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# Summary Report Provincial Point of Care Program

## 2013/14 – 2018/19

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## I. BACKGROUND

In 2010, the BC Ministry of Health requested that the BC Centre for Disease Control (BCCDC) in partnership with the Provincial Health Services Authority Laboratory develop a centralized, province-wide point of care (POC) HIV testing distribution and quality assurance program. This program was funded through the provincial pilot project, Seek and Treat for the Optimal Prevention of HIV/AIDS (STOP HIV/AIDS). The STOP HIV/AIDS program is guided by the goals, milestones & targets outlined in [From Hope to Health](#). The two-year Provincial POC HIV Testing Program pilot officially launched April 1st, 2011 and became fully operationalized in 2013.

POC HIV testing is used in all health authorities in British Columbia. The Provincial Program provides provincial guidelines for implementing POC in communities and works with site and health authority partners to optimize site/health authority readiness and ability to use the tests to provide accurate results. The Provincial Program provides ongoing support, training, quality oversight, troubleshooting advice, and manages a centralized repository of provincial POC HIV test results.

The intent of this document is to provide a summary report of the Provincial POC HIV testing program from April 1, 2013 to March 31, 2019 (fiscal years). Specifically, this report will outline:

1. The trends and settings of POC testing and diagnostic yield across health authorities in BC from 2013/14 – 2018/19
2. Observations for the program based upon the objective identified above

## II. METHODS

Quantitative data was collected from a variety of sources on available priority indicators and analysed using Excel software to provide descriptive summaries.

## III. FINDINGS

*Objective 1: To outline trends and settings of POC testing and diagnostic yield across health authorities in BC from 2013/14 – 2018/19 (fiscal year)*

- a. POC tests distributed and clients tested

For Vancouver-based sites (Provincial Health Services Agency (PHSA), Vancouver Coastal Health (VCH) and Providence Health Care (PHC), the total number of clients tested through

POC each year has steadily declined over time (Table 1), from 8,012 clients tested in 2013/14 to 3111 clients tested in 2018/19. Health authorities outside of Vancouver (Fraser Health Authority (FHA), Interior Health Authority (IHA), Vancouver Island Health Authority (VIHA), and Northern Health Authority (NHA) ) have also followed a similar pattern, with an initial uptick of POC testing, followed by a gradual decline of testing over time. For these health authorities, 2013/14 saw 2641 clients tested, while 2018/19 saw 2469 clients – a decrease from the peak year 2015/16 where 4036 clients were tested. Table 1 stratifies testing based on health authority/site and fiscal year.

**b. POC test kits used for diagnostic purposes**

In general, the proportion of kits used for diagnostic use is higher in health authorities which have higher volumes of testing. In 2018/19 the Vancouver-area sites used 63.7% – 83.8% of the POC test kits they received for diagnostic purposes, whereas those health authorities outside of Vancouver used 51.6% - 68.1% for diagnostic purposes. Note that as a whole, a certain number of tests (non-diagnostic) are needed to quality assure the POCT testing kits, with low volume sites using more kits for quality assurance than for client (diagnostic) tests. Table 1, demonstrates that the use of POC for diagnostic purposes has generally remained constant within each health authority/site.

Table 1: HIV POC tests by health authority and fiscal year

Sites in Vancouver						
Fiscal year	Total Clients tested	% use for diagnostic purposes (clients)	True Positive (TP)*	TP (%) of all clients tested	False positive (FP)**	FP(%) of all clients tested
Providence Health Care						
2013/14	518	74.7	3	0.58%	0	0.00%
2014/15	470	80.2	4	0.85%	0	0.00%
2015/16	152	78.4	0	0.00%	0	0.00%
2016/17	212	83.5	0	0.00%	0	0.00%
2017/18	131	75.3	3	2.29%	0	0.00%
2018/19	86	63.7	0	0.00%	0	0.00%
Provincial Health Services Agency						
2013/14	2203	82.5	20	0.91%	0	0.00%
2014/15	2340	83.7	15	0.64%	0	0.00%
2015/16	1923	87.2	10	0.52%	1	0.05%
2016/17	1999	86.4	9	0.45%	1	0.05%
2017/18	1688	79.4	7	0.41%	0	0.00%
2018/19	1202	76.8	4	0.33%	0	0.00%
Vancouver Coastal Health						
2013/14	5291	84.9	29	0.55%	1	0.02%
2014/15	5299	82.1	26	0.49%	3	0.06%
2015/16	4428	86.0	10	0.24%	0	0.00%
2016/17	4076	90.7	13	0.33%	1	0.03%
2017/18	3212	90.8	13	0.40%	1	0.03%
2018/19	1823	83.8	4	0.22%	0	0.00%
Sites outside of Vancouver						
Fiscal year	Total Clients tested	% use for diagnostic purposes (clients)	True Positive (TP)*	TP (%) of all clients tested	False positive (FP)**	FP(%) of all clients tested
Fraser Health Authority						
2013/14	925	63.6	9	0.97%	5	0.54%
2014/15	1479	76.4	2	0.14%	1	0.07%
2015/16	1356	71.7	5	0.37%	0	0.00%

2016/17	883	66.7	2	0.23%	0	0.00%
2017/18	588	62.4	1	0.17%	0	0.00%
2018/19	588	65.4	2	0.34%	0	0.00%
Interior Health Authority						
2013/14	208	51.4	0	0.00%	0	0.00%
2014/15	631	59.6	1	0.16%	1	0.16%
2015/16	657	63.9	2	0.30%	0	0.00%
2016/17	721	73.8	2	0.28%	0	0.00%
2017/18	737	72.7	3	0.41%	0	0.00%
2018/19	571	68.1	1	0.18%	1	0.18%
Northern Health Authority						
2013/14	523	52.8	6	1.15%	2	0.38%
2014/15	513	64.1	1	0.19%	3	0.58%
2015/16	464	61.8	0	0.00%	1	0.22%
2016/17	502	65.4	0	0.00%	0	0.00%
2017/18	399	60.9	0	0.00%	0	0.00%
2018/19	407	51.6	1	0.25%	0	0.00%
Vancouver Island Health Authority						
2013/14	985	64.5	2	0.20%	3	0.30%
2014/15	1398	69.4	2	0.14%	3	0.21%
2015/16	1559	68.5	5	0.32%	0	0.00%
2016/17	1272	71.4	7	0.55%	0	0.00%
2017/18	1214	73.8	5	0.41%	0	0.00%
2018/19	903	64.2	3	0.33%	0	0.00%
<b>TOTAL</b>	<b>56,536</b>		<b>232</b>	<b>0.41%</b>	<b>28</b>	

\*True positive – client testing positive via POC screening test, and subsequently testing positive via HIV serological diagnostic test.

\*\*False positive - client testing positive via POC screening test, and subsequently testing negative via HIV serological diagnostic test.

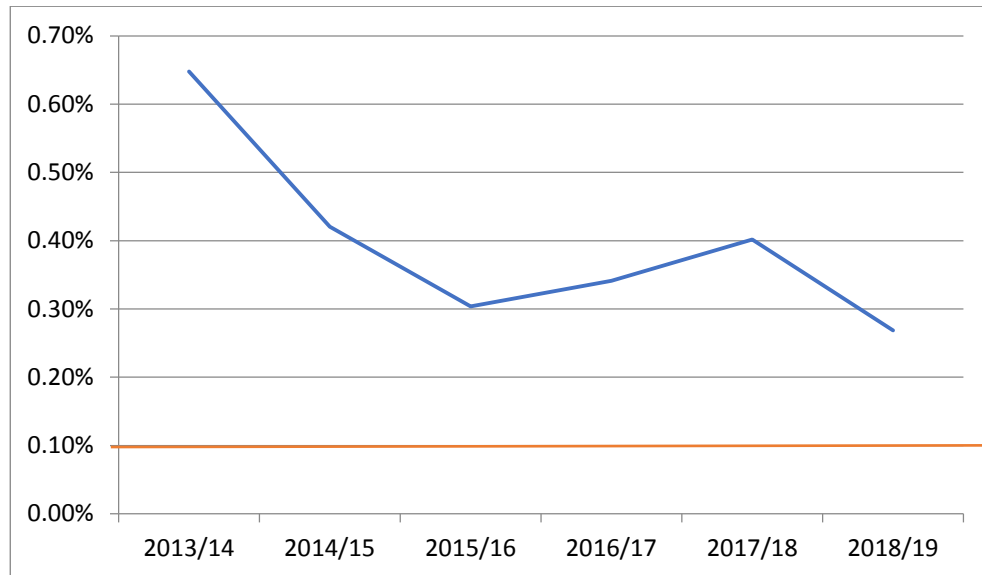
c. Diagnostic yield: true positive, false positive

Since 2013, 56,536 clients have been tested as part of the Provincial POC HIV testing program. Of these, 232 (0.41%) tested POC positive and were confirmed by serologic testing as true positives (Table 1). Ideally, all individuals who test positive on HIV through POC testing should be found to have HIV upon confirmatory HIV testing in a laboratory. As with all screening testing, POC tests do produce false positive test results; with the most common causes due to cross-reactive antibodies found in the blood of some individuals, errors in performing or interpreting the test, and those with an elevated hemoglobin. For fiscal years 2013/14 to 2018/19, 28 false positive (true negative) test results were found (Table 1). This represents 0.05% of all clients tested during this time period, highlighting the very good specificity offered by the INSTI™ test. In addition, 27 clients (not shown in Table) had unconfirmed positive results. These test results cannot be verified as being either true positive or false positive as no follow-up bloodwork was drawn to confirm the preliminary positive test result. A proportion may reflect an invalid test incorrectly reported as indeterminate.

Previous studies have suggested that routine population-level HIV testing is a cost-effective intervention if the diagnostic yield is at least one true positive result per 1000 tests given (1). However, most of these analyses have been predicated using laboratory based serologic testing. More recent analyses of HIV point-of-care testing have found it to be cost-effective and potentially cost savings under circumstances with similar proportions of true positive tests(2). Therefore, this 1 per 1000 threshold is likely appropriate for POC settings. As shown in Figure 1, while the diagnostic yield of POC testing has declined since 2013, it remains above the 1 per 1000 (or 0.1%) threshold.

Of the 232 true positive results, 170 (73%) were found in Vancouver sites; specifically those with high test volumes focusing on high prevalence populations.

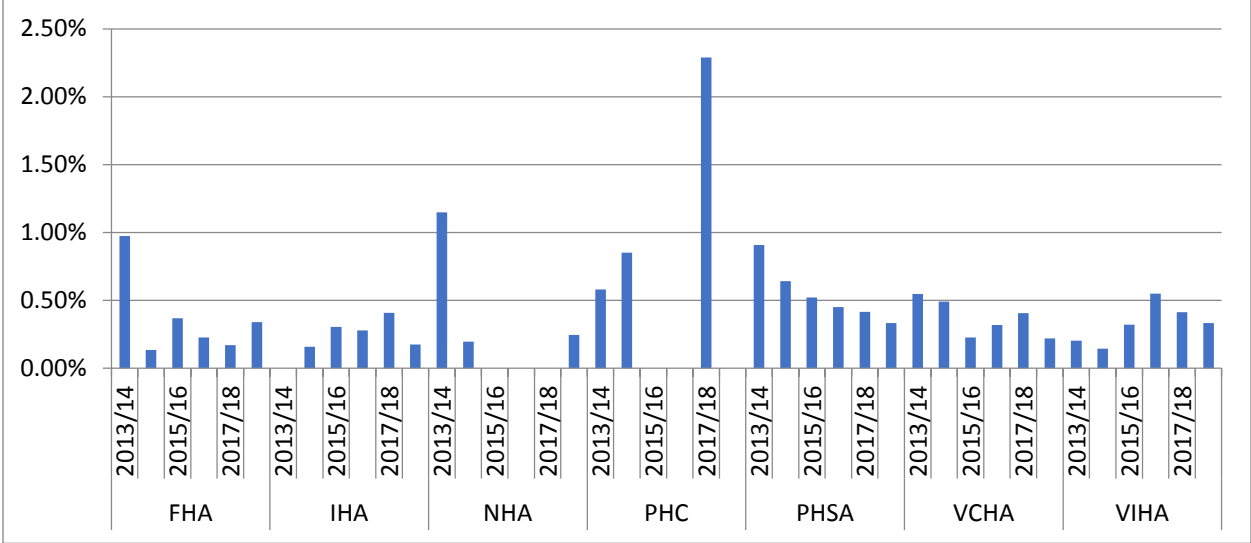
Figure 1: BC HIV point of care true positive results by fiscal year as a percentage of total client tests



When examining diagnostic yield stratified by regional health authority/site by year (Figure 2), the yield of true positive tests is found to be above the 0.1% threshold across most health authorities/sites and years. Exceptions to this however, are years in which no diagnoses were made – specifically in NHA and PHC. As the use of POC tests remains somewhat low in these two health jurisdictions, even having a single true positive test in a given year would be enough to raise the overall diagnostic yield to over the 1 per 1000 target.



Figure 2: HIV point of care true positive results by health authority and fiscal year as a percentage of total client tests



**d. POC HIV tests as a proportion of total HIV testing across the province**  
As shown in Table 2, the 232 true positive test results found through POC testing reflect approximately 16.8% of the 1,384 new HIV diagnoses in BC over the 2013/14-2018/19 period. The relative proportion of new HIV diagnoses related to POC testing has been declining over time from a high of 24.6% in 2013 to a low of 8.1% in 2018/19.

Table 2: Diagnoses made through HIV POC tests compared to provincial totals by calendar year

	POC true positive tests	Total HIV positive tests for BC	POC as % of total BC HIV positive
2013/14	69	280	24.6%
2014/15	51	262	19.5%
2015/16	32	230	13.9%
2016/17	33	237	13.9%
2017/18	32	189	16.9%
2018/19	15	186	8.1%
Total	232	1,384	16.8%

\*NB: Counts are based on fiscal year and not calendar year thus may differ from counts seen in annual reports or other surveillance data.

**e. Number of POC sites supported**

The number of sites supported by the provincial POC program has remained relatively constant since 2013/14 with between 80 – 88 sites in any given year (Table 3). Note however that site locations themselves may have changed over time, with some sites ceasing to exist and new ones commencing within each of the health authorities. New sites require a period of sustained support by the health authority (usually at least a year) to determine whether it may be viable. Vancouver Coastal has developed specific criteria to determine if they should continue to maintain a site or suggest that it be discontinued. Sites are generally discontinued if they have very low testing volumes (i.e. no client tests performed in a three month period). Other health authorities follow similar criteria which may be adapted to their particular circumstances.

Table 3: Number of sites engaged in BCCDC program by fiscal year

	Fraser Health	Interior Health	Northern Health	Providence Health Care	PHSA	VCH	Island Health	Totals
2013/14	13	9	10	2	4	33	15	86
2014/15	14	11	7	1	4	38	13	88
2015/16	12	8	7	1	4	34	15	81
2016/17	12	9	7	1	4	34	14	81
2017/18	12	9	12	2	4	29	14	82
2018/19	10	9	12	2	4	29	14	80

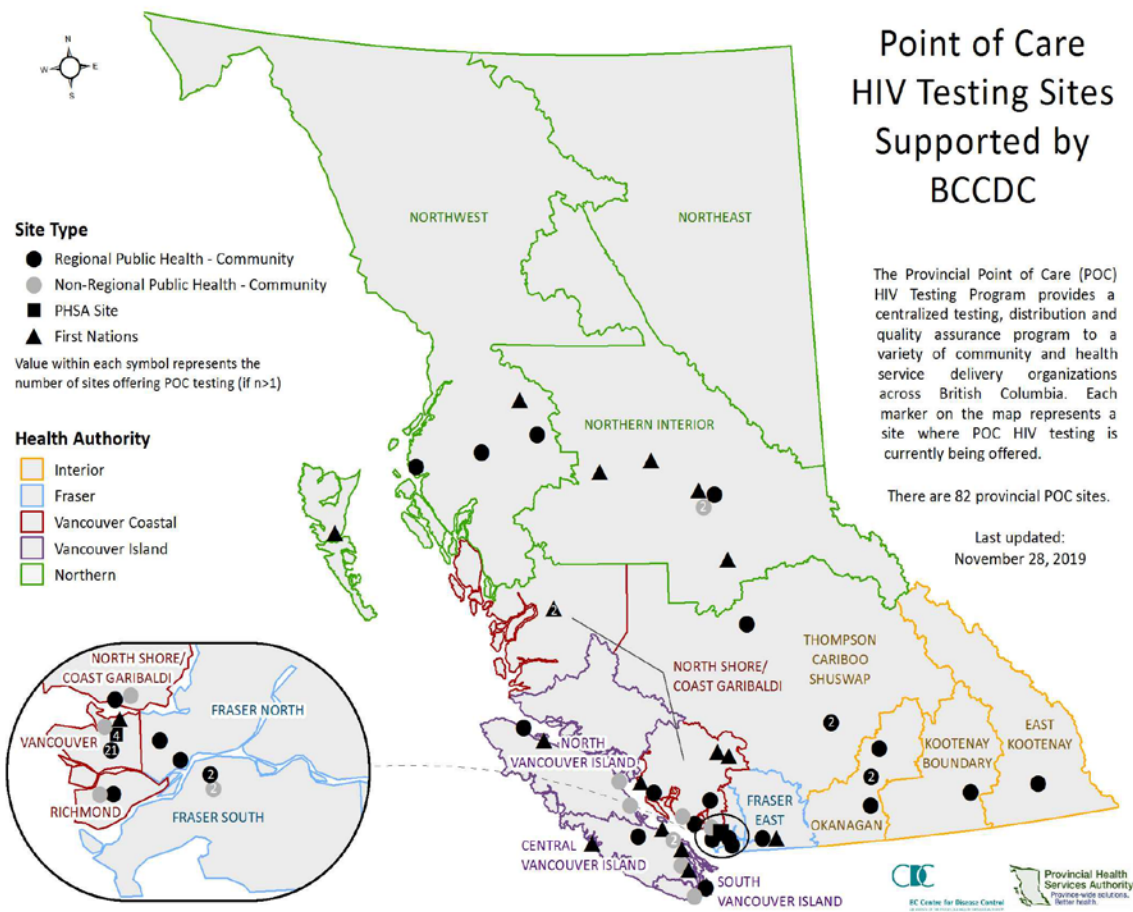
**f. Number of sites discontinued from POC program**

Of the 137 sites that have ever received support from the POC HIV Testing program since 2011, approximately 57 (42%) of these sites have been discontinued. Most of the sites were discontinued due to low testing volumes, although in some circumstances this was coupled to changes in staffing or clinic procedures. At least two sites were stopped because they were research studies which were able to pay for the POC kits they used. Several sites represented pilot programs or mass testing events which were discontinued because uptake was poor or no new positive diagnoses were identified.

**g. Geographic location and region of POC sites**

Data updated to November 28, 2019 demonstrates that HIV POC testing sites exist in all regional health authorities and all health service delivery areas except the Northeast HSDA (Figure 3). Access to HIV POC testing varies widely across the province however given geographical distances.

Figure 3: Provincial POC HIV Testing Sites



**h. Type of testers trained**

Initially, only registered nurses, nurse practitioners and physicians were trained to use the HIV POC test. Nurses consistently comprise more than 80% of all testing providers. Additional learner groups/testing providers have been added over the years that include licensed practical nurses (LPNs) and non-regulated and allied health care providers (NRACPs) - such as social workers, peers, dentists and community health workers.

#### IV. OBSERVATIONS/CONCLUSION

*Objective 2: Observations for the program based upon the objective identified above*

The number of POC test kits used in BC has declined since reaching a peak of just over 15,000 kits in 2014 -15 to 7,800 kits in 2018 – 2019. Despite this reduction in numbers, health authorities and community partners continue to support POC testing in existing sites and remain interested in starting up new sites in appropriate settings; as noted by requests for education to train new testing providers. Recently a number of requests to support new testing providers includes interest by health authorities and community partners to support groups like LPNs and NRACPs to provide POC testing in locations where populations may be hard to reach by traditional methods, and where engagement into care is key. This upholds supporting and improving reach and engagement to “those vulnerable to HIV infection” or who would be better supported by targeted testing as outlined in [From Hope to Health](#) .

Several factors may have contributed to the decline of POC testing in the province. These include changes to testing and prevention options; especially in urban environments:

- i. Improved standard laboratory testing coverage of routine HIV testing; the current 4<sup>th</sup> generation screening test used in BC was implemented in 2015. 4<sup>th</sup> generation tests offer a shorter window period for HIV testing of approximately 2-3 weeks; whereby the POC test (a 3<sup>rd</sup> generation antibody test) offers a window period of approximately 4 or more weeks.

- ii. Reduced demand for testing by previously tested clients; clients being directed to laboratory-based serologic testing, due in part because of the reduction of window period in laboratory-based testing as well as the current requirement for a documented 4<sup>th</sup> generation test for enrollment and ongoing management in the Pre-exposure Prophylaxis Program (PrEP).
- iii. Increased availability of alternate testing options. Get Checked Online (GCO) allows people to privately, conveniently and confidentially test using an online platform to create their own lab forms, provide samples to the lab, and then access their results online. On demand HIV testing at Interior Health and Valley Medical Laboratories offers people the opportunity to self-identify the need to test for HIV while testing for other bloodwork. Both testing options provide people with the control to autonomously decide when and where to test.

Despite these factors contributing to the decline of POC testing, it is not anticipated that there will be large variations in demand for HIV POC testing in the next 3 to 5 years. POC testing remains a valuable tool and service in rural and remote settings where limited testing options and resources are available (ex. GCO sites remain restricted primarily to urban environments and is not offered in all BC health authorities). HIV home testing kits, though approved and in use in the United States have yet to be approved for sale in Canada. Dried blood spot (DBS) testing (where drops of blood are blotted and dried on filter paper) is an innovative approach to testing in remote communities as samples (often testing for more than one infection at the same time; HIV, hepatitis C, syphilis for example) are stable and easily transported. DBS currently remains limited in scope and is being explored through research projects in Manitoba, BC, Saskatchewan and Ontario. Until such time that home testing kits become approved in Canada, DBS testing is made more readily available, and GCO is offered in more provincial locations, POC testing remains one of several effective HIV testing options that permits testing of people who may not want to necessarily be linked to a test (eg. anonymous testing), who want to maintain control over testing, and who live in settings where resources are limited.

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