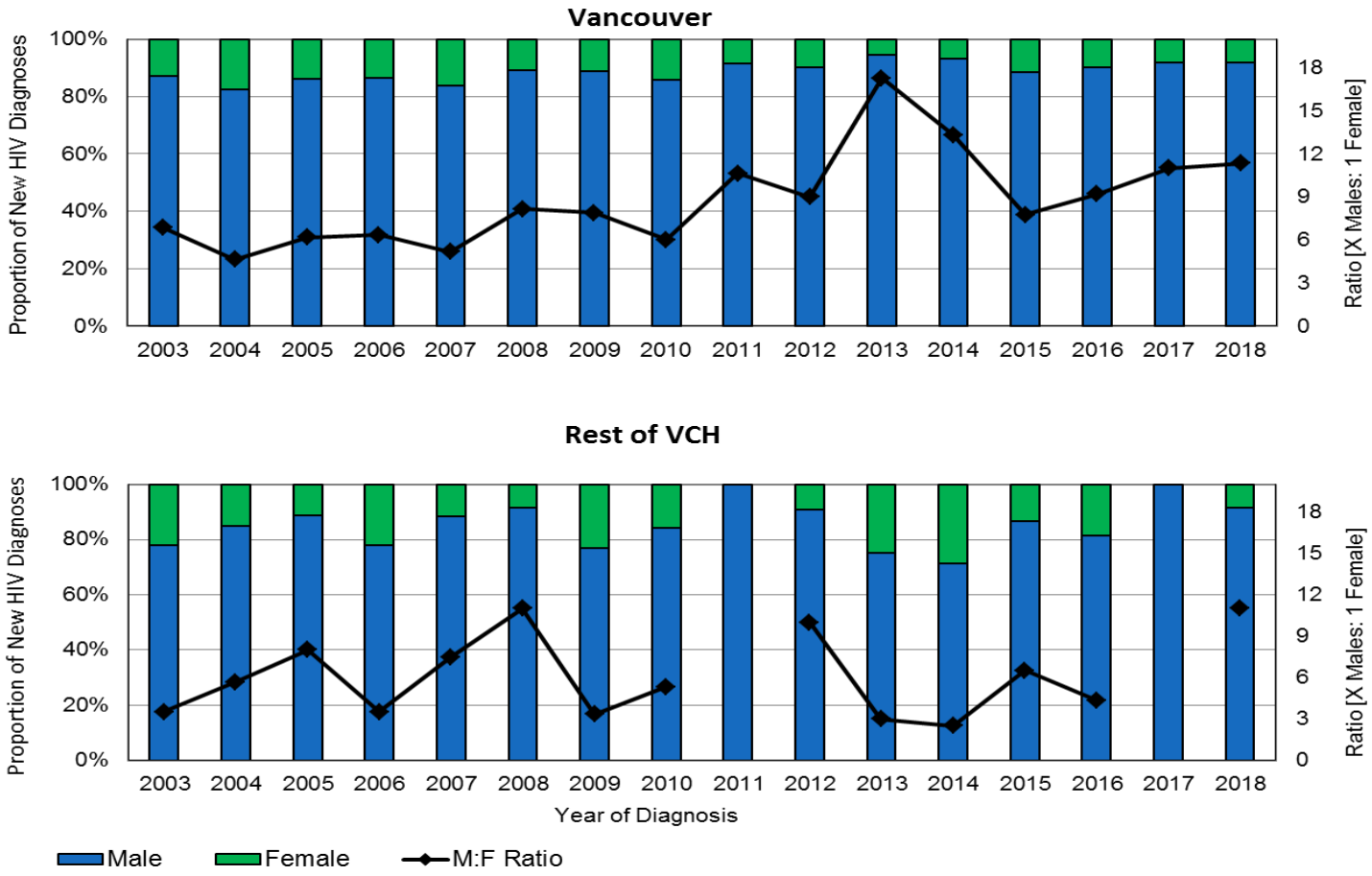
*Subtotal may not equal to sum of all LHAs due to missing values in the original data.
Source: Public Health Surveillance Unit (HIV Surveillance Data), Provincial Public Health Microbiology and Reference Laboratory (Misys Laboratory Database) & Providence Health Care Virology Laboratory.
Prepared by: Vancouver Coastal Health, Public Health Surveillance Unit. August 1, 2019.

Table 3. Percent Positivity 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 2018-Dec 2018	Jan 2018-Jun 2018	Jul 2017-Dec 2017	Jul 2010- Dec 2018	Jan 2008-Jun 2010	2018	2017
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	0.06	0.13	0.00	0.00
	20-29	0.11	0.00	0.00	0.08	0.09	0.11	0.00
	30-39	0.17	0.05	0.00	0.10	0.07	0.17	0.00
	40-49	0.00	0.07	0.00	0.08	0.33	0.00	0.00
	50-59	0.07	0.00	0.00	0.12	0.18	0.07	0.00
	60+	0.03	0.05	0.03	0.03	0.21	0.03	0.03
	Subtotal*	0.07	0.03	0.01	0.08	0.15	0.07	0.01
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	0.00	0.00	0.01	0.02	0.00	0.00
	40-49	0.00	0.06	0.00	0.02	0.09	0.00	0.00
	50-59	0.00	0.00	0.00	0.02	0.07	0.00	0.00
	60+	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Subtotal*	0.00	0.01	0.00	0.01	0.03	0.00	0.00

*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. August 1, 2019.

Figure 5. 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. August 21, 2019.

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Table 4. Proportion of HIV Positives by Gender, Exposure and Year of Diagnosis *(Vancouver HSDA)*

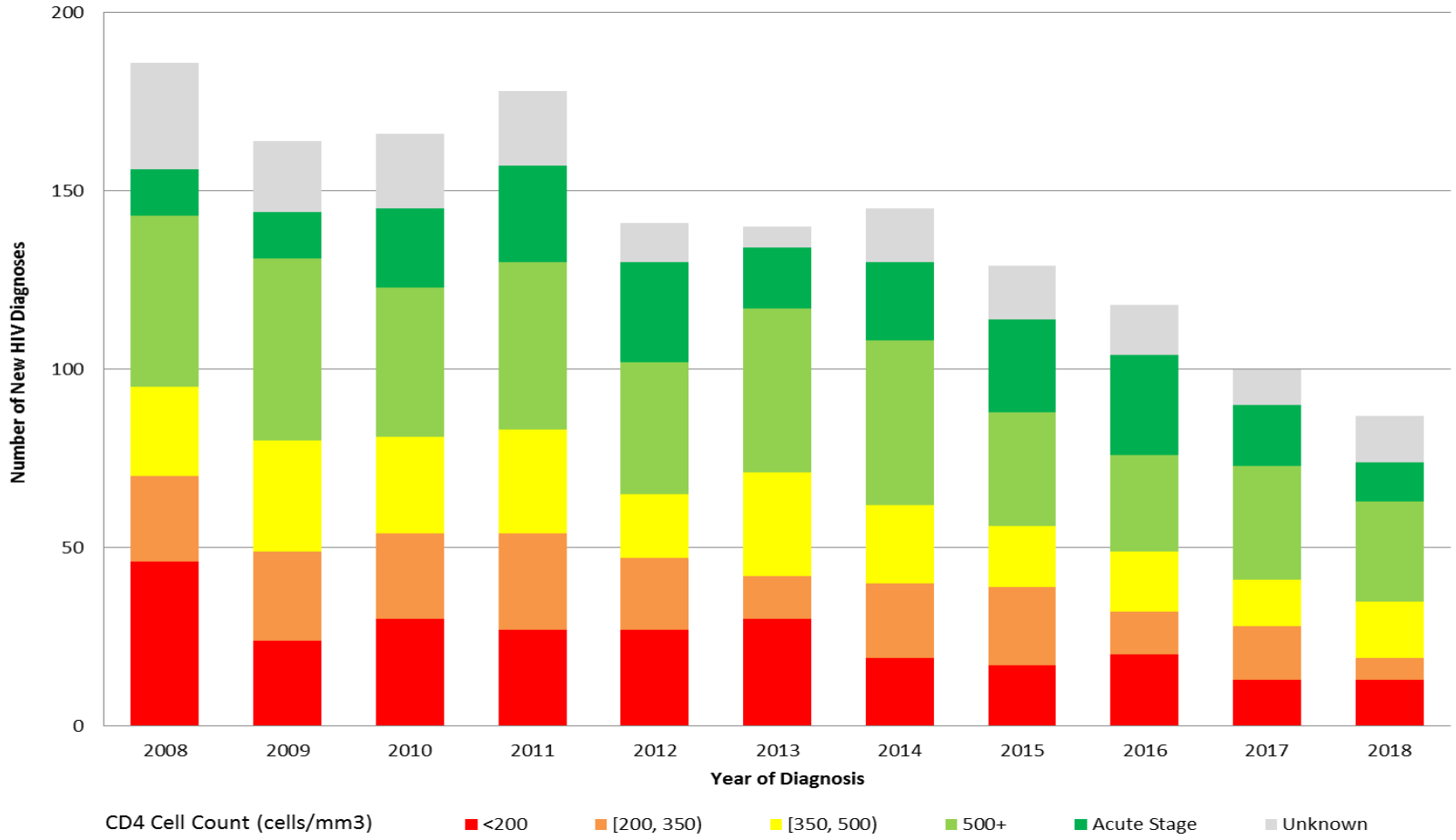
Gender	Exposure	Year of Diagnosis			
		2003-2005	2006-2009	2010-2013	2014-2018
Male	MSM	62.7	69.1	73.9	78.7
	MSM/IDU	5.6	4.2	2.7	1.4
	IDU	17.3	12.3	7.0	6.3
	Heterosexual	12.7	11.1	9.9	7.7
	Other*	1.4	1.7	0.6	4.1
	Unknown	0.2	1.7	5.8	1.8
Female	IDU	61.6	48.4	30.9	31.8
	Heterosexual	34.9	47.3	65.5	50.0
	Other*	3.5	3.3	1.8	9.1
	Unknown	0.0	1.1	1.8	9.1

Table 5. 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	2014-2018
Male	MSM	53.2	60.5	66.0	56.5
	IDU	12.8	11.6	4.0	0.0
	Heterosexual	27.7	20.9	20.0	34.8
	Other*	4.3	7.0	2.0	4.3
	Unknown	2.1	0.0	8.0	4.3
Female	IDU	22.2	12.5	28.6	0.0
	Heterosexual	66.7	87.5	42.9	100.0
	Other*	11.1	0.0	28.6	0.0

*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. August 1, 2019.

Figure 6. 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. August 21, 2019.

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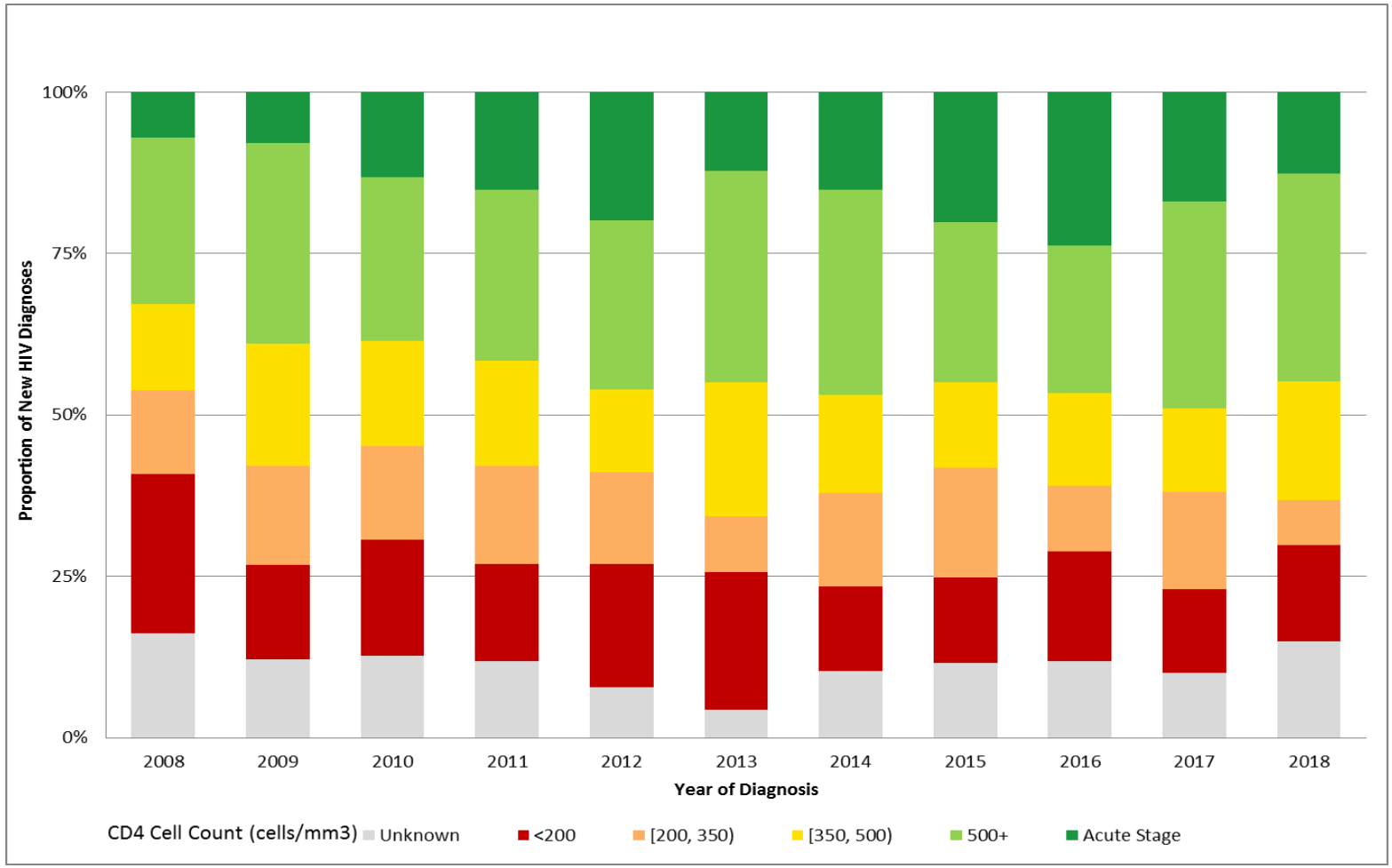
Figure 7. Proportion of Patients' CD4 Cell Count and Disease Stage at Diagnosis by Year of Diagnosis

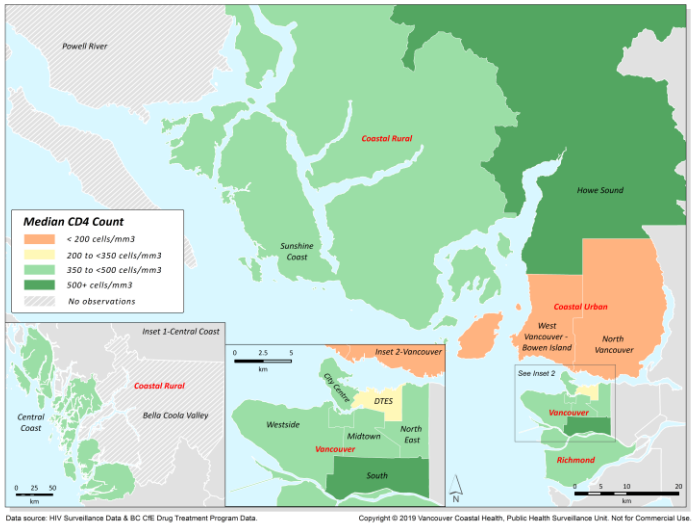


Source: Public Health Surveillance Unit (HIV Surveillance Data) & BC CfE Drug Treatment Program Data.
Prepared by: Vancouver Coastal Health, Public Health Surveillance Unit. August 21, 2019.

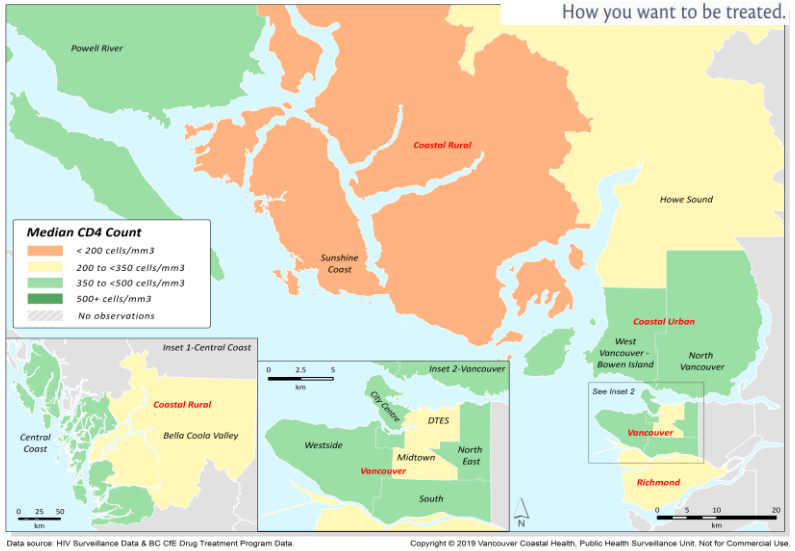
Public Health Surveillance Unit

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

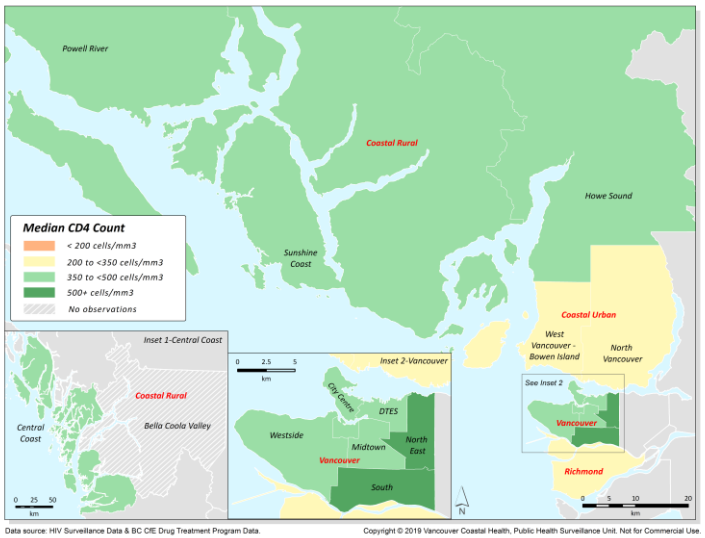
Map 4. Historical Median CD4 Count (January 2008 – June 2010)



Map 5. STOP Pilot Median CD4 Count (July 2010 – June 2013)



Map 6. Stop Expansion Median CD4 (July 2013 – December 2017)



Notes:

- Maps A and B report on median CD4 count at diagnosis by HSDA
- Map C reports on median CD4 count at diagnosis by LHA

Section 3. Public Health Management Indicators

Figures, Maps and Tables

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

The proportion of new positives with a record of public health follow-up fluctuated in 2018 compared to the previous years. It is important to note that most cases who are residents of VCH that do not have a record of public health follow up were tested in a different health authority and therefore follow up will not be on record in VCH. Furthermore, 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.

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

Compared to the preceding periods, there was an increase in the total number of partners elicited from HIV index cases in 2018.

The proportion of all partners that were known to be notified of their exposure to HIV in 2018 was higher than preceding periods, the average since STOP.

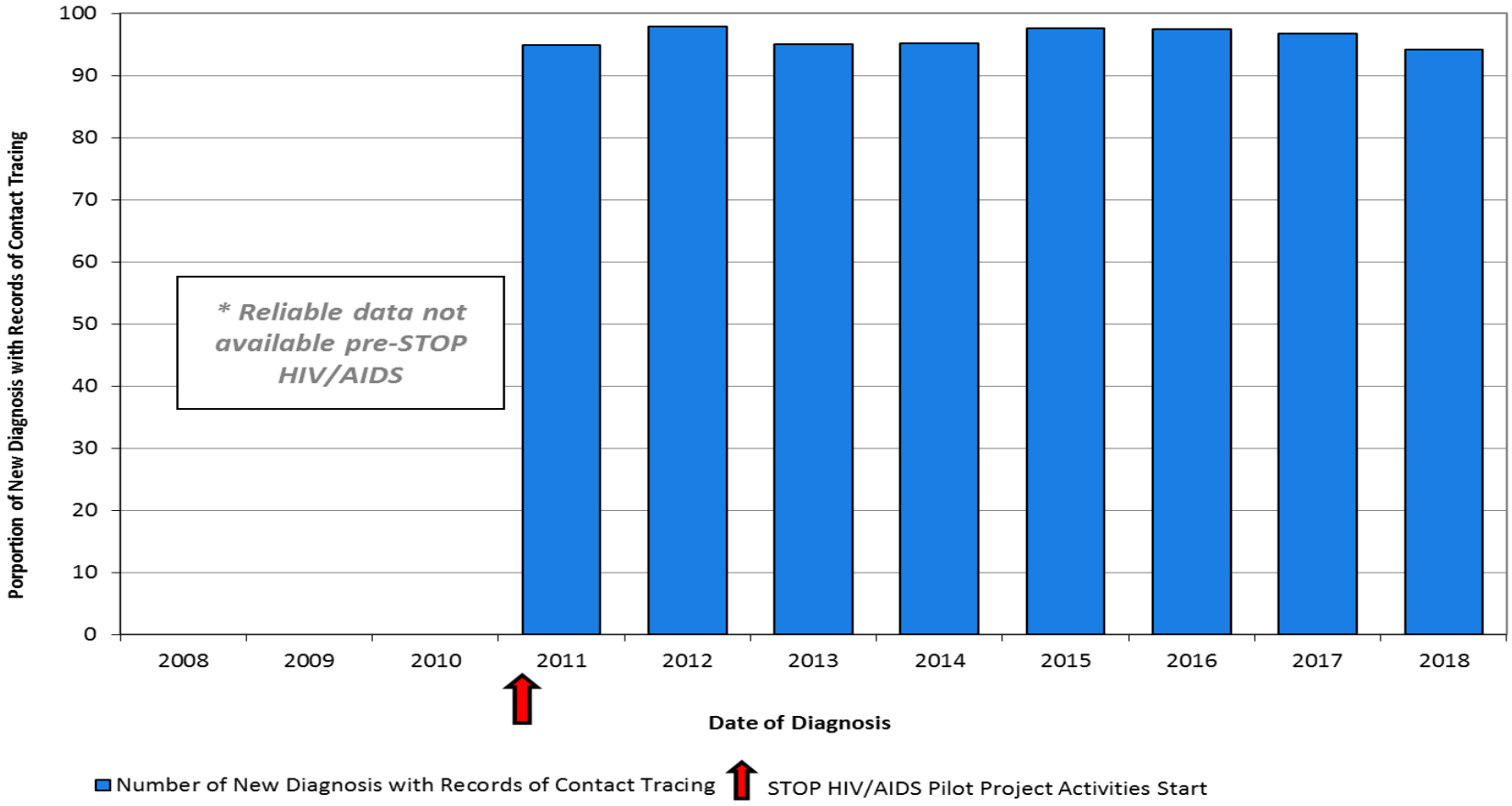
Figure 10. Proportion of Known Partners and Average Number of Anonymous Partners per Index Case

In 2018, the proportion of partners known to the index case was higher compared to 2017 while average number of anonymous partners per index case continued a declining trend.

Figure 11. Number of Partners Notified and Tested for HIV and Percent Positivity due to Partner Notification

The proportion of notified partners tested for HIV declined significantly in 2018 compared to the preceding periods, the total number of partners that were tested for HIV as a result of public health follow-up declined compared to 2017. The percent positivity due to partner notification among partners tested for HIV for 2018 was above 5%.

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. August 21, 2019.

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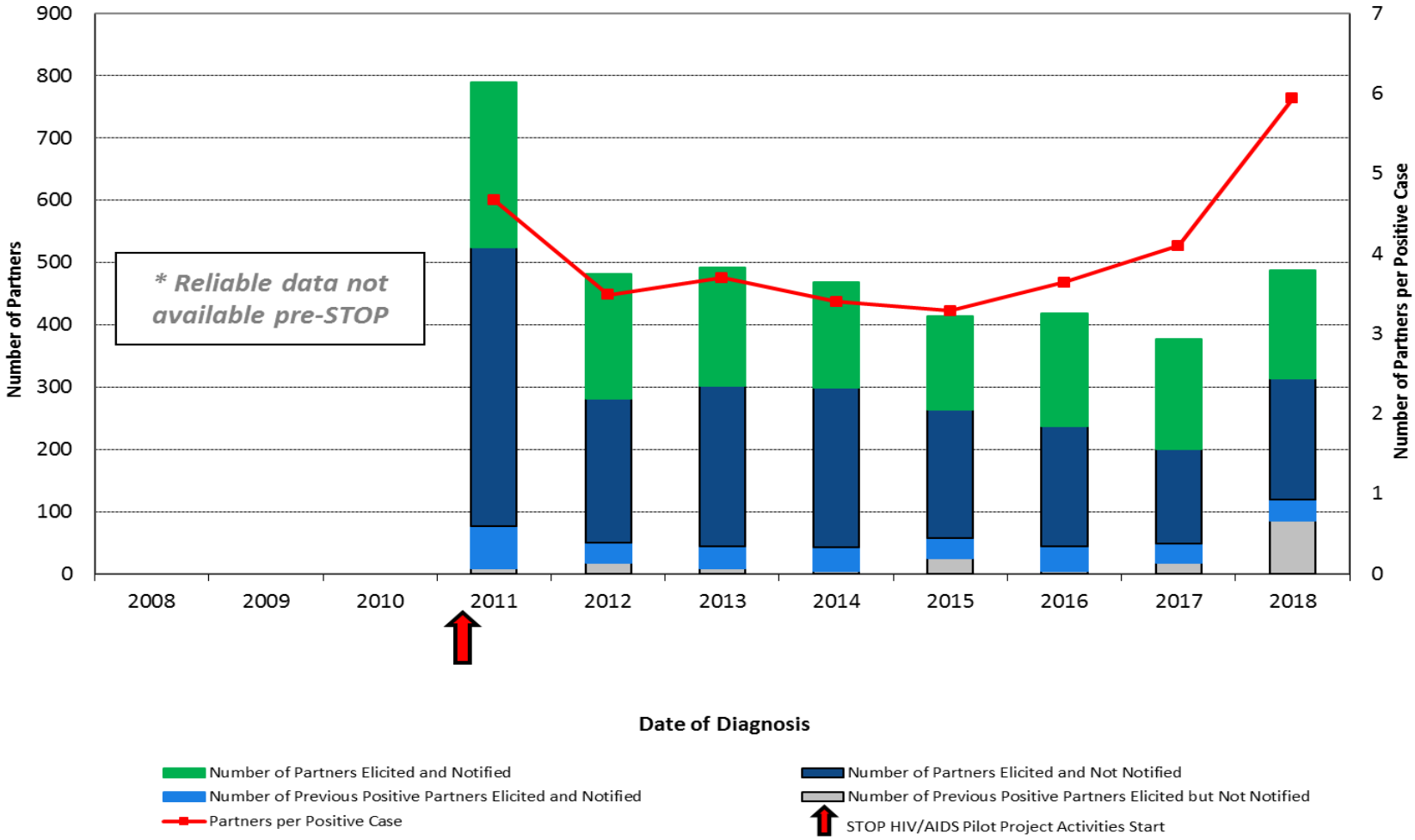
Figure 9. Total Number of Partners Elicited, Number of Partners Elicited per Case and Number of Partners Notified



Source: Enhanced HIV Contact Tracing Form.
Prepared by: Vancouver Coastal Health, Public Health Surveillance Unit. August 21, 2019.

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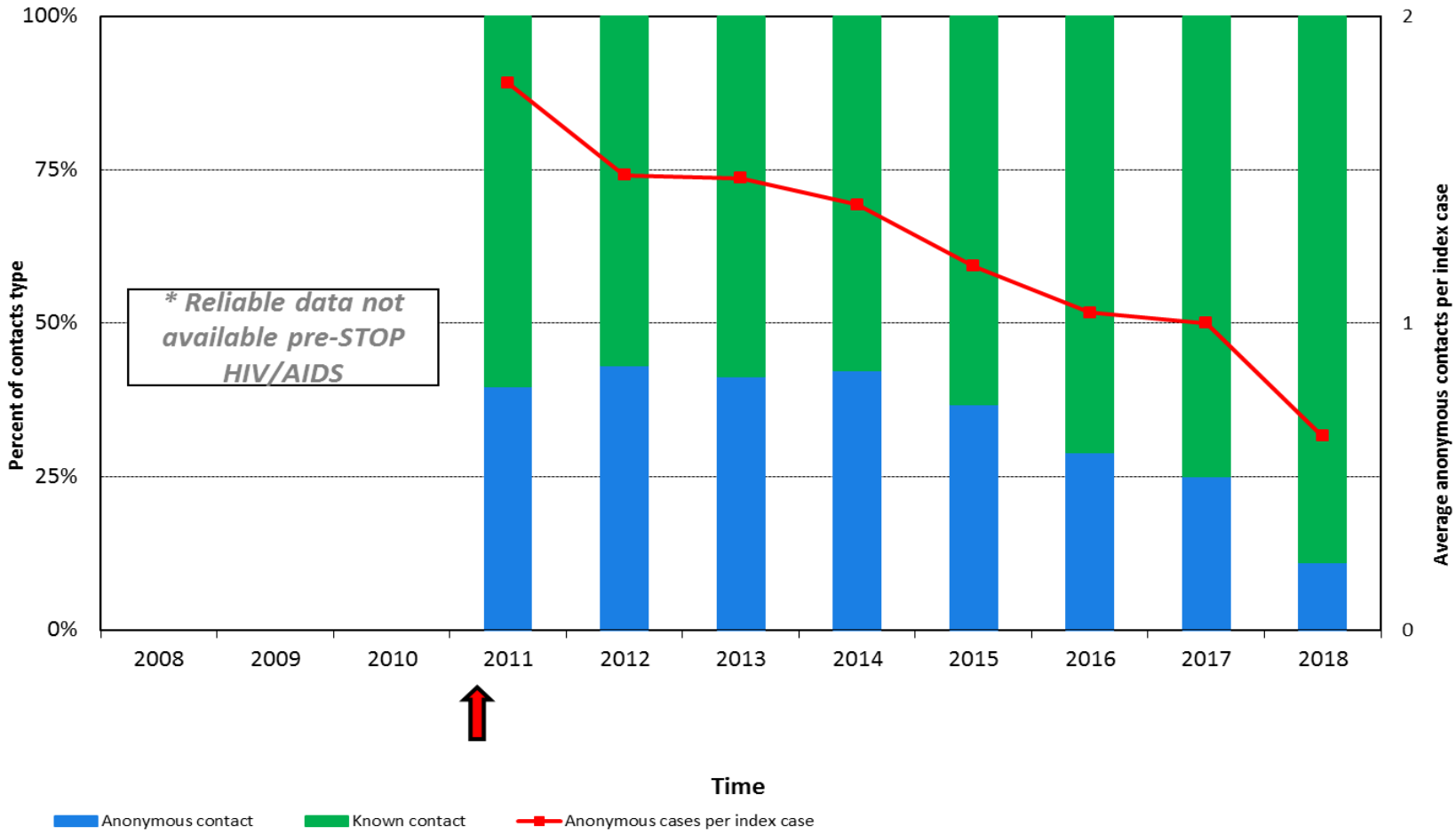
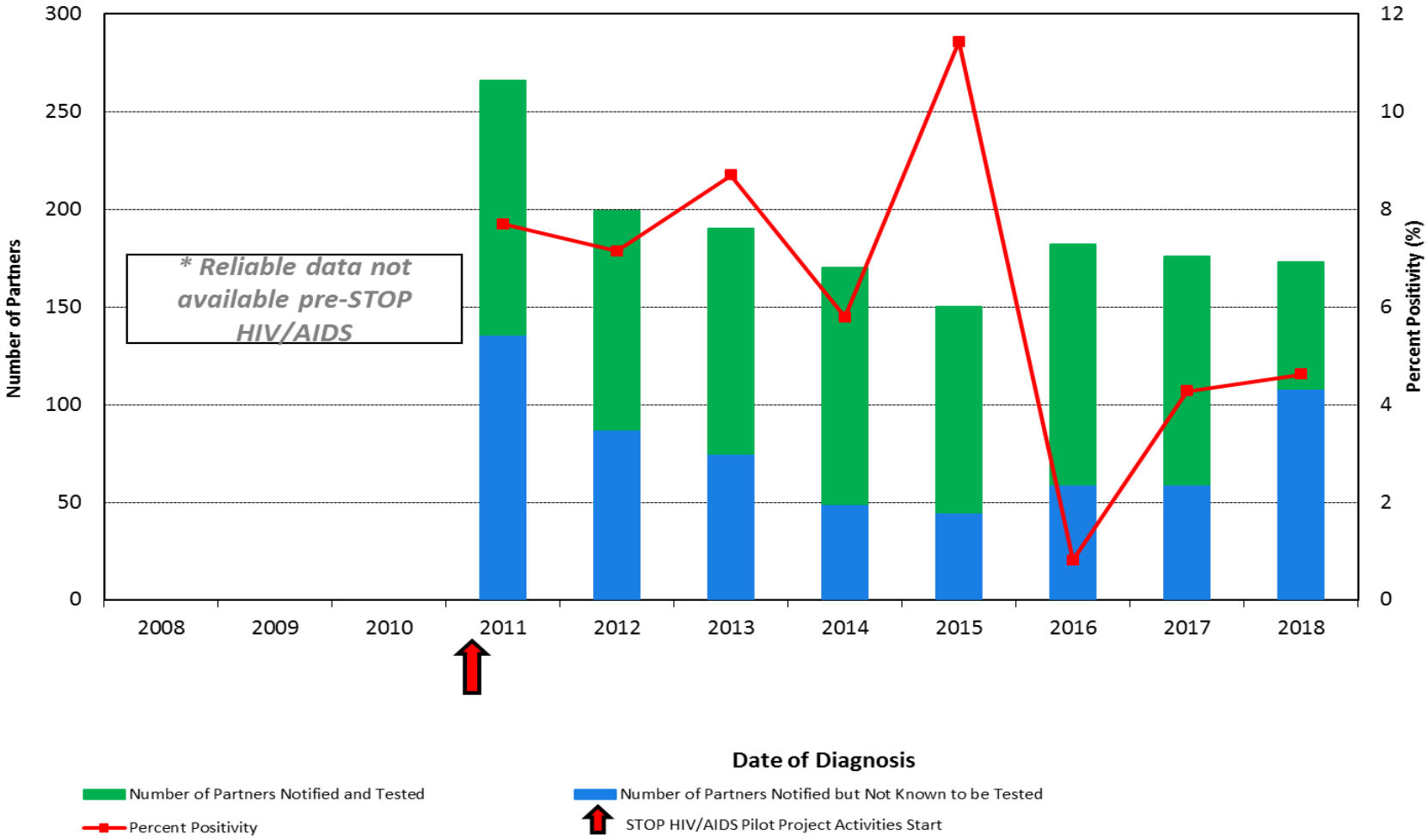
Figure 10. Proportion of Known Contacts and Average Number of Anonymous Contacts per Index Case



Source: Enhanced HIV Contact Tracing Form.
Prepared by: Vancouver Coastal Health, Public Health Surveillance Unit August 21, 2019.

Public Health Surveillance Unit

Figure 11. Number of Contacts Notified and Tested for HIV and Percent Positivity due to Partner Care



Source: Enhanced HIV Contact Tracing Form.
Prepared by: Vancouver Coastal Health, Public Health Surveillance Unit. August 21, 2019.

Public Health Surveillance Unit

Section 4. Treatment Indicators

Figures, Maps and Tables

Table 6,7. Proportion of Patients Linked to Care within 30 Days by Gender, Exposure and Year of Diagnosis

Vancouver HSDA (Table 6):

In 2014-2018, the proportion of males with MSM exposure linked to care within 30 days of diagnosis continued to increase to 77% compared to previous years while males with heterosexual exposure declined to 81% from a peak of 94% in 2010-2013. In the period of 2014-2018, time to linkage to care was shortest among males with MSM exposure with 6 days followed by males with IDU exposure at 7 days.

In 2014-2018, the proportion of females with IDU exposure linked to care within 30 days was highest among all exposure categories at 100%. In the period of 2014-2018, time to linkage to care was shortest among females with heterosexual exposure at 5 days. Overall, for males and females, linkage to care occurred within an average of 6 days.

Rest of VCH (Table 7):

The proportion of males with MSM exposure linked to care within 30 days of diagnosis increased in 2014-2018 to 91% compared to previous years. There was also a decrease in time to linkage to care among those with heterosexual exposure compared to the previous time period.

The proportion of females linked to care within 30 days increased in 2014-2018 to 100% 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 8,9. Proportion of Patients Linked to Care within 30 Days by Gender, Age Group and Year of Diagnosis

Vancouver HSDA (Table 8):

Males aged 60+ had the highest proportion linked to care within 30 days of diagnosis compared to all other age groups in 2014-2018. Males aged 15-29 and 30-39 years had the fastest median days to linkage with 6 days, while males aged 60 years or older at diagnosis had the slowest median days to linkage with 8 days.

In 2014-2018, too few females were diagnosed to assess trend in proportion linked to care by age category.

Overall, there is an increasing trend in the proportion linked to care as well as a reduction in the median days to linkage.

Rest of VCH (Table 9):

In 2014-2018, too few males were diagnosed to assess trend in proportion linked to care by age category. Overall, there is an increasing trend in proportion linked to care as well as a reduction in the median days to linkage.

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 was observed.

Table 10,11. Proportion of Patients Currently Retained in Care by Gender, Exposure and Year of Care

Vancouver HSDA (Table 10)

In 2018, among known exposure categories, males with heterosexual exposure had the highest proportion of individuals retained in care followed by those with MSM exposure. Since 2008, the total proportion of males retained in care remains steady.

In 2018, a greater proportion of females with heterosexual exposure were retained in care compared to those with IDU exposure.

Rest of VCH (Table 11)

In 2018, among known exposure categories, a greater proportion of males with IDU exposure were currently retained in care compared to other exposure groups.

The proportion of female patients in 2018 retained in care with heterosexual exposure has increased since 2014.

Table 12,13. Proportion of Patients Currently Prescribed ARVs by Gender, Exposure and Year of Care

Vancouver HSDA (Table 12)

In 2018, the exposure category with the greatest proportion of individuals currently prescribed ARVs was among MSM/IDU (74%) followed by those with heterosexual exposure (69%). Compared to previous years, the proportion of males in all exposure categories, except those with unknown exposure, who were prescribed ARVs, has remained consistent since 2015.

The proportion of females with heterosexual exposure who were prescribed ARVs remained steady compared to 2016 although an increasing trend is observed since 2008.

Rest of VCH (Table 13)

Males with IDU exposure had the greatest proportion of individuals who were prescribed ARVs in 2018 (80%). Since 2008, the proportion of males who were prescribed ARVs has increased among those with MSM, IDU or heterosexual exposures.

Since 2008, the proportion of females who were prescribed ARVs increased from 64% to 76% in 2018.

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

Table 14, 15. Mean Monitored Viral Load and Proportion of HIV Positive Individuals Not Fully Suppressed with Viral Load > 200 Copies/mL

Vancouver HSDA (Table 14)

The table shows a steady decline in the mean monitored viral load (copies/ml) since 2008 from 744 copies/ml to 52 copies/ml in the second half of 2018. 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 15)

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 2009 to 2018, the mean monitored viral load (copies/ml) has steadily declined 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 4, 5. Mean Monitored viral load (copies/ml) by LHAs

From July 1, 2010 to December 31, 2018, the mean monitored viral load across all LHAs decreased to less than 200 copies/mL. There were noticeable declines in mean monitored viral load for all LHAs.

Table 6. 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		2014-2018	
		Linked to Care	Median Days to Linkage	Linked to Care	Median Days to Linkage	Linked to Care	Median Days to Linkage	Linked to Care	Median Days to Linkage
Male	MSM	57.6	14	64.1	12	73.6	9	77.3	6
	MSM/IDU	60.7	16	60.0	17	64.3	10	100.0	25
	IDU	43.0	13	60.8	13	72.2	6.5	81.3	7
	Heterosexual	61.9	13	71.6	9	94.1	7	80.8	10
	Other*	57.1	18.5	40.0	13	–	–	36.4	9.5
	Unknown	–	–	20.0	1	73.3	7	37.5	10
	SubTotal	55.6	14	63.2	12	75.0	8	75.7	6
Female	IDU	30.2	18.5	40.9	12.5	64.7	2	100.0	7
	Heterosexual	53.3	13	86.0	12	77.8	9	62.5	5
	Other*	–	–	–	–	–	–	–	–
	Unknown	–	–	–	–	–	–	–	–
	SubTotal	39.5	14	62.6	12	74.5	9	78.1	6

Table 7. 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		2014-2018	
		Linked to Care	Median Days to Linkage	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	90.9	8
	IDU	–	9.5	40.0	13	–	–	–	–
	Heterosexual	53.8	13	55.6	14	80.0	16	70.0	13
	Other*	–	–	–	–	–	–	–	–
	Unknown	–	–	–	–	–	–	–	–
	SubTotal	55.3	15	51.2	14	80.0	12.5	86.1	8
Female	IDU	–	–	–	–	–	–	–	–
	Heterosexual	66.7	22.5	85.7	12.5	–	–	100.0	10
	Other*	–	–	–	–	–	–	–	–
	Unknown	–	–	–	–	–	–	–	–
	SubTotal	66.7	22.5	75.0	12.5	85.7	16	100.0	10

*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. August 1, 2019.

Table 8. 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		2014-2018	
		Linked to Care	Median Days to Linkage	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	56.3	13.0	67.4	9.0	75.6	6.0
	30-39	57.2	14.0	59.7	13.0	68.2	9.0	75.0	6.0
	40-49	53.8	13.5	64.4	11.0	83.0	7.0	75.0	7.0
	50-59	64.1	12.0	75.7	12.0	80.6	7.0	76.8	7.0
	60+	74.1	13.0	83.3	8.0	100.0	9.5	78.3	8.0
	SubTotal	55.6	14.0	63.2	12.0	75.0	8.0	75.7	6.0
Female	15-29	38.5	11.0	37.5	9.5	66.7	13.0	57.1	3.0
	30-39	56.5	18.0	72.4	14.0	73.3	1.0	75.0	9.0
	40-49	25.9	15.0	78.6	19.0	73.3	7.0	85.7	6.0
	50-59	40.0	21.0	77.8	7.0	100.0	12.5	–	4.0
	60+	–	–	80.0	6.5	–	–	–	7.5
	SubTotal	38.8	14.0	61.8	12.0	74.5	9.0	78.1	6.0

Table 9. 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		2014-2018	
		Linked to Care	Median Days to Linkage	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	76.9	14.5	100.0	12.0
	30-39	40.0	10.5	55.6	16.0	66.7	8.5	83.3	8.0
	40-49	65.0	13.0	41.2	12.0	83.3	13.5	60.0	3.0
	50-59	40.0	22.0	42.9	13.0	85.7	12.5	90.0	9.0
	60+	60.0	22.0	–	–	80.0	11.0	–	15.0
	SubTotal	55.3	15.0	51.2	14.0	80.0	12.5	86.1	8.0
Female	15-29	–	–	–	–	–	–	–	6
	30-39	–	–	–	–	–	–	–	12.5
	40-49	–	–	–	–	–	–	–	29
	50-59	–	–	–	–	–	–	–	8.5
	60+	–	–	–	–	–	–	–	10
	SubTotal	62.5	22.0	75.0	12.5	85.7	16.0	100.0	10

*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. August 1, 2019.

Table 10. Proportion of Patients Currently Retained in Care by Gender, Exposure and Year of Care *(Vancouver HSDA)*

Gender	Exposure	Year of Care										
		2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Male	MSM	81.2	79.9	82.3	81.9	82.4	81.6	80.6	77.5	77.3	76.7	75.6
	MSM/IDU	78.6	81.8	86.7	85.7	83.0	87.5	86.0	84.7	86.7	78.6	73.7
	IDU	76.6	78.3	76.5	78.4	79.7	76.7	76.0	75.0	71.1	68.0	71.8
	Heterosexual	78.3	78.4	83.6	84.0	84.7	83.3	83.8	84.0	81.0	78.3	78.3
	Other*	44.4	45.5	61.5	69.2	66.7	73.3	66.7	68.4	77.8	76.5	76.5
	Unknown	-	-	71.4	71.4	71.4	77.8	88.2	85.3	86.1	82.5	70.3
	Subtotal	79.6	79.0	81.5	81.6	82.1	81.3	80.7	78.2	77.6	76.3	75.3
Female	IDU	61.6	69.7	74.4	79.0	80.5	79.5	77.9	82.8	71.9	70.8	67.4
	Heterosexual	84.3	79.3	78.3	79.0	90.0	84.0	83.7	86.6	77.9	76.4	81.1
	Other*	-	100.0	83.3	100.0	83.3	100.0	100.0	83.3	50.0	85.7	85.7
	Subtotal	71.7	74.8	76.5	79.8	85.4	82.5	81.7	84.9	74.8	74.6	75.7

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

Gender	Exposure	Year of Care										
		2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Male	MSM	82.5	83.3	86.0	81.0	84.3	83.3	85.1	86.3	86.5	86.3	86.2
	IDU	63.6	80.0	80.0	60.0	75.0	83.3	81.8	81.8	90.9	72.7	90.0
	Heterosexual	91.7	93.8	83.3	85.7	68.2	87.0	81.5	82.8	77.4	75.0	73.3
	Other*	-	-	-	-	-	-	-	-	-	-	-
	Unknown	-	-	-	-	-	-	100.0	100.0	100.0	100.0	100.0
	Subtotal	81.3	85.5	85.0	80.2	80.2	84.8	84.9	86.0	85.1	83.2	84.7
Female	IDU	-	-	-	-	-	-	-	-	-	-	-
	Heterosexual	90.0	84.6	92.9	78.6	78.6	81.3	72.2	76.2	75.0	80.0	80.0
	Other*	-	-	-	-	-	-	-	-	-	-	-
	Subtotal	91.7	87.5	89.5	84.2	84.2	87.0	76.0	75.0	74.2	83.9	84.4

*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. August 1, 2019.

Table 12. Proportion of Patients Currently Prescribed ARVs by Gender, Exposure and Year of Care *(Vancouver HSDA)*

Gender	Exposure	Year of Care										
		2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Male	MSM	42.9	50.9	58.2	62.6	66.4	56.1	61.3	64.5	66.8	63.9	62.3
	MSM/IDU	45.5	53.1	66.7	70.2	72.9	66.7	72.7	77.3	77.3	74.2	74.2
	IDU	43.5	50.0	55.5	62.3	67.3	63.3	65.1	72.8	71.6	65.5	62.5
	Heterosexual	58.3	60.2	62.8	69.5	72.0	62.0	64.7	71.7	73.3	71.1	68.6
	Other*	43.8	50.0	54.5	58.3	56.0	50.0	52.9	61.8	61.8	58.8	60.9
	Unknown	47.2	47.9	58.9	56.9	55.8	40.9	50.6	49.4	50.0	41.7	35.1
	Subtotal	45.0	51.8	58.7	63.3	66.6	56.4	61.3	65.1	66.8	63.1	62.1
Female	IDU	25.6	34.1	44.3	58.3	62.2	58.9	61.7	65.4	64.5	60.0	58.7
	Heterosexual	42.4	46.1	52.3	62.0	66.4	65.1	67.5	73.0	73.8	68.2	75.7
	Other*	83.3	75.0	77.8	77.8	88.9	80.0	80.0	80.0	80.0	90.0	85.7
	Unknown	-	-	40.0	33.3	42.9	33.3	41.7	50.0	58.3	50.0	33.3
	Subtotal	34.9	41.3	49.2	60.2	64.7	61.6	64.3	69.0	69.4	64.6	66.8

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

Gender	Exposure	Year of Care										
		2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Male	MSM	52.1	62.3	61.5	68.0	75.6	58.5	65.1	74.5	82.1	78.9	74.1
	MSM/IDU	-	-	-	-	-	-	-	-	-	-	-
	IDU	63.6	90.9	81.8	91.7	92.3	91.7	83.3	91.7	83.3	83.3	80.0
	Heterosexual	62.5	73.7	69.6	68.0	72.0	58.8	64.7	76.5	70.6	69.4	66.7
	Other*	-	-	-	-	-	20.0	40.0	40.0	60.0	60.0	50.0
	Unknown	33.3	57.1	50.0	57.1	66.7	71.4	78.6	78.6	78.6	64.3	77.8
	Subtotal	53.7	67.0	64.2	68.6	74.8	60.8	66.7	75.4	78.9	75.7	72.3
Female	IDU	-	-	-	-	-	-	-	-	-	-	-
	Heterosexual	63.6	46.2	64.3	73.3	68.8	44.4	59.3	66.7	74.1	77.8	76.0
	Other*	-	-	-	-	-	-	-	-	-	-	-
	Unknown	-	-	-	-	-	-	-	-	-	40.0	-
	Subtotal	66.7	50.0	61.9	72.7	66.7	48.6	62.2	70.3	75.7	75.7	75.8

*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. August 1, 2019.

Table 14. 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	744	56	59	(375/641)	29
	July-Dec	577	61	53	(360/683)	31
2009	Jan-Jun	367	66	49	(360/731)	34
	July-Dec	311	70	44	(337/772)	35
2010	Jan-Jun	246	76	40	(324/814)	44
	July-Dec	210	77	37	(326/880)	43
2011	Jan-Jun	147	84	31	(283/907)	52
	July-Dec	126	86	30	(294/981)	57
2012	Jan-Jun	107	90	25	(253/1023)	62
	July-Dec	97	91	23	(244/1064)	64
2013	Jan-Jun	90	92	22	(242/1112)	66
	July-Dec	76	94	20	(223/1130)	72
2014	Jan-Jun	74	94	18	(216/1182)	71
	July-Dec	63	95	15	(185/1205)	75
2015	Jan-Jun	63	97	15	(188/1235)	81
	July-Dec	57	97	15	(184/1244)	84
2016	Jan-Jun	53	97	11	(135/1263)	79
	July-Dec	55	97	12	(154/1282)	84
2017	Jan-Jun	52	98	10	(123/1261)	85
	July-Dec	53	97	9	(115/1223)	75
2018	Jan-Jun	53	98	11	(124/1177)	82
	July-Dec	52	98	9	(106/1167)	85

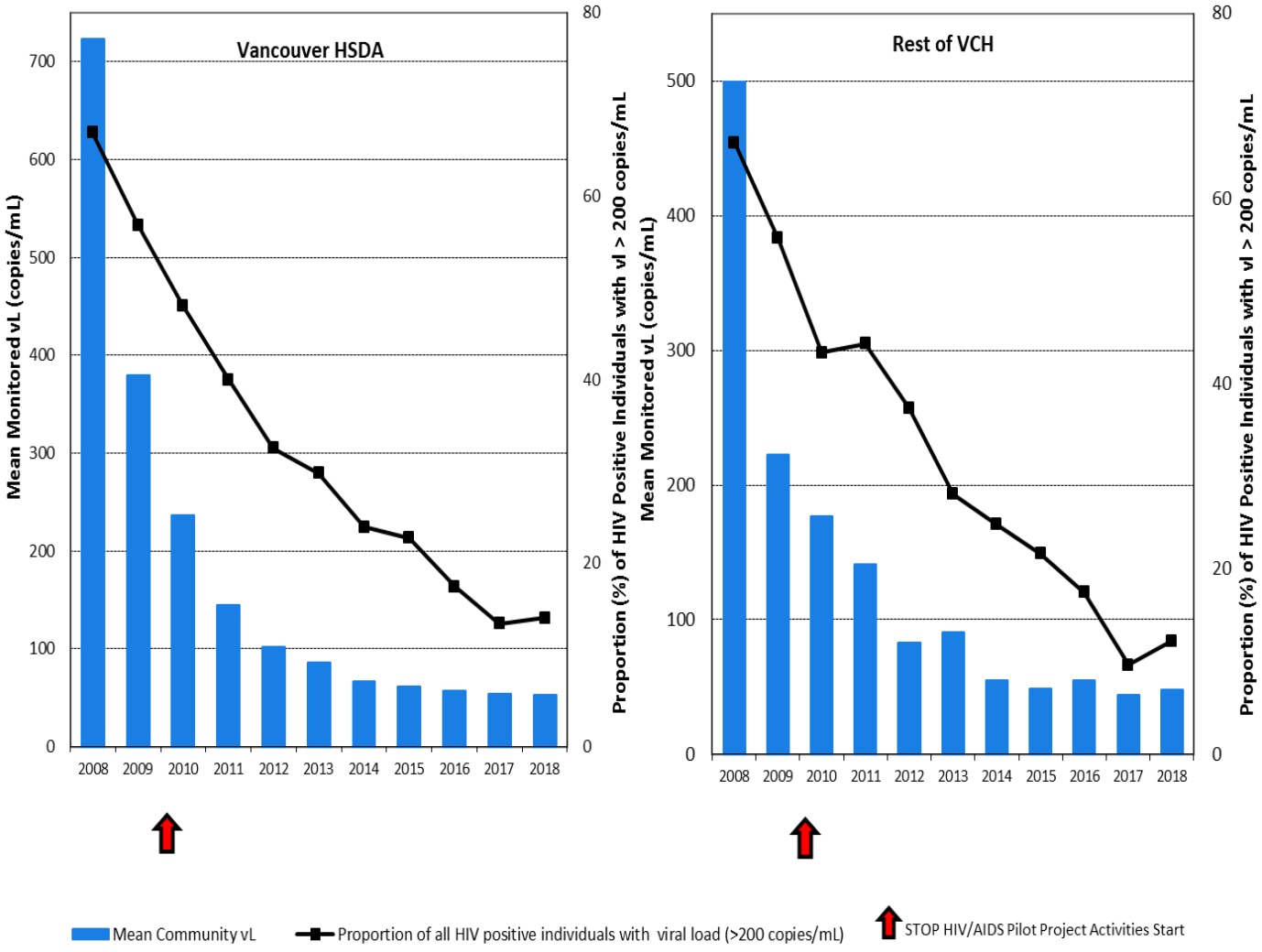
Source: Public Health Surveillance Unit (HIV Surveillance Data) & BCCfE Drug Treatment Program Data.
Prepared by: Vancouver Coastal Health, Public Health Surveillance Unit. August 1, 2019.

Table 15. 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	956	58	62	(32/52)	31
	July-Dec	408	67	49	(28/57)	39
2009	Jan-Jun	303	76	47	(31/66)	52
	July-Dec	184	79	39	(28/71)	54
2010	Jan-Jun	148	78	34	(26/77)	42
	July-Dec	154	78	32	(27/85)	41
2011	Jan-Jun	105	83	31	(26/83)	54
	July-Dec	133	80	34	(34/99)	47
2012	Jan-Jun	125	86	33	(35/107)	63
	July-Dec	77	93	21	(24/114)	75
2013	Jan-Jun	76	92	20	(24/119)	67
	July-Dec	81	93	20	(25/123)	72
2014	Jan-Jun	56	96	16	(21/129)	86
	July-Dec	58	95	17	(23/136)	83
2015	Jan-Jun	57	96	14	(21/145)	76
	July-Dec	48	98	13	(20/149)	85
2016	Jan-Jun	53	98	10	(16/160)	81
	July-Dec	52	98	12	(20/162)	90
2017	Jan-Jun	41	98	7	(12/163)	75
	July-Dec	44	97	6	(9/156)	67
2018	Jan-Jun	43	97	9	(13/145)	77
	July-Dec	48	99	7	(11/147)	82

Source: Public Health Surveillance Unit (HIV Surveillance Data) & BCCfE Drug Treatment Program Data.
Prepared by: Vancouver Coastal Health, Public Health Surveillance Unit. August 1, 2019.

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

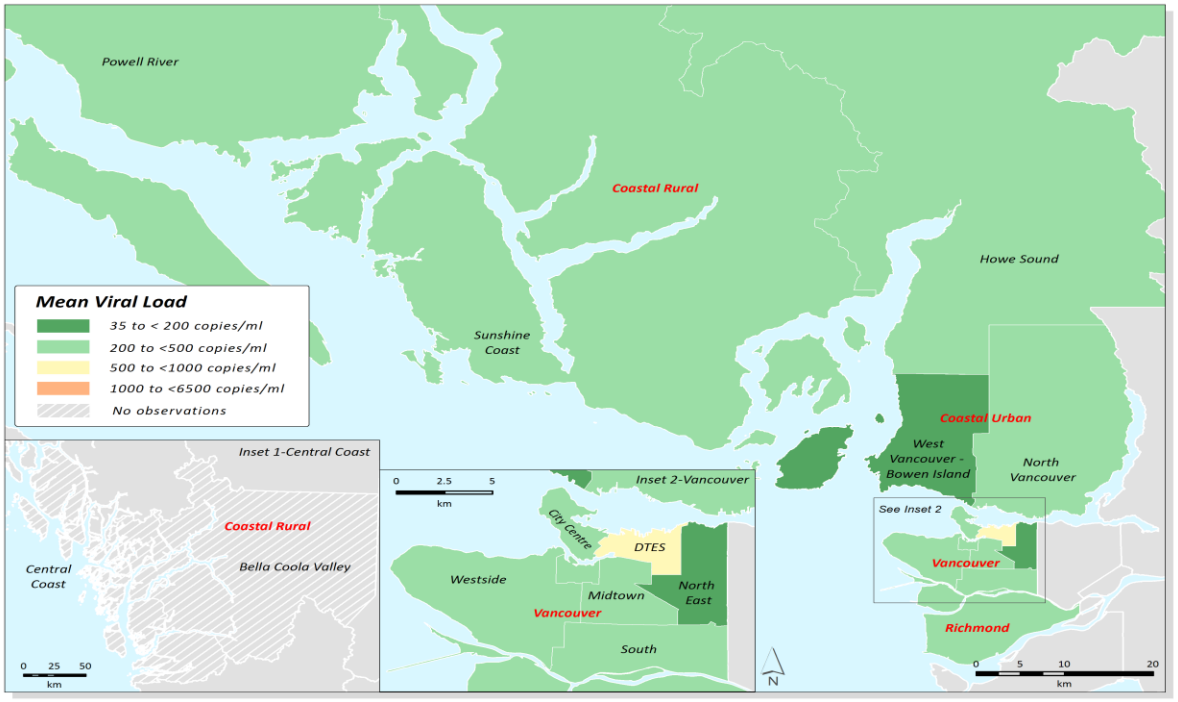


Source: Public Health Surveillance Unit (HIV Surveillance Data) & BCCfE Drug Treatment Program Data.
Prepared by: Vancouver Coastal Health, Public Health Surveillance Unit. August 21, 2019.

Public Health Surveillance Unit

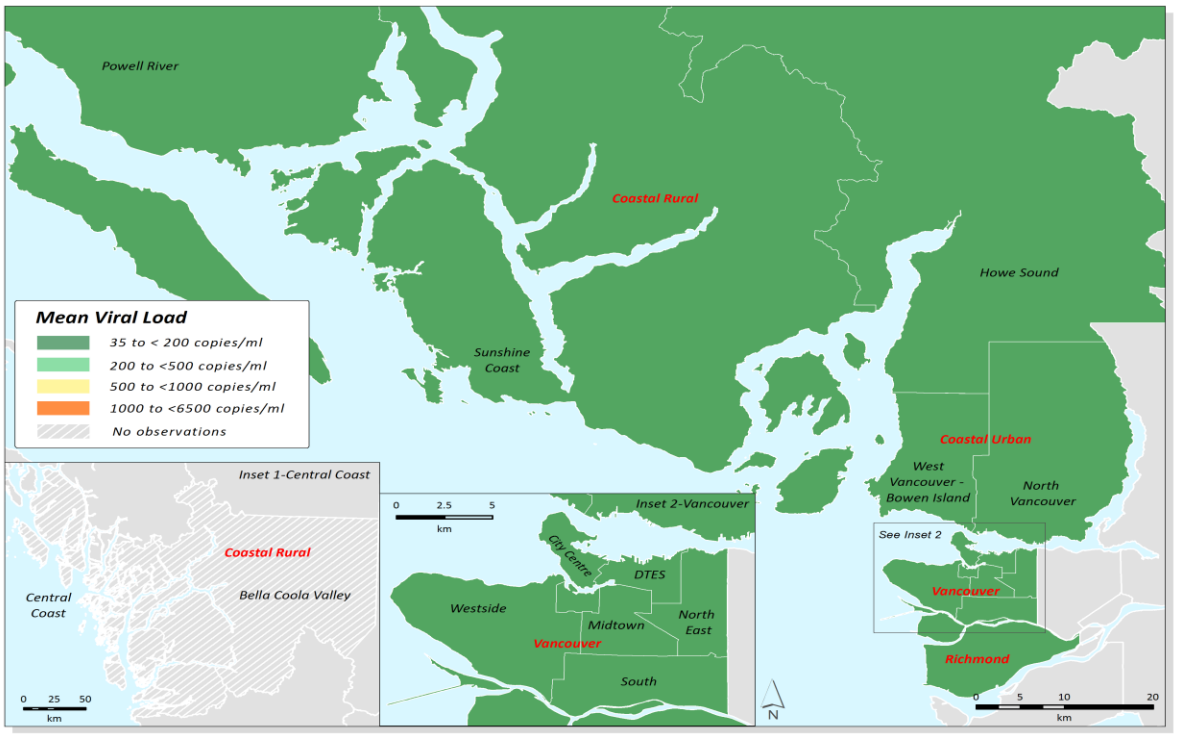
Mean Monitored Viral Load (copies/ml) by Local Health Area

Map 7. Historical Average (January 2008 – June 2010)



Data source: HIV Surveillance Data & BC CfE Drug Treatment Program Data.

Map 8. Average since Stop Initiative (July 2010 – December 2017)



Data source: HIV Surveillance Data & BC CfE Drug Treatment Program Data.

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 at least a vL tests >200 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.