



BRITISH COLUMBIA
CENTRE for EXCELLENCE
in HIV/AIDS



Ministry of
Health

HIV PRE-EXPOSURE PROPHYLAXIS (PrEP) QUARTERLY REPORT



FOR BRITISH COLUMBIA FOURTH QUARTER 2020



FOREWORD

HIV Pre-exposure prophylaxis (PrEP) is a biomedical strategy for HIV prevention consisting of the use of antiretrovirals by HIV-negative individuals who are at high risk of acquiring HIV infection [1]. Specifically, PrEP refers to the ongoing use of emtricitabine/tenofovir initiated prior to and continued after potential exposure to HIV as a means of preventing infection from establishing within the individual's body [1].

In January 2018, a province-wide HIV PrEP program was implemented in British Columbia (BC), Canada, to complement current overarching HIV prevention strategies, namely Treatment as Prevention (TasP®), alongside traditional harm reduction and safer sex measures. Thus, BC residents are eligible to receive publicly funded PrEP, via the BC Centre for Excellence in HIV/AIDS (BC-CfE) PrEP program, in accordance with BC-CfE PrEP Guidelines [2].

As part of the BC-CfE's mandate to monitor and evaluate HIV treatment and prevention programs in BC, the BC-CfE was tasked with identifying and developing appropriate PrEP monitoring and evaluation indicators to be reported on a regular basis. The process of producing these quarterly PrEP indicators also allows for the assessment of limitations in data capture and supports the development of strategies to improve timely and complete data capture. Please note that any comments and queries regarding this report should be forwarded to Dr. Rolando Barrios, Senior Medical Director at the BC-CfE, at rbarrios@bccfe.ca.

* Please note that all information presented in this report is generated from a live database, which is updated on a regular basis. As such, the data presented for previous quarters is subject to changes over time as new information becomes available in the live database.

The indicators have been impacted by reductions in the availability of non-essential medical services due to COVID-19 pandemic response measures in Q2 2020.

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ACRONYMS

ADR	Adverse Reaction
Ag/Ab	Antigen/Antibody
ART	Antiretroviral Therapy
BC	British Columbia
BCCDC	British Columbia Centre for Disease Control
BC-CfE	British Columbia Centre for Excellence in HIV/AIDS
BCMoH	British Columbia Ministry of Health
DFA	Direct Fluorescent Antibody
EIA	Enzyme Immunoassay
gbMSM	Gay, Bisexual, and Other Men who have Sex with Men
HIRI-MSM	HIV Incidence Risk Index for Men who have Sex with Men
HIV	Human Immunodeficiency Virus
nPEP	Non-Occupational Post-Exposure Prophylaxis
NAAT	Nucleic Acid Amplification Testing
OPTIONS	Optimizing Prevention Technology Introduction on Schedule
PCR	Polymerase Chain Reaction
PWID	People Who Inject Drugs
PrEP	Pre-Exposure Prophylaxis
RPR	Rapid Plasma Reagin
Q	Calendar Quarter
STOP HIV/AIDS	Seek and Treat for Optimal Prevention of HIV/AIDS
STI	Sexually Transmitted Infections
TGW	Transgender Women
TasP	Treatment as Prevention



ACKNOWLEDGEMENTS AND CONTRIBUTIONS

The BC-CfE, with input from representatives from key collaborators, including the Health Authorities, British Columbia Ministry of Health (BCMoH), and the British Columbia Centre for Disease Control (BCCDC), is responsible for the conception, preparation, and ongoing review of this quarterly report. The BC-CfE provides the data and outputs for all indicators. Specifically, the data were procured from the BC-CfE PrEP Program database. The BC-PrEP Program database is linked to a centralized BC-CfE registry, which stores data from various sources relevant to this report, including the following:

- BC-CfE Drug Treatment Program (e.g., demographic, clinical, antiretroviral medication dispensation data).
- BC-CfE Pharmacovigilance Initiative (e.g., clinician-reported antiretroviral adverse drug reaction data).
- BC Vital Statistics (e.g., mortality data for the purposes of censoring clients appropriately).
- Providence Health Care Laboratory Interface (e.g., testing data from multiple laboratory sites, including the British Columbia Centre for Disease Control [BCCDC] Public Health Laboratory).
- The College of Physicians and Surgeons of BC (e.g., physician-related data to determine type of physician [family physician vs specialist physician]).

Collectively, these aforementioned data sources are linked into a secure and computerized database. Privacy and confidentiality are matters which are taken very seriously and strict rules and procedures are applied to ensure that the information stored is secure. Data for persons in BC accessing PrEP outside the BC-PrEP Program (e.g., 3rd party private insurers, non-insured health benefits, cash-paying clients) are not captured in this report.

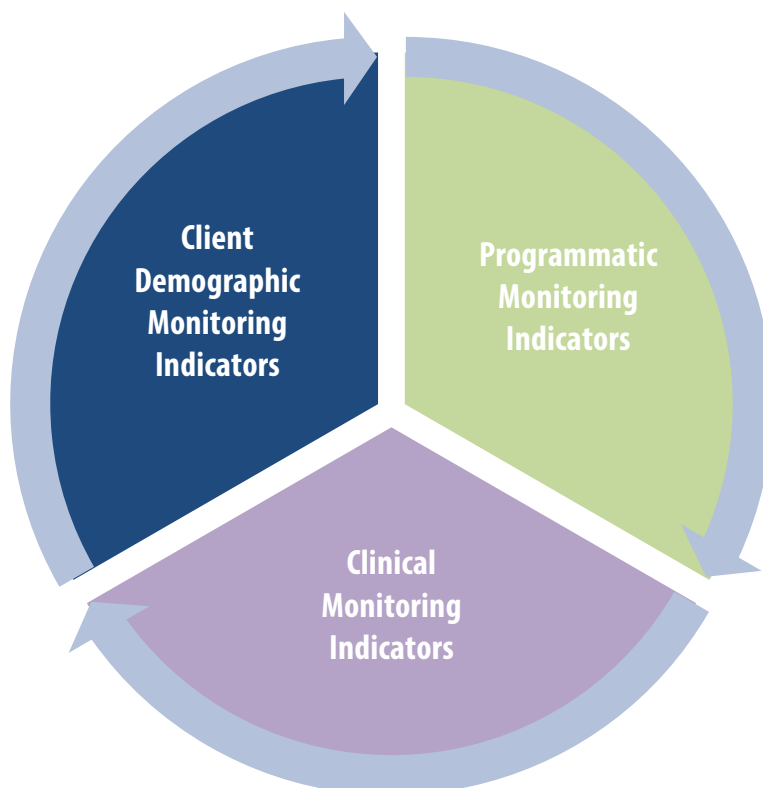
The Seek and Treat for Optimal Prevention of HIV/AIDS® (STOP HIV/AIDS) Technical Monitoring Committee is responsible for oversight of this monitoring report. Mr. Nic Bacani and Mr. Jason Trigg performed the analysis of the indicators under the guidance and support of Ms. Junine Toy, Dr. Viviane Dias Lima, Mr. Paul Sereda, and Emmanuel Dankwah. This report was conceived and led by Dr. Rolando Barrios and Dr. Julio Montaner.

INDICATOR DEVELOPMENT AND REVISION

The indicator development process began with engagement of the STOP HIV/AIDS Technical Monitoring Committee, composed of clinicians, clinical researchers, epidemiologists, statisticians, and other public health experts in the field. Select members of this working group, located at the BC-CfE, conducted a review of the literature on existing monitoring and evaluation indicators utilized in the field of HIV/AIDS surveillance and PrEP. The published and grey literature was thoroughly searched for relevant monitoring and evaluation literature. Among other sources, the following key sources were referred to at the time of indicator development: Centers for Disease Control and Prevention's Framework for Program Evaluation in Public Health [3], Treatment as Prevention Process Monitoring Indicators developed by the STOP HIV/AIDS Study Group [4], the WHO Implementation Tool for Pre-Exposure Prophylaxis of HIV Infection [5], and the Optimizing Prevention Technology Introduction on Schedule (OPTIONS) Review and Documentation of Monitoring and Evaluation of Indicators for Oral PrEP [6]. Our indicators were then disseminated to all members of the STOP HIV/AIDS technical monitoring committee for review and feedback.

Effectively, there was collaboration with an interdisciplinary working group to develop a set of evidence-based indicators that will contribute to the establishment of a monitoring and evaluation process for the BC-PrEP program. It is recognized that periodic review and refinement of these indicators will be required for a robust monitoring and evaluation system.

PrEP INDICATOR DOMAINS CONCEPTUAL FRAMEWORK



CLIENT DEMOGRAPHIC INDICATORS

INDICATOR 1. CLIENT GENDER IDENTITY¹

This indicator describes the gender identity of unique BC-PrEP clients who were dispensed PrEP by calendar quarters. By clicking the indicator sub-heading, you will be redirected to the full technical definition.

FIGURE 1.1. CISGENDER MALE BC-PrEP CLIENTS DISPENSED PrEP (COUNT)

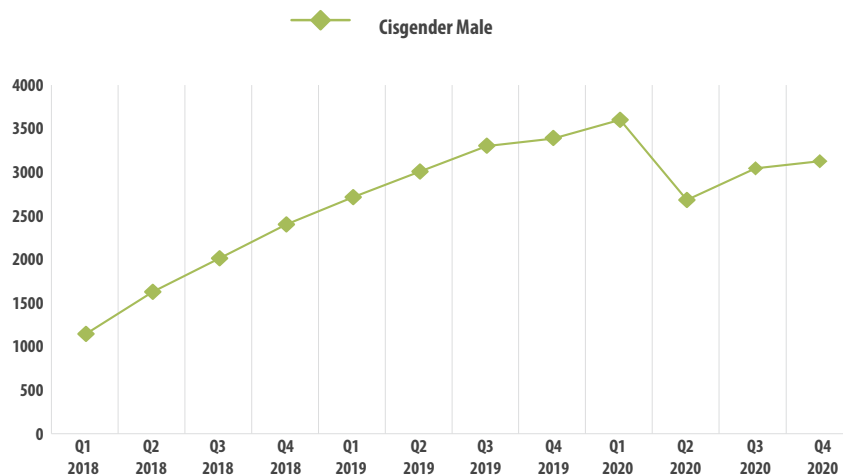
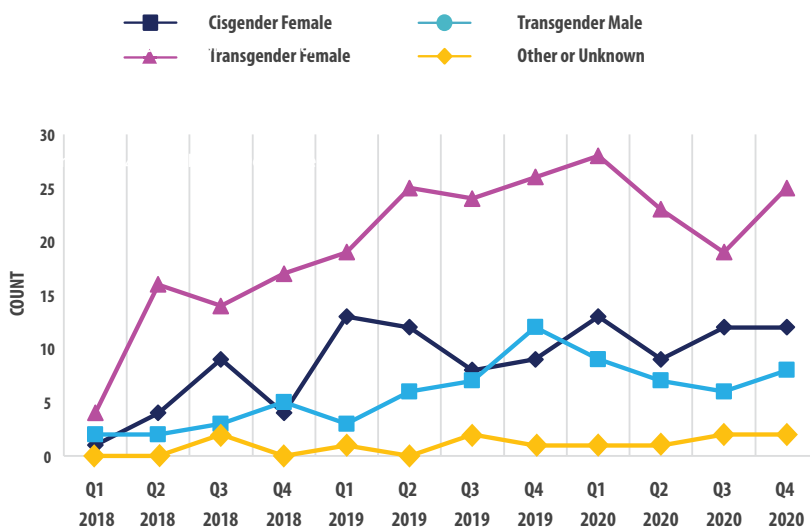


FIGURE 1.2. BC-PrEP CLIENTS DISPENSED PrEP BY GENDER IDENTITY EXCEPT CISGENDER MALES (COUNT)



¹ The BC-PrEP database does not capture longitudinal gender identity information, thus only the most recent gender identity recorded can be reported. The number of BC-PrEP clients in each quarter represent unique clients (i.e., each client was only counted once per quarter). The percentages were not graphed given the particularly low percentages of BC-PrEP clients in most categories.

Note: BC= British Columbia; PrEP= pre-exposure prophylaxis; Q= calendar quarter; Q1= January to March; Q2= April to June; Q3= July to September; Q4= October to December.

Gender Identity	Q1 2018 N (%)	Q2 2018 N (%)	Q3 2018 N (%)	Q4 2018 N (%)	Q1 2019 N (%)	Q2 2019 N (%)	Q3 2019 N (%)	Q4 2019 N (%)	Q1 2020 N (%)	Q2 2020 N (%)	Q3 2020 N (%)	Q4 2020 N (%)
Cisgender Male	1170 (99)	1627 (99)	2005 (99)	2398 (99)	2692 (99)	2994 (99)	3240 (99)	3370 (99)	3519 (99)	2672 (99)	2993 (99)	3093 (99)
Cisgender Female	<5 (0)	<5 (0)	9 (0)	<5 (0)	13 (0)	12 (0)	8 (0)	9 (0)	13 (0)	9 (0)	12 (0)	12 (0)
Transgender Men	<5 (0)	<5 (0)	<5 (0)	5 (0)	<5 (0)	6 (0)	7 (0)	12 (0)	9 (0)	7 (0)	6 (0)	8 (0)
Transgender Women	<5 (0)	16 (1)	13 (1)	16 (1)	19 (1)	24 (1)	24 (1)	25 (1)	26 (1)	22 (1)	19 (1)	25 (1)
Other or Unknown	0 (0)	0 (0)	<5 (0)	0 (0)	<5 (0)	0 (0)	<5 (0)	<5 (0)	<5 (0)	<5 (0)	<5 (0)	<5 (0)

INDICATOR 2. CLIENT AGE²

This indicator describes the age of unique BC-PrEP clients who were dispensed PrEP by calendar quarters. By clicking the indicator sub-heading, you will be redirected to the full technical definition.

FIGURE 2.1. BC-PrEP CLIENTS DISPENSED PrEP BY AGE GROUP (COUNT)

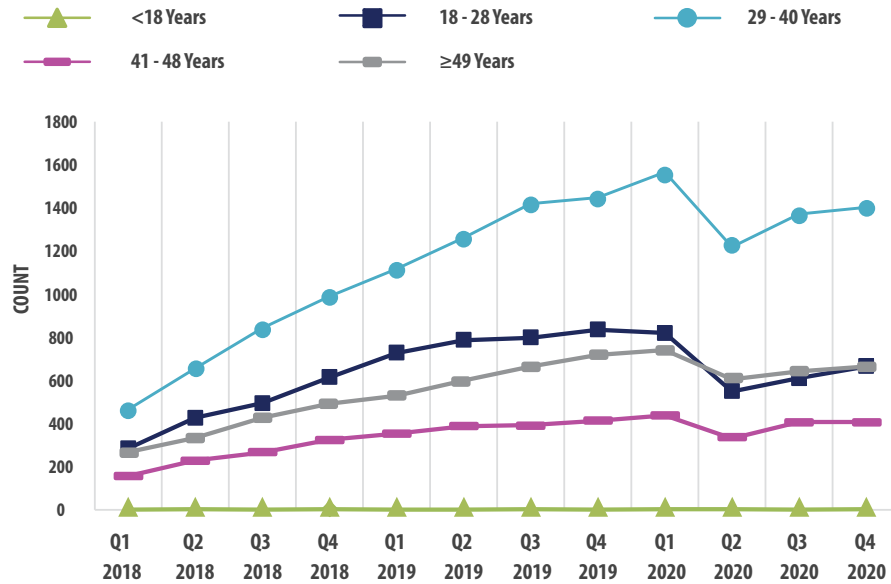
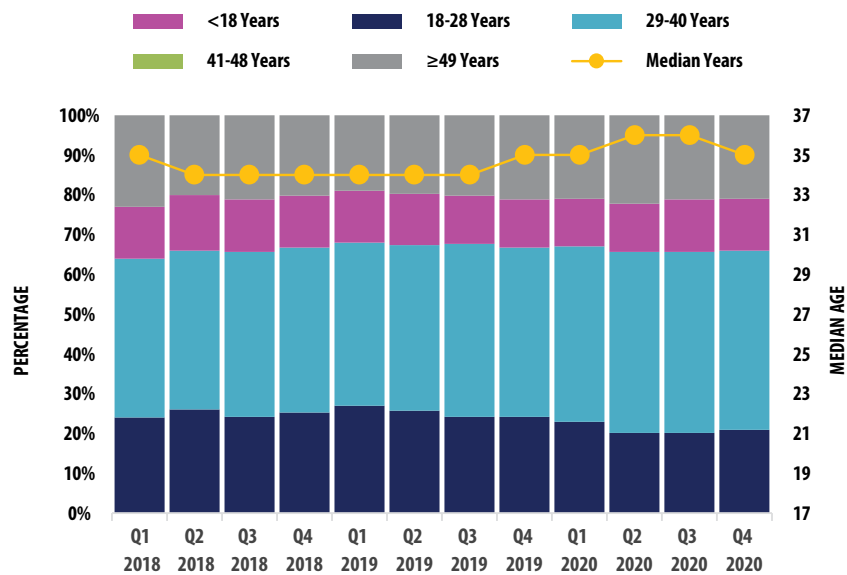


FIGURE 2.2. BC-PrEP CLIENTS DISPENSED PrEP BY AGE GROUP (PERCENTAGE)



Note: BC= British Columbia; PrEP= pre-exposure prophylaxis; Q= calendar quarter; Q1= January to March; Q2= April to June; Q3= July to September; Q4= October to December.

² The number of BC-PrEP clients in each quarter represent unique clients (i.e., each client was only counted once per quarter).

Age	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
	2018	2018	2018	2018	2019	2019	2019	2019	2020	2020	2020	2020
	N	N	N	N	N	N	N	N	N	N	N	N
	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
<18 Years	<5 (0)	<5 (0)	<5 (0)	<5 (0)	<5 (0)	<5 (0)	<5 (0)	<5 (0)	<5 (0)	<5 (0)	<5 (0)	<5 (0)
18-28 Years	285 (24)	427 (26)	495 (24)	614 (25)	728 (27)	787 (26)	799 (24)	835 (24)	820 (23)	549 (20)	610 (20)	665 (21)
29-40 Years	466 (40)	656 (40)	843 (41)	990 (41)	1116 (41)	1261 (42)	1421 (43)	1448 (42)	1566 (44)	1220 (45)	1373 (45)	1402 (45)
41-48 Years	157 (13)	229 (14)	266 (13)	324 (13)	355 (13)	388 (13)	394 (12)	414 (12)	438 (12)	332 (12)	406 (13)	407 (13)
≥49 Years	268 (23)	335 (20)	427 (21)	492 (20)	528 (19)	599 (20)	664 (20)	719 (21)	742 (21)	605 (22)	642 (21)	664 (21)
Median Years	35	34	34	34	34	34	34	35	35	35	36	35

INDICATOR 3. HEALTH AUTHORITY (CLIENTS' RESIDENCE AND PROVIDERS' PRACTICE)³

This indicator describes the BC-PrEP clients' health authority of residence and their providers' health authority of practice among those who were dispensed PrEP by calendar quarters. By clicking the indicator sub-heading, you will be redirected to the full technical definition.

FIGURE 3.1. BC-PrEP CLIENTS DISPENSED PrEP BY CLIENTS' HEALTH AUTHORITY OF RESIDENCE (COUNT)

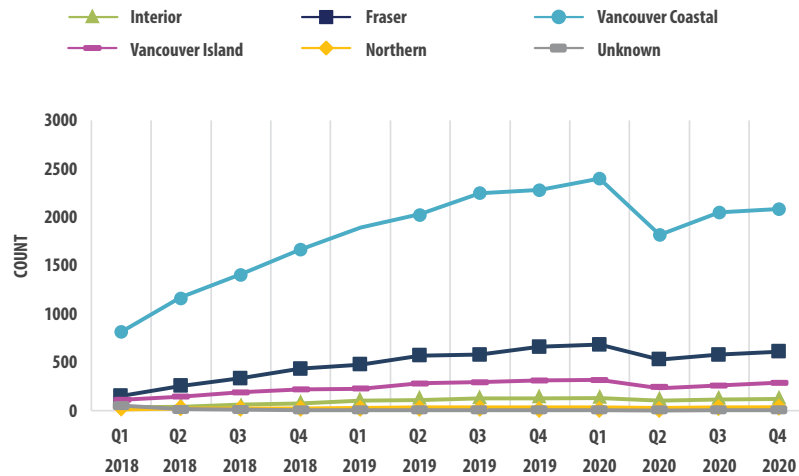
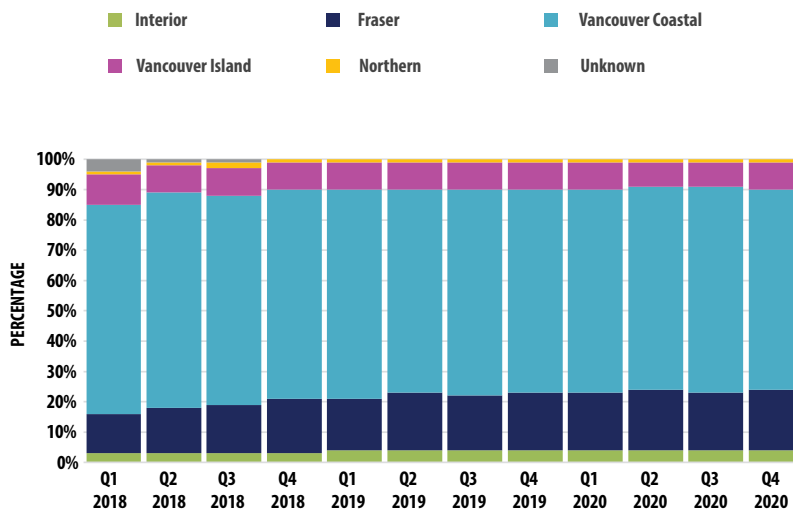


FIGURE 3.2. BC-PrEP CLIENTS DISPENSED PrEP BY CLIENTS' HEALTH AUTHORITY OF RESIDENCE (PERCENTAGE)



Note: BC= British Columbia; PrEP= pre-exposure prophylaxis; Q= calendar quarter; Q1= January to March; Q2= April to June; Q3= July to September; Q4= October to December.

³ The number of BC-PrEP clients in each quarter represent unique clients (i.e., each client was only counted once per quarter).

Clients' Health Authority of Residence	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
	2018	2018	2018	2018	2019	2019	2019	2019	2020	2020	2020	2020
	N	N	N	N	N	N	N	N	N	N	N	N
	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
Interior	35 (3)	42 (3)	62 (3)	75 (3)	102 (4)	112 (4)	124 (4)	126 (4)	131 (4)	102 (4)	113 (4)	120 (4)
Fraser	153 (13)	256 (16)	335 (16)	433 (18)	476 (17)	571 (19)	578 (18)	659 (19)	683 (19)	530 (20)	577 (19)	610 (19)
Vancouver Coastal	814 (69)	1171 (71)	1410 (69)	1664 (69)	1890 (69)	2034 (67)	2246 (68)	2283 (67)	2397 (67)	1816 (67)	2049 (68)	2083 (66)
Vancouver Island	112 (10)	144 (9)	189 (9)	220 (9)	226 (8)	286 (9)	295 (9)	313 (9)	318 (9)	233 (9)	258 (9)	288 (9)
Northern	12 (1)	23 (1)	25 (1)	25 (1)	29 (1)	31 (1)	34 (1)	33 (1)	32 (1)	27 (1)	32 (1)	35 (1)
Unknown	51 (4)	13 (1)	11 (1)	6 (0)	5 (0)	<5 (0)	<5 (0)	<5 (0)	7 (0)	<5 (0)	3 (0)	4 (0)

FIGURE 3.3. BC-PrEP CLIENTS DISPENSED PrEP BY PROVIDERS' HEALTH AUTHORITY (COUNT)

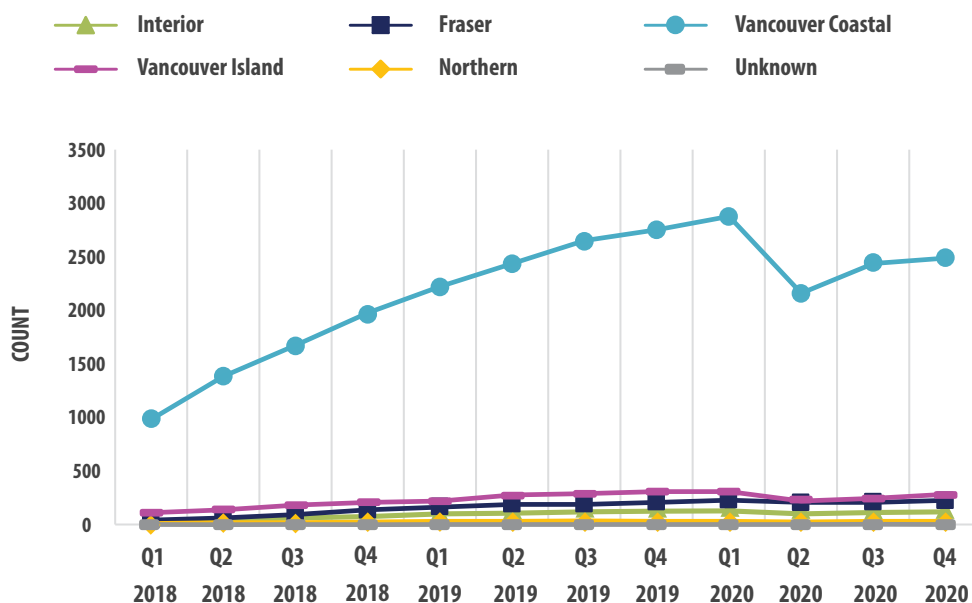
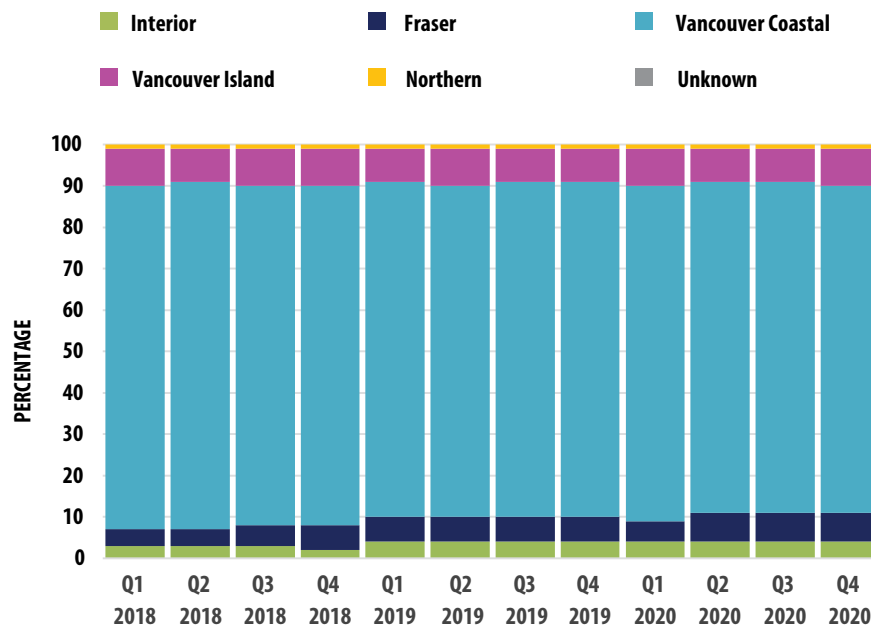


FIGURE 3.4. BC-PrEP CLIENTS DISPENSED PrEP BY PROVIDERS' HEALTH AUTHORITY (PERCENTAGE)



Note: BC= British Columbia; PrEP= pre-exposure prophylaxis; Q= calendar quarter; Q1= January to March; Q2= April to June; Q3= July to September; Q4= October to December.

³ The number of BC-PrEP clients in each quarter represent unique clients (i.e., each client was only counted once per quarter).

Providers' Health Authority of Residence	Q1 2018 N (%)	Q2 2018 N (%)	Q3 2018 N (%)	Q4 2018 N (%)	Q1 2019 N (%)	Q2 2019 N (%)	Q3 2019 N (%)	Q4 2019 N (%)	Q1 2020 N (%)	Q2 2020 N (%)	Q3 2020 N (%)	Q4 2020 N (%)
Interior	35 (3)	41 (2)	59 (3)	75 (3)	100 (4)	106 (3)	118 (4)	124 (4)	128 (4)	101 (4)	110 (4)	115 (4)
Fraser	41 (3)	63 (4)	95 (5)	136 (6)	164 (6)	189 (6)	188 (6)	207 (6)	227 (6)	205 (8)	207 (7)	223 (7)
Vancouver Coastal	982 (83)	1386 (84)	1676 (82)	1980 (82)	2220 (81)	2436 (80)	2654 (81)	2752 (81)	2877 (81)	2158 (80)	2435 (80)	2488 (79)
Vancouver Island	110 (9)	140 (8)	183 (9)	209 (9)	216 (8)	277 (9)	287 (9)	304 (9)	307 (9)	222 (8)	246 (8)	282 (9)
Northern	9 (1)	18 (1)	19 (1)	22 (1)	28 (1)	28 (1)	34 (1)	30 (1)	29 (1)	25 (1)	32 (1)	32 (1)
Unknown	0 (0)	<5 (0)	0 (0)	<5 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	2 (0)	0 (0)

PROGRAMMATIC INDICATORS

INDICATOR 4. NEW BC-PrEP CLIENTS ENROLLED BY PROVIDER TYPE⁴

This indicator describes the type of provider enrolling new clients into the BC-PrEP program by calendar quarters. By clicking the indicator sub-heading, you will be redirected to the full technical definition.

FIGURE 4.1. NEW BC-PrEP CLIENTS ENROLLED BY PROVIDER TYPE (COUNT)

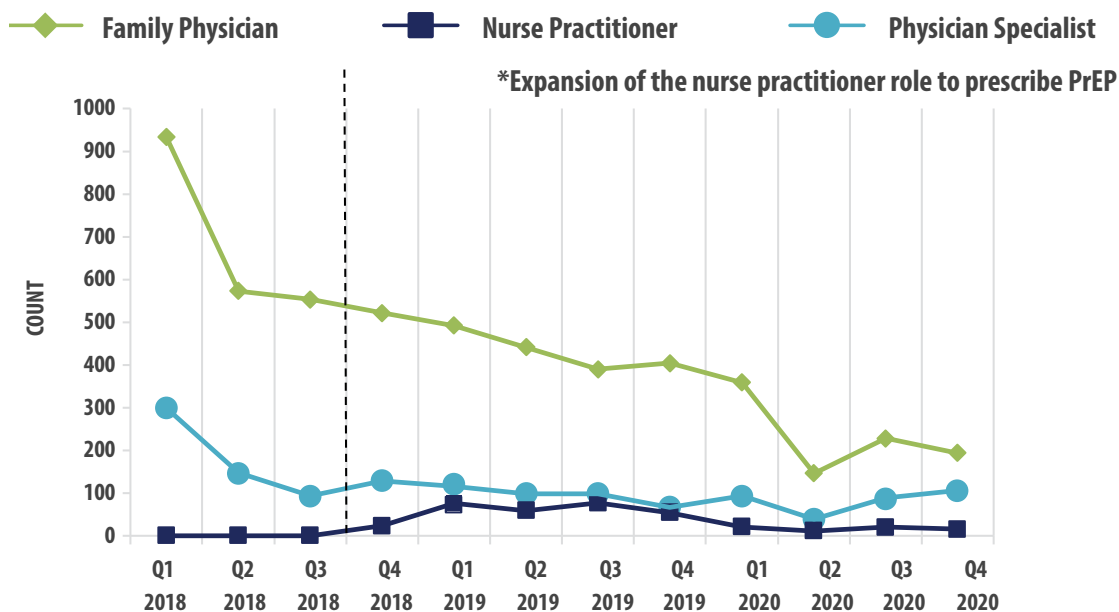
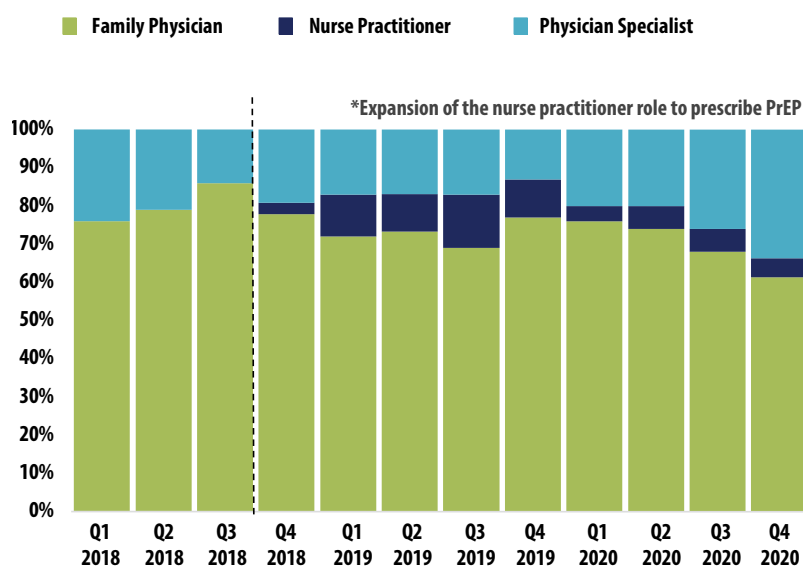


FIGURE 4.2. NEW BC-PrEP CLIENTS ENROLLED BY PROVIDER TYPE (PERCENTAGE)



Note: BC= British Columbia; PrEP= pre-exposure prophylaxis; Q= calendar quarter; Q1= January to March; Q2= April to June; Q3= July to September; Q4= October to December.

⁴ Includes BC-PrEP clients who have an authorized PrEP Enrolment & Prescription Request form regardless if PrEP was subsequently dispensed.

It was not possible to stratify this indicator by clinic type as the BC-PrEP program is currently unable to accurately determine specific models of care on an ongoing basis.

*The BC-CfE's educational initiative that expanded the role of nurse practitioners to prescribe PrEP only launched in the fall of 2018.

Provider Type	Q1 2018 N (%)	Q2 2018 N (%)	Q3 2018 N (%)	Q4 2018 N (%)	Q1 2019 N (%)	Q2 2019 N (%)	Q3 2019 N (%)	Q4 2019 N (%)	Q1 2020 N (%)	Q2 2020 N (%)	Q3 2020 N (%)	Q4 2020 N (%)
Family Physician	933 (76)	573 (79)	553 (86)	521 (77)	492 (72)	441 (74)	390 (69)	404 (77)	359 (76)	146 (74)	228 (68)	194 (62)
Nurse Practitioner	0 (0)	0 (0)	0 (0)	23 (3)	76 (11)	59 (10)	77 (14)	54 (10)	21 (4)	11 (6)	20 (6)	15 (5)
Specialist Physician	299 (24)	148 (21)	93 (14)	129 (19)	115 (17)	99 (17)	99 (17)	67 (13)	93 (20)	39 (20)	89 (26)	106 (34)

INDICATOR 5. NEW BC-PrEP CLIENTS ENROLLED BY HEALTH AUTHORITY⁵

This indicator describes enrolment patterns of new clients in the BC-PrEP program by calendar quarters. By clicking the indicator sub-heading, you will be redirected to the full technical definition.

FIGURE 5.1. NEW BC-PrEP CLIENTS ENROLLED RESIDING IN VANCOUVER COASTAL (COUNT)

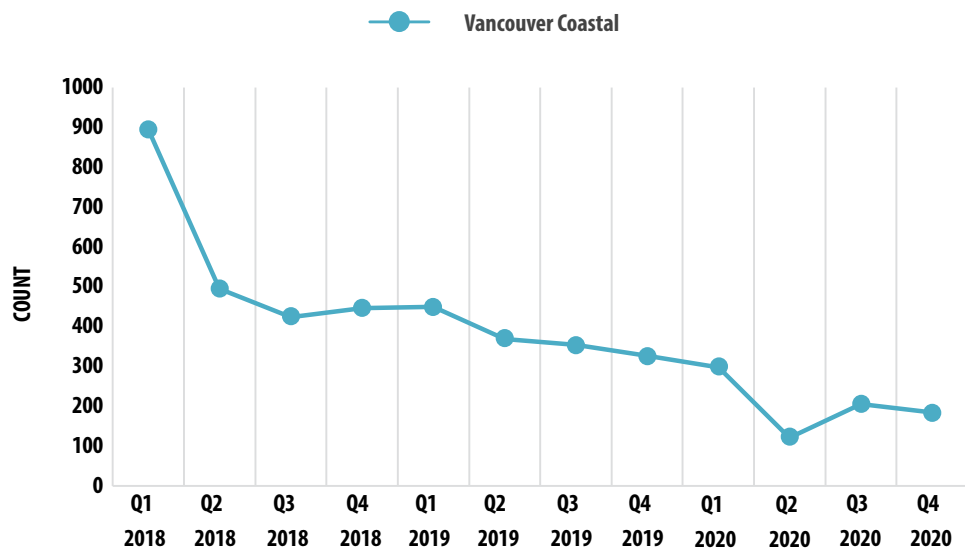
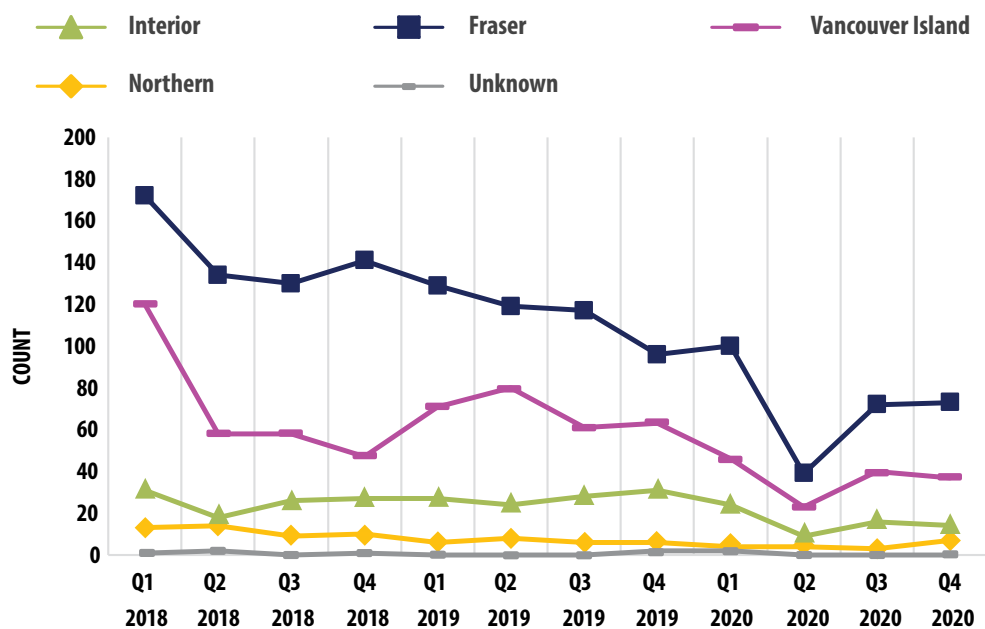


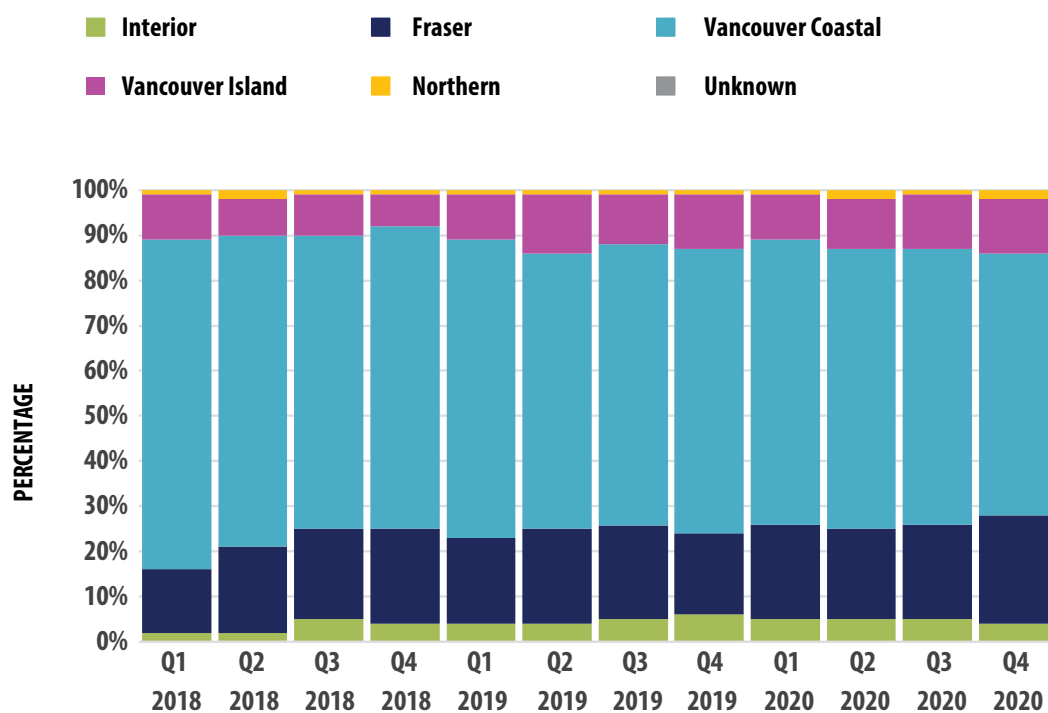
FIGURE 5.2. NEW BC-PrEP CLIENTS ENROLLED BY CLIENTS' HEALTH AUTHORITY OF RESIDENCE EXCEPT VANCOUVER COASTAL (COUNT)



Note: BC= British Columbia; PrEP= Pre-Exposure Prophylaxis; Q= Calendar quarter, Q1= January to March, Q2= April to June, Q3= July to September, Q4= October to December.

⁵ Includes BC-PrEP clients who have an authorized PrEP Enrolment & Prescription Request form regardless if PrEP was subsequently dispensed. In the event that BC-PrEP clients were re-enrolled into the program after a period of discontinuation, they were only counted once.

FIGURE 5.3. NEW BC-PrEP CLIENTS ENROLLED BY CLIENTS' HEALTH AUTHORITY OF RESIDENCE (PERCENTAGE)



Note: BC= British Columbia; PrEP= pre-exposure prophylaxis; Q= calendar quarter; Q1= January to March; Q2= April to June; Q3= July to September; Q4= October to December.

Clients' Health Authority of Residence	Q1 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019	Q2 2019	Q3 2019	Q4 2019	Q1 2020	Q2 2020	Q3 2020	Q4 2020
	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)
Interior	31 (3)	18 (2)	25 (4)	27 (4)	29 (4)	24 (4)	28 (5)	32 (6)	26 (5)	9 (5)	16 (5)	14 (4)
Fraser	173 (14)	135 (19)	128 (20)	143 (21)	132 (19)	116 (19)	117 (21)	96 (18)	99 (21)	38 (19)	72 (21)	73 (23)
Vancouver Coastal	895 (73)	494 (69)	425 (66)	445 (66)	443 (65)	372 (62)	353 (62)	324 (62)	297 (63)	121 (62)	206 (61)	184 (58)
Vancouver Island	119 (10)	59 (8)	59 (9)	47 (7)	73 (11)	79 (13)	61 (11)	65 (12)	44 (9)	22 (11)	40 (12)	37 (12)
Northern	13 (1)	13 (2)	9 (1)	10 (1)	6 (1)	8 (1)	6 (1)	6 (1)	<5 (1)	5 (3)	<5 (1)	7 (2)
Unknown	<5 (0)	<5 (0)	0 (0)	<5 (0)	0 (0)	0 (0)	<5 (0)	<5 (0)	<5 (1)	<5 (1)	0 (0)	0 (0)

FIGURE 5.4. NEW BC-PrEP CLIENTS ENROLLED BY A PROVIDER IN VANCOUVER COASTAL (COUNT)

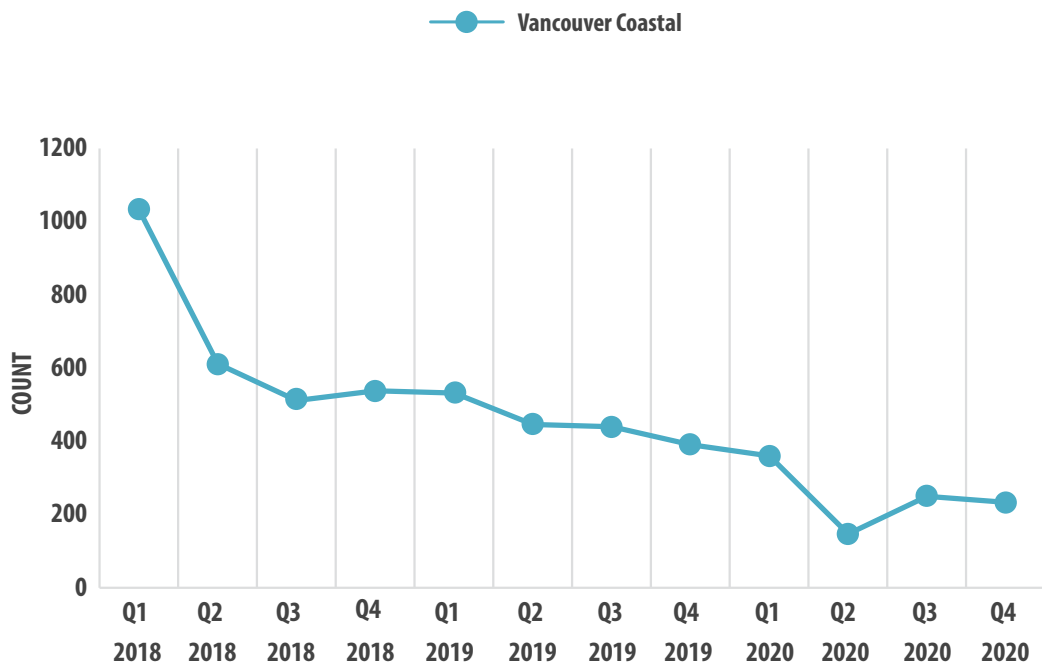
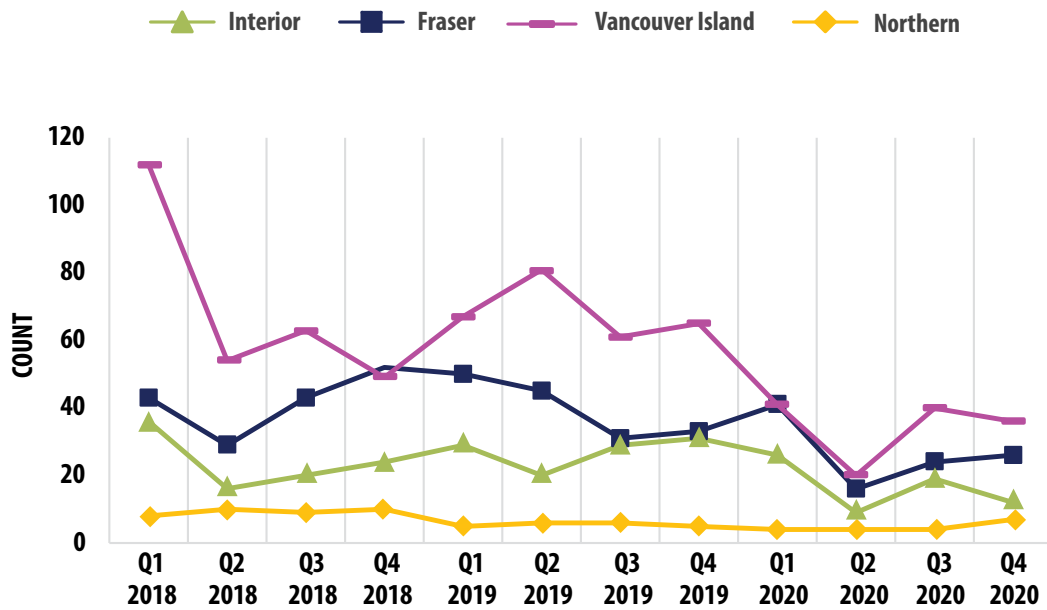
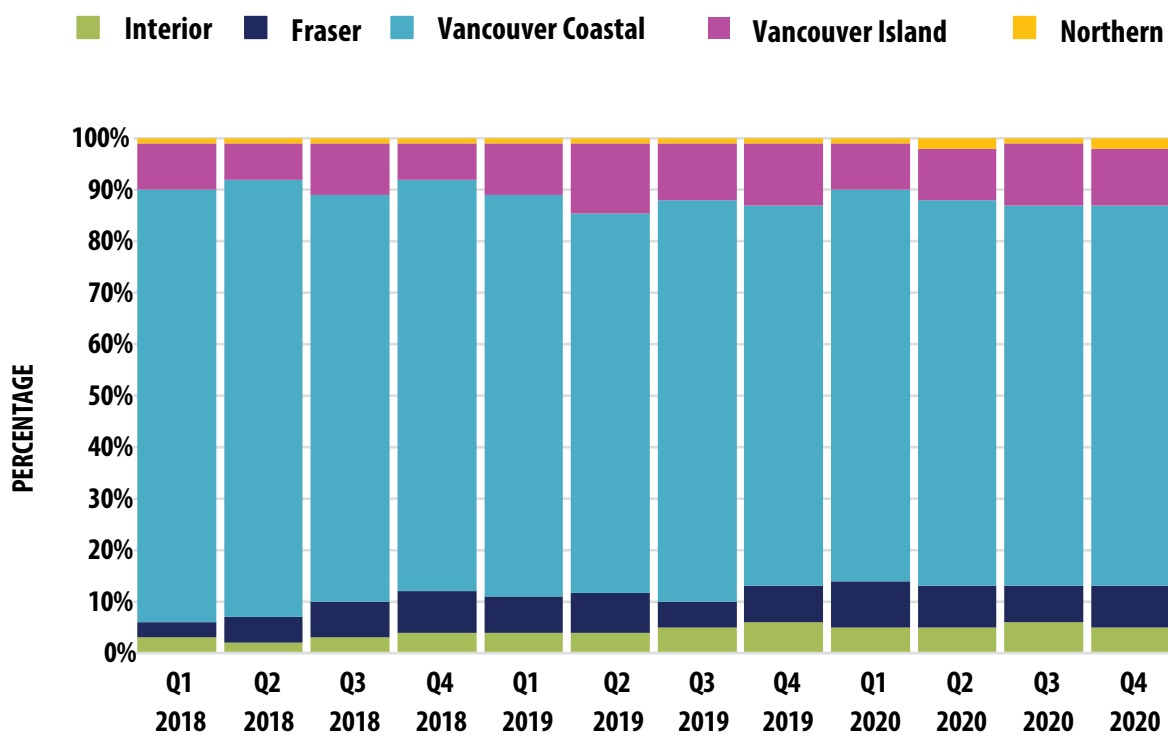


FIGURE 5.5. NEW BC-PrEP CLIENTS ENROLLED BY PROVIDERS' HEALTH AUTHORITY EXCEPT VANCOUVER COASTAL (COUNT)



Note: BC= British Columbia; PrEP= Pre-Exposure Prophylaxis; Q= Calendar quarter, Q1= January to March, Q2= April to June, Q3= July to September, Q4= October to December.

FIGURE 5.6. NEW BC-PrEP CLIENTS ENROLLED BY PROVIDERS' HEALTH AUTHORITY (PERCENTAGE)



Note: BC= British Columbia; PrEP= pre-exposure prophylaxis; Q= calendar quarter; Q1= January to March; Q2= April to June; Q3= July to September; Q4= October to December.

Providers' Health Authority	Q1 2018 N (%)	Q2 2018 N (%)	Q3 2018 N (%)	Q4 2018 N (%)	Q1 2019 N (%)	Q2 2019 N (%)	Q3 2019 N (%)	Q4 2019 N (%)	Q1 2020 N (%)	Q2 2020 N (%)	Q3 2020 N (%)	Q4 2020 N (%)
Interior	36 (3)	16 (2)	20 (3)	24 (4)	29 (4)	20 (3)	29 (5)	31 (6)	26 (5)	9 (5)	19 (6)	12 (4)
Fraser	43 (3)	29 (4)	43 (7)	52 (8)	50 (7)	45 (8)	31 (5)	33 (6)	41 (9)	16 (8)	24 (7)	26 (8)
Vancouver Coastal	1033 (84)	612 (85)	511 (79)	538 (80)	532 (78)	447 (75)	439 (78)	391 (74)	361 (76)	147 (75)	250 (74)	234 (74)
Vancouver Island	112 (9)	54 (7)	63 (10)	49 (7)	67 (10)	81 (14)	61 (11)	65 (12)	41 (9)	20 (10)	40 (12)	36 (11)
Northern	8 (1)	10 (1)	9 (1)	10 (1)	5 (1)	6 (1)	6 (1)	5 (1)	<5 (1)	<5 (2)	<5 (1)	7 (2)

INDICATOR 6. NEW BC-PrEP CLIENTS DISPENSED PrEP⁶

This indicator describes patterns of new BC-PrEP clients enrolled who were dispensed PrEP for the first time by calendar quarters. By clicking the indicator sub-heading, you will be redirected to the full technical definition.

FIGURE 6.1. NEW BC-PrEP CLIENTS DISPENSED PrEP RESIDING IN VANCOUVER COASTAL (COUNT)

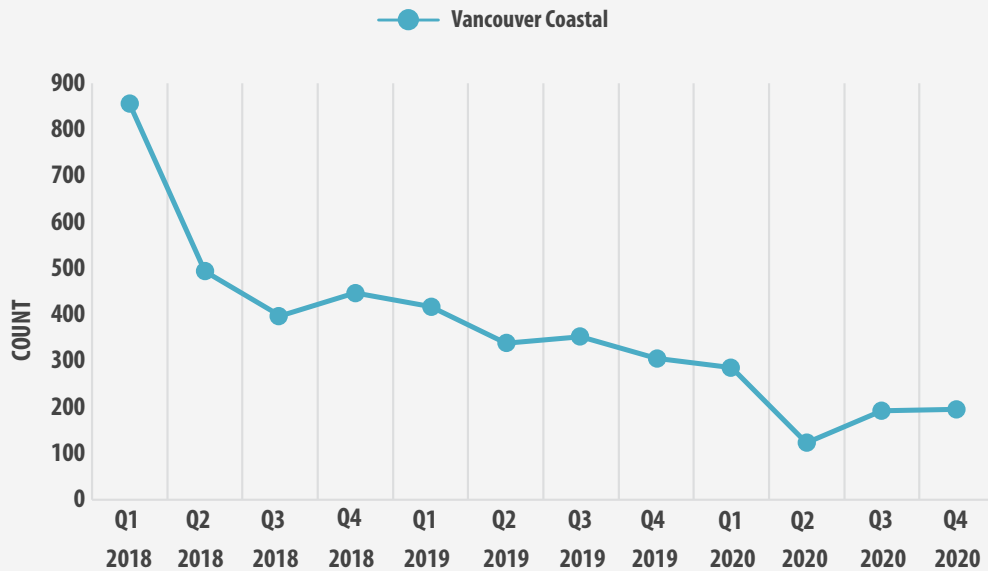
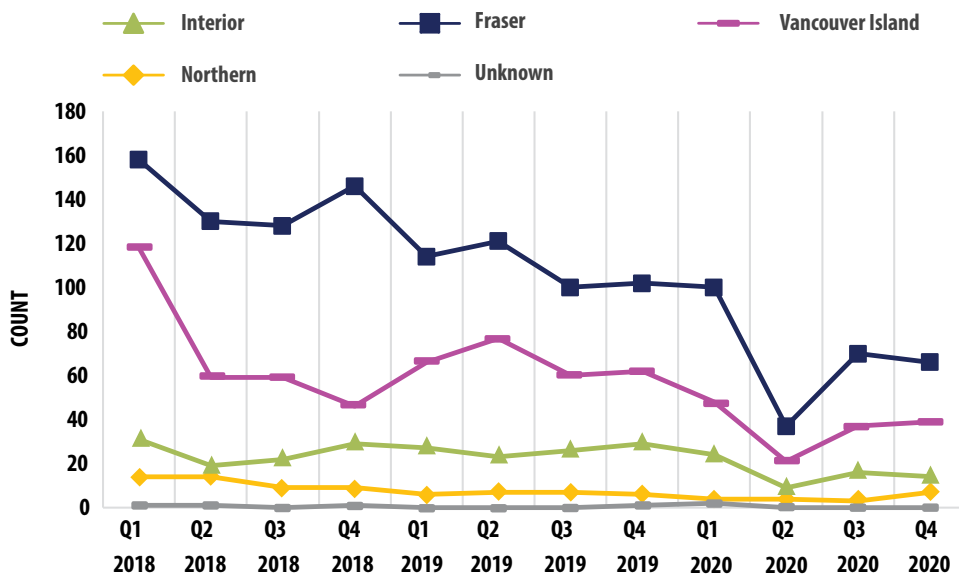


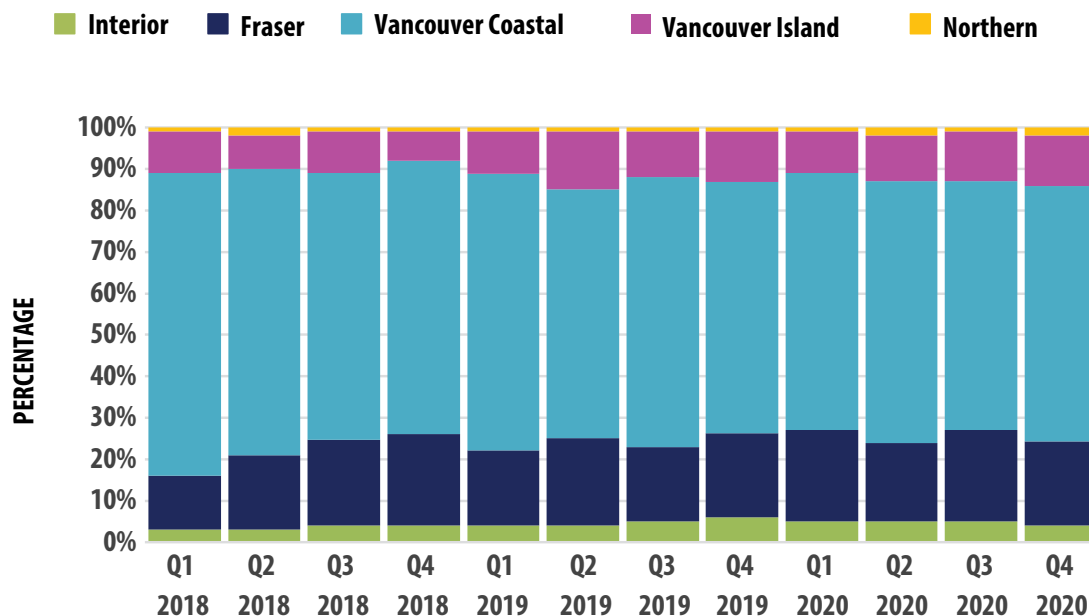
FIGURE 6.2. NEW BC-PrEP CLIENTS DISPENSED PrEP BY CLIENTS' HEALTH AUTHORITY OF RESIDENCE EXCEPT VANCOUVER COASTAL (COUNT)



Note: BC= British Columbia; PrEP= Pre-Exposure Prophylaxis; Q= Calendar quarter, Q1= January to March, Q2= April to June, Q3= July to September, Q4= October to December.

⁶ In the event that BC-PrEP clients were re-enrolled into the program after a period of discontinuation, they were only counted once.

FIGURE 6.3. NEW BC-PrEP CLIENTS DISPENSED PrEP BY CLIENTS' HEALTH AUTHORITY OF RESIDENCE (PERCENTAGE)



Note: BC= British Columbia; PrEP= pre-exposure prophylaxis; Q= calendar quarter; Q1= January to March; Q2= April to June; Q3= July to September; Q4= October to December.

Clients' Health Authority of Residence	Q1 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019	Q2 2019	Q3 2019	Q4 2019	Q1 2020	Q2 2020	Q3 2020	Q4 2020
	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)
Interior	31 (3)	19 (3)	22 (4)	28 (4)	29 (5)	23 (4)	26 (5)	30 (6)	26 (6)	9 (5)	16 (5)	14 (4)
Fraser	159 (14)	132 (18)	124 (20)	148 (22)	116 (18)	121 (21)	100 (18)	101 (20)	101 (22)	36 (18)	70 (22)	66 (20)
Vancouver Coastal	855 (73)	491 (69)	400 (65)	446 (66)	411 (65)	339 (60)	351 (64)	303 (60)	284 (61)	123 (63)	192 (60)	196 (61)
Vancouver Island	117 (10)	60 (8)	60 (10)	46 (7)	68 (11)	76 (13)	60 (11)	64 (13)	46 (10)	21 (11)	37 (12)	39 (12)
Northern	14 (1)	13 (2)	9 (1)	9 (1)	6 (1)	7 (1)	7 (1)	6 (1)	<5 (1)	5 (3)	<5 (1)	7 (2)
Unknown	<5 (0)	<5 (0)	0 (0)	<5 (0)	0 (0)	0 (0)	<5 (0)	<5 (0)	<5 (1)	<5 (1)	0 (0)	0 (0)

FIGURE 6.4. NEW BC-PrEP CLIENTS DISPENSED PrEP BY A PROVIDER IN VANCOUVER COASTAL (COUNT)

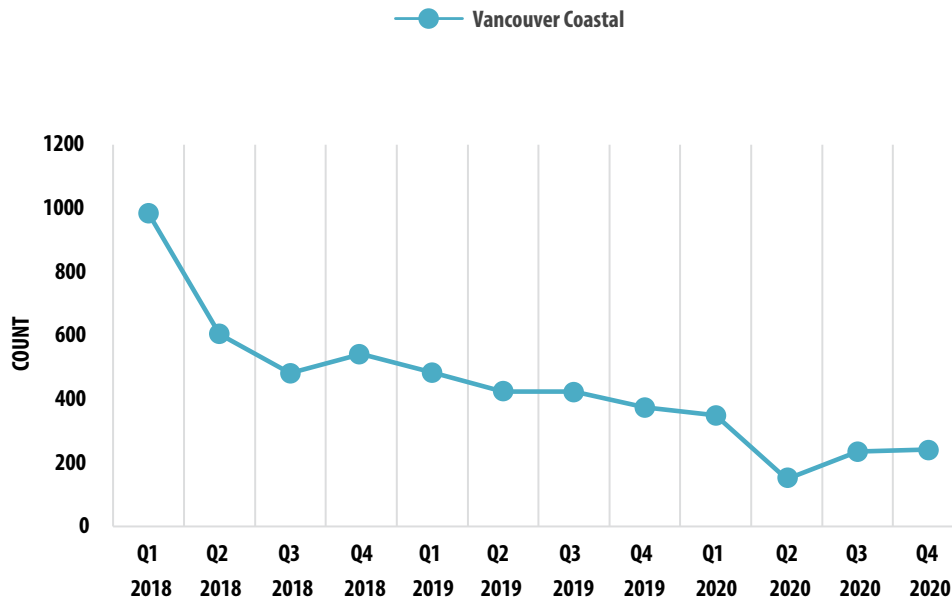
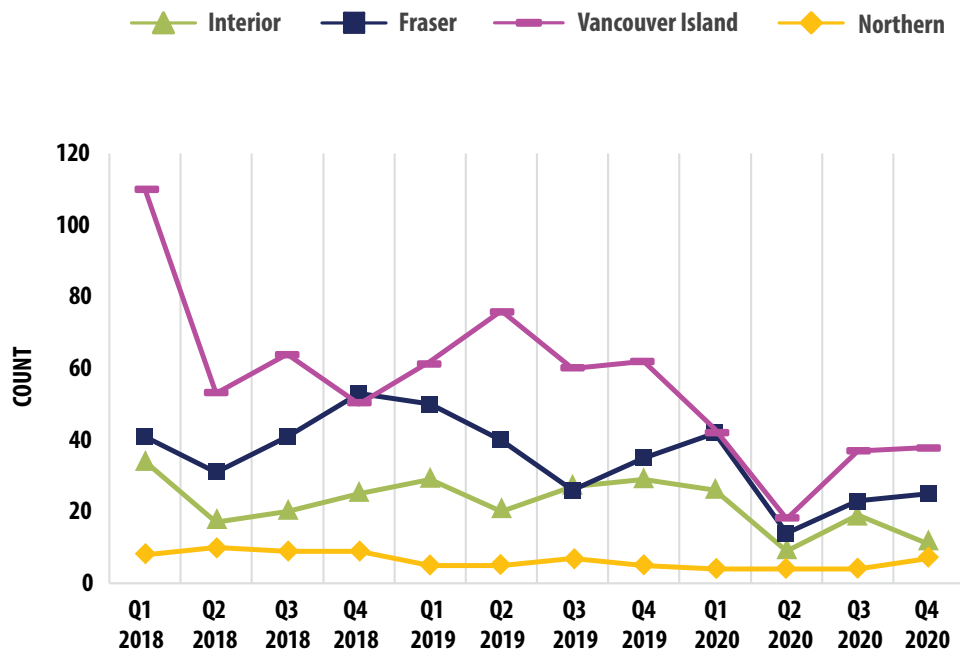
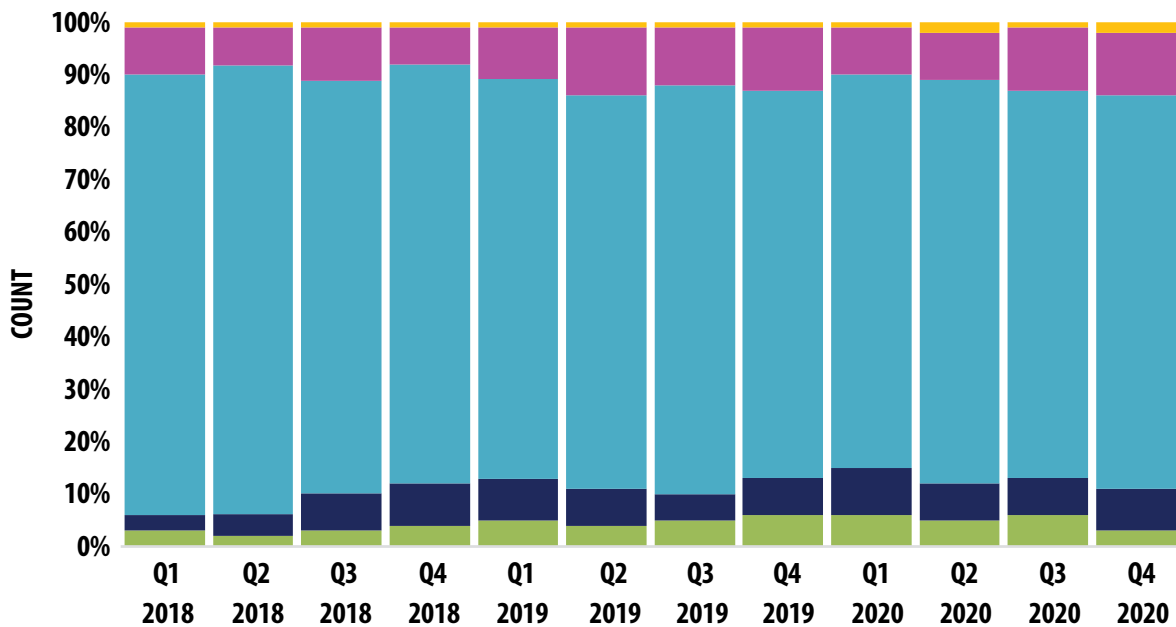


FIGURE 6.5. NEW BC-PrEP CLIENTS DISPENSED PrEP BY PROVIDERS' HEALTH AUTHORITY EXCEPT VANCOUVER COASTAL (COUNT)



Note: BC= British Columbia; PrEP= Pre-Exposure Prophylaxis; Q= Calendar quarter, Q1= January to March, Q2= April to June, Q3= July to September, Q4= October to December.

FIGURE 6.6. NEW BC-PrEP CLIENTS DISPENSED PrEP BY PROVIDERS' HEALTH AUTHORITY (PERCENTAGE)



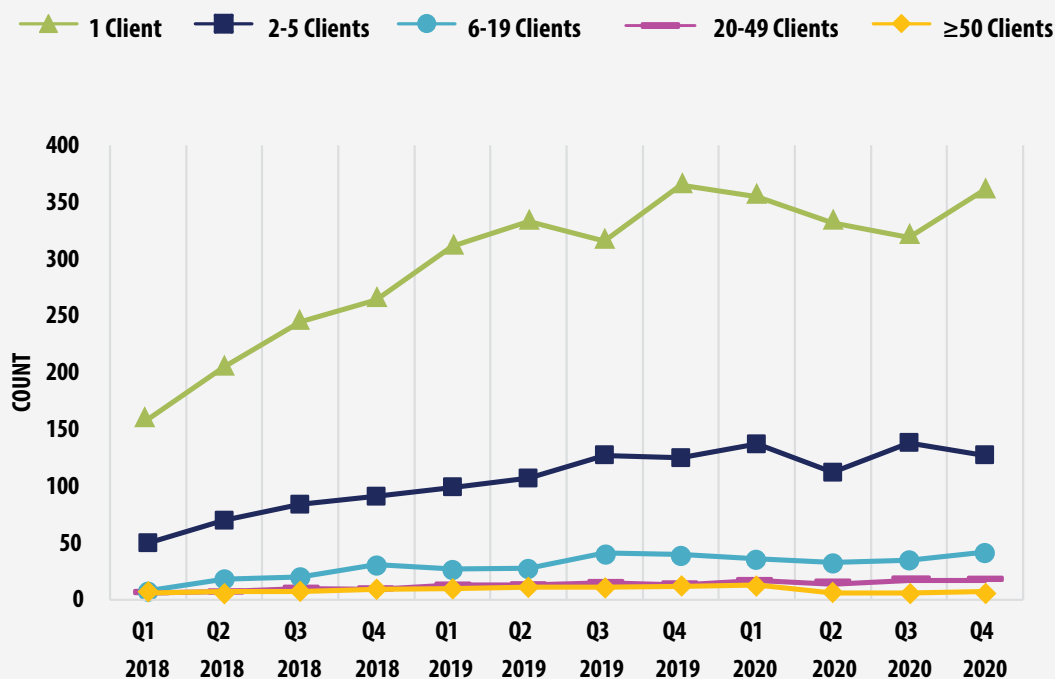
Note: BC= British Columbia; PrEP= Pre-Exposure Prophylaxis; Q= Calendar quarter, Q1= January to March, Q2= April to June, Q3= July to September, Q4= October to December.

Providers' Health Authority	Q1 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019	Q2 2019	Q3 2019	Q4 2019	Q1 2020	Q2 2020	Q3 2020	Q4 2020
	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)
Interior	34 (3)	17 (2)	20 (3)	25 (4)	29 (5)	20 (4)	27 (5)	29 (6)	26 (6)	9 (5)	19 (6)	11 (3)
Fraser	41 (3)	31 (4)	41 (7)	53 (8)	50 (8)	40 (7)	26 (5)	35 (7)	42 (9)	14 (7)	23 (7)	25 (8)
Vancouver Coastal	984 (84)	605 (84)	481 (78)	541 (80)	484 (77)	425 (75)	425 (78)	374 (74)	349 (75)	149 (76)	235 (74)	241 (75)
Vancouver Island	110 (9)	53 (7)	64 (10)	50 (7)	62 (10)	76 (13)	60 (11)	62 (12)	43 (9)	19 (10)	37 (12)	38 (12)
Northern	8 (1)	10 (1)	9 (1)	9 (1)	5 (1)	5 (1)	7 (1)	5 (1)	<5 (1)	<5 (2)	<5 (1)	7 (2)

INDICATOR 7. BC-PrEP CLIENTS PER PROVIDER⁷

This indicator describes the volume of BC-PrEP clients who were dispensed PrEP per distinct provider by calendar quarters. By clicking the indicator sub-heading, you will be redirected to the full technical definition.

FIGURE 7.1. PROVIDERS BY NUMBER BC-PrEP CLIENTS (COUNT)

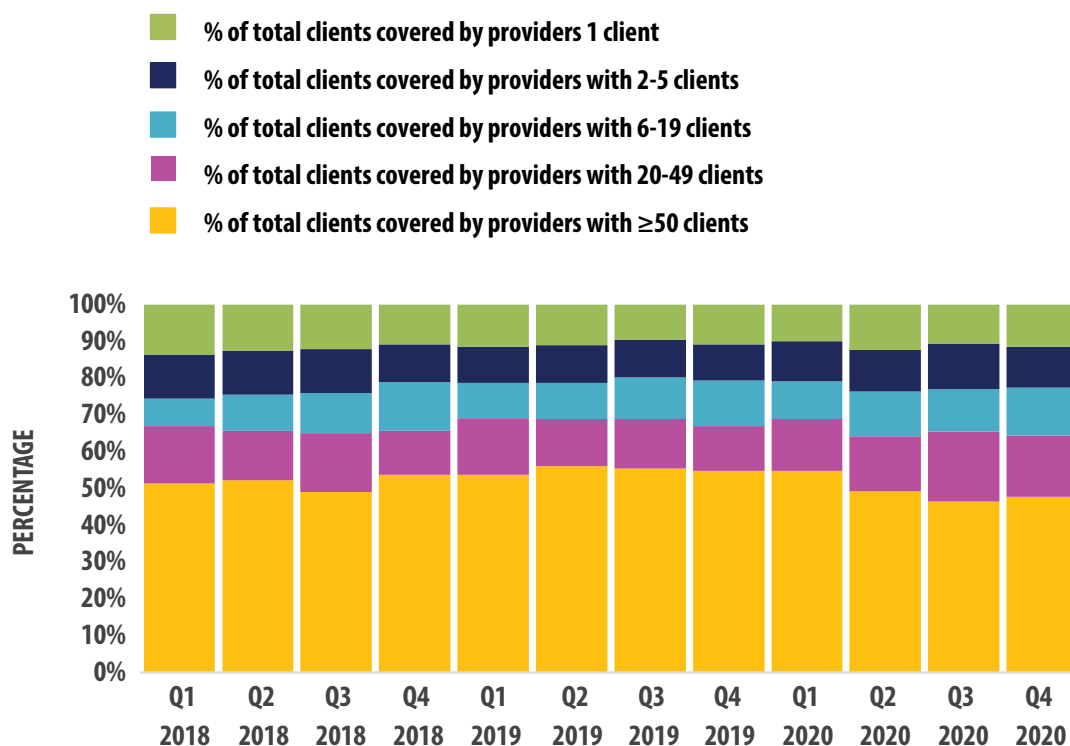


Note: BC= British Columbia; PrEP= pre-exposure prophylaxis; Q= calendar quarter; Q1= January to March; Q2= April to June; Q3= July to September; Q4= October to December.

Clients	Q1 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019	Q2 2019	Q3 2019	Q4 2019	Q1 2020	Q2 2020	Q3 2020	Q4 2020
	N	N	N	N	N	N	N	N	N	N	N	N
	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
1 Client	159 (69)	205 (67)	245 (67)	264 (65)	311 (68)	333 (68)	316 (62)	365 (66)	354 (63)	330 (66)	319 (62)	361 (65)
2-5 Clients	50 (22)	70 (23)	84 (23)	91 (23)	99 (22)	107 (22)	127 (25)	125 (23)	138 (25)	114 (23)	138 (27)	127 (23)
6-19 Clients	8 (3)	18 (6)	20 (5)	31 (8)	27 (6)	28 (6)	41 (8)	40 (7)	36 (6)	33 (7)	35 (7)	42 (8)
20-49 Clients	6 (3)	7 (2)	10 (3)	9 (2)	13 (3)	13 (3)	15 (3)	13 (2)	17 (3)	14 (3)	17 (3)	17 (3)
≥50 Clients	6 (3)	7 (2)	7 (2)	9 (2)	10 (2)	11 (2)	11 (2)	12 (2)	13 (2)	6 (1)	6 (1)	7 (1)

⁷ These categories were informed and established on the basis of the data distribution.

FIGURE 7.2. TOTAL BC-PrEP CLIENTS COVERED BY PROVIDER VOLUME CATEGORY (PERCENTAGE)



Note: BC= British Columbia; PrEP= pre-exposure prophylaxis; Q= calendar quarter; Q1= January to March; Q2= April to June; Q3= July to September; Q4= October to December.

Provider Volume Category	Q1 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019	Q2 2019	Q3 2019	Q4 2019	Q1 2020	Q2 2020	Q3 2020	Q4 2020
	% of total clients covered	% of total clients covered	% of total clients covered	% of total clients covered	% of total clients covered	% of total clients covered	% of total clients covered	% of total clients covered	% of total clients covered	% of total clients covered	% of total clients covered	% of total clients covered
Providers with 1 client	14	12	12	11	11	11	10	11	10	12	10	11
Providers with 2-5 clients	12	12	12	10	10	10	10	10	11	11	12	11
Providers with 6-19 clients	7	10	11	13	10	10	11	12	10	12	12	13
Providers with 20-49 clients	16	13	16	12	15	13	14	12	14	15	19	17
Providers with ≥50 clients	51	52	49	54	54	56	55	55	55	49	47	48

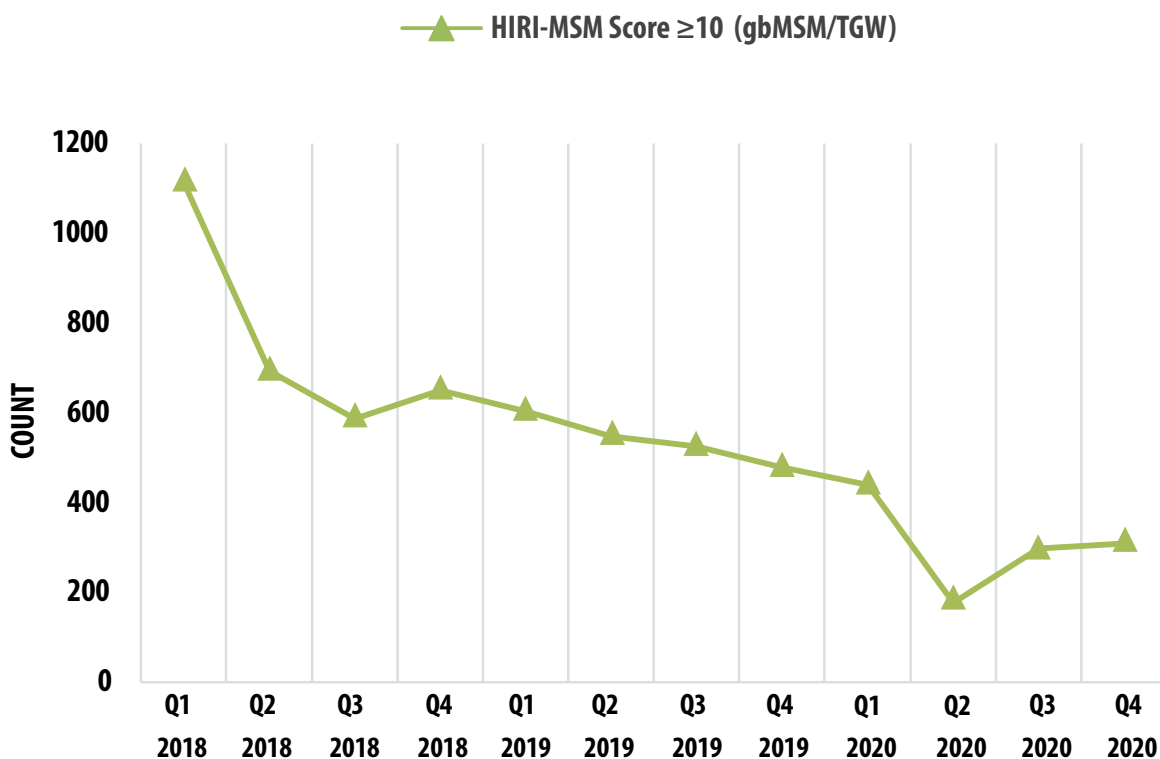
INDICATOR 8. KEY QUALIFYING HIV RISK FACTOR(S) REPORTED AT BC-PrEP PROGRAM ENROLMENT⁸

This indicator summarizes the six key qualifying HIV risk factors reported at enrolment into the BC-PrEP program among clients who were dispensed PrEP for the first time by calendar quarters. This indicator presents this aforementioned information in two parts:

- Clients who qualified under each key qualifying HIV risk factors at enrolment, respectively. Note that providers could specify more than one applicable key HIV risk factor, thus these categories are not mutually exclusive.
- Clients belonging to different categories of key qualifying HIV risk factor(s) specified at enrolment by BC-PrEP providers. This measure reflecting the exact key qualifying risk factor(s) specified for each client was presented as a cumulative count updated quarterly. Thus, clients cannot belong to more than one category.

By clicking the indicator sub-heading, you will be redirected to the full technical definition.

FIGURE 8.1. NEW BC-PrEP CLIENTS WITH A QUALIFYING RISK FACTOR OF HIRI-MSM SCORE ≥ 10 REPORTED AT ENROLMENT (COUNT)

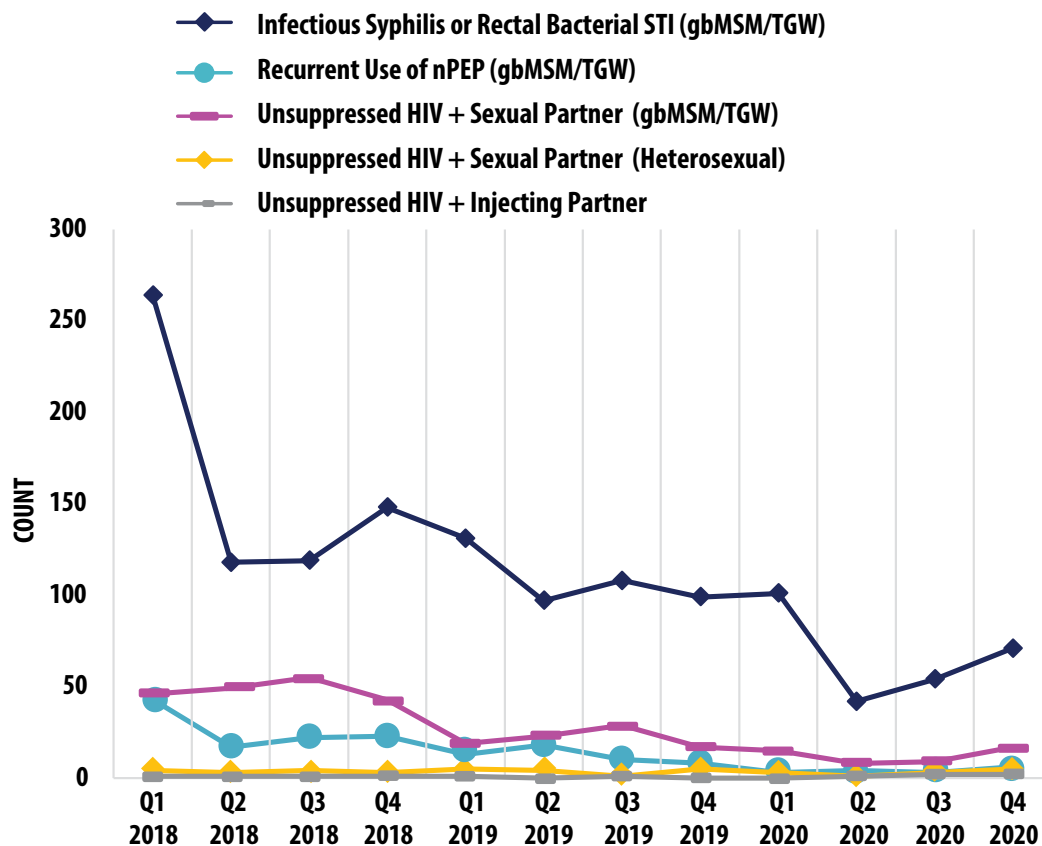


Note: BC= British Columbia; PrEP= pre-exposure prophylaxis; HIRI= HIV incidence risk index; gbMSM= cis and transgender gay and bisexual men who have sex with men; TGW= transgender women; Q= calendar quarter; Q1= January to March; Q2= April to June; Q3= July to September; Q4= October to December.

⁸ This indicator solely focused on representing the distribution of the six aforementioned key qualifying HIV risk factors; this was due to the exceptionally low counts corresponding to other risks. Clients who qualified based on other risks remained in the denominator.

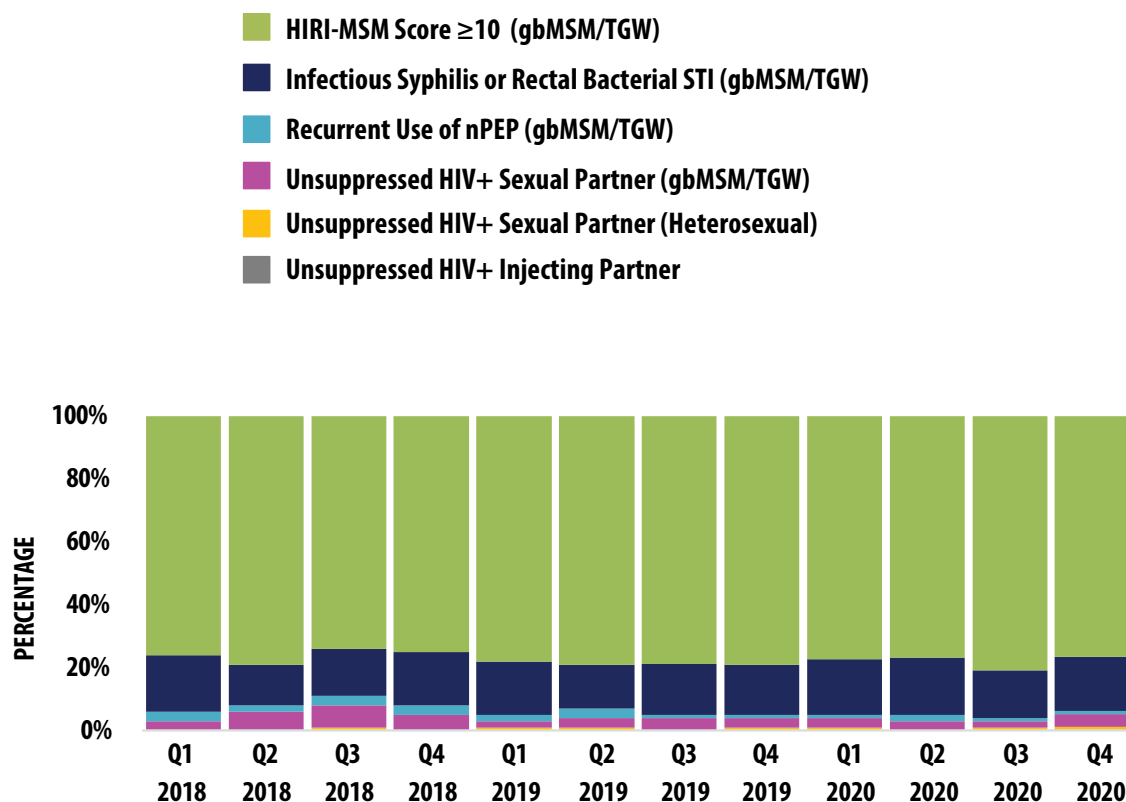
The key qualifying HIV risk factors were strictly derived from provider-reported information which is not verified by any other means.

FIGURE 8.2. NEW BC-PrEP CLIENTS BY NON-MUTUALLY EXCLUSIVE KEY QUALIFYING HIV RISK FACTORS REPORTED AT ENROLMENT EXCEPT HIRI-MSM SCORE (COUNT)



Note: BC= British Columbia; PrEP= pre-exposure prophylaxis; HIRI= HIV incidence risk index; STI= sexually transmitted infection; gbMSM= cis and transgender gay and bisexual men who have sex with men; TGW= transgender women; nPEP= non-occupational post-exposure prophylaxis; Q= calendar quarter; Q1= January to March; Q2= April to June; Q3= July to September; Q4= October to December.

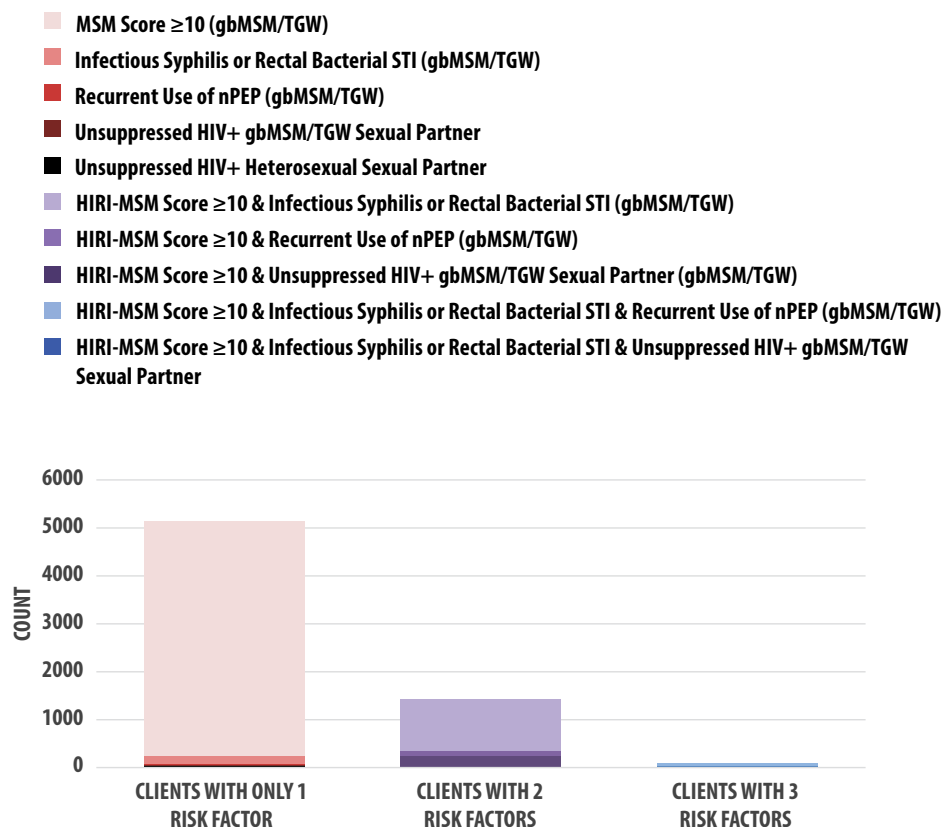
FIGURE 8.3. NEW BC-PrEP CLIENTS BY NON-MUTUALLY EXCLUSIVE KEY QUALIFYING HIV RISK FACTORS REPORTED AT ENROLMENT (PERCENTAGE)



Note: BC= British Columbia; PrEP= pre-exposure prophylaxis; HIRI= HIV incidence risk index; STI= sexually transmitted infection; gbMSM= cis and transgender gay and bisexual men who have sex with men; TGW= transgender women; nPEP= non-occupational post-exposure prophylaxis; Q= calendar quarter; Q1= January to March; Q2= April to June; Q3= July to September; Q4= October to December.

Key Qualifying HIV Risk Factors	Q1 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019	Q2 2019	Q3 2019	Q4 2019	Q1 2020	Q2 2020	Q3 2020	Q4 2020
	N	N	N	N	N	N	N	N	N	N	N	N
	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
HIRI-MSM Score ≥10 (gbMSM/TGW)	1114 (76)	693 (79)	586 (74)	651 (75)	603 (78)	547 (79)	526 (78)	478 (79)	439 (78)	178 (76)	298 (81)	309 (75)
Infectious Syphilis or Rectal Bacterial STI (gbMSM/TGW)	264 (18)	118 (13)	119 (15)	148 (17)	131 (17)	97 (14)	108 (16)	99 (16)	101 (18)	42 (18)	54 (15)	71 (17)
Recurrent Use of nPEP (gbMSM/TGW)	43 (3)	17 (2)	22 (3)	23 (3)	13 (2)	18 (3)	10 (1)	8 (1)	<5 (1)	<5 (2)	<5 (1)	6 (1)
Unsuppressed HIV+ Sexual Partner (gbMSM/TGW)	46 (3)	49 (6)	55 (7)	43 (5)	19 (2)	23 (3)	29 (4)	17 (3)	15 (3)	8 (3)	9 (2)	17 (4)
Unsuppressed HIV+ Sexual Partner (Heterosexual)	<5 (0)	<5 (0)	<5 (1)	<5 (0)	5 (1)	<5 (1)	<5 (0)	5 (1)	<5 (1)	<5 (0)	<5 (1)	<5 (1)
Unsuppressed HIV+ Injecting Partner	<5 (0)	<5 (0)	<5 (0)	<5 (0)	<5 (0)	<5 (0)	<5 (0)	<5 (0)	<5 (0)	<5 (0)	<5 (0)	<5 (0)

FIGURE 8.4. NEW BC-PrEP CLIENTS WHO QUALIFIED WITH THE FOLLOWING CATEGORIES OF KEY HIV RISK FACTOR(S) REPORTED AT ENROLMENT (Q4 2020 CUMULATIVE COUNT)



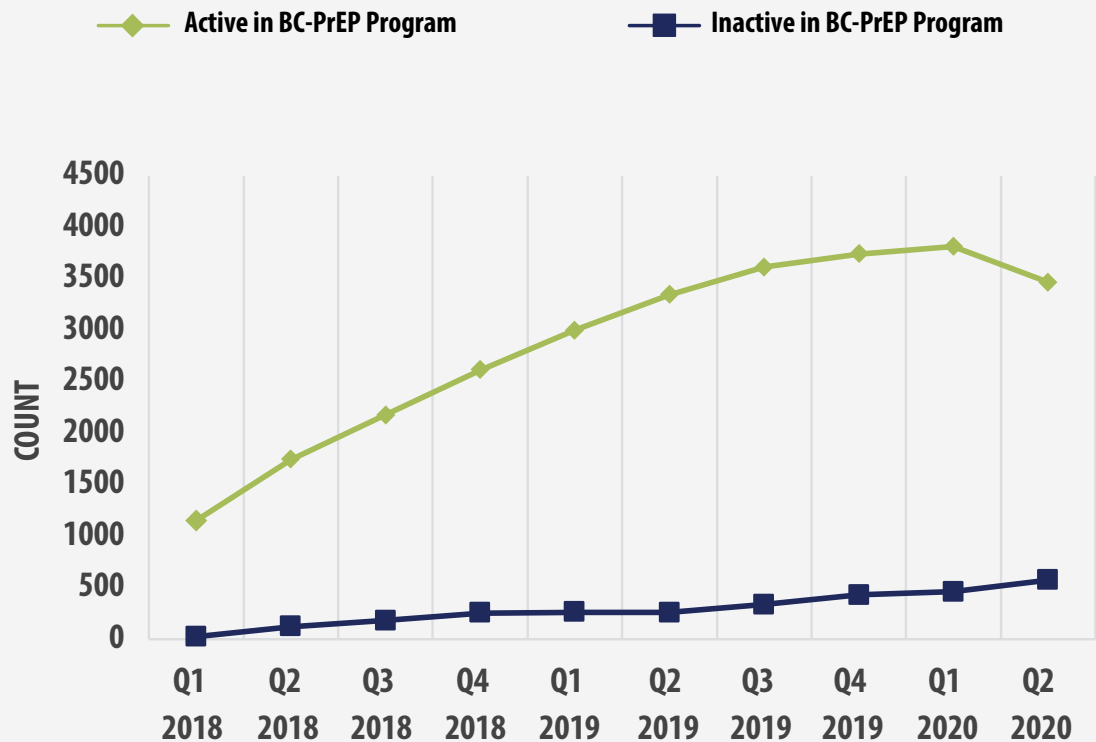
Note: BC= British Columbia; PrEP= pre-exposure prophylaxis; HIRI-MSM= HIV Incidence Risk Index for men who have sex with men; STI= sexually transmitted infection; gbMSM= cis and transgender gay and bisexual men who have sex with men; TGW= transgender women; nPEP= non-occupational post-exposure prophylaxis; Q= calendar quarter; Q2= April to June.

Key Qualifying HIV Risk Factor(s) Categories	Cumulative Number of Clients End of Q4 2020 (%)
HIRI-MSM Score ≥ 10 (gbMSM/TGW)	4895 (73)
Infectious Syphilis or Rectal Bacterial STI (gbMSM/TGW)	173 (3)
Recurrent Use of nPEP (gbMSM/TGW)	7 (0)
Unsuppressed HIV+ gbMSM/TGW Sexual Partner	38 (1)
Unsuppressed HIV+ Heterosexual Sexual Partner	29 (0)
HIRI-MSM Score ≥ 10 & Infectious Syphilis or Rectal Bacterial STI (gbMSM/TGW)	1081 (16)
HIRI-MSM Score ≥ 10 & Recurrent Use of nPEP (gbMSM/TGW)	101 (2)
HIRI-MSM Score ≥ 10 & Unsuppressed HIV+ gbMSM/TGW Sexual Partner (gbMSM/TGW)	246 (4)
HIRI-MSM Score ≥ 10 & Infectious Syphilis or Rectal Bacterial STI & Recurrent Use of nPEP (gbMSM/TGW)	52 (1)
HIRI-MSM Score ≥ 10 & Infectious Syphilis or Rectal Bacterial STI & Unsuppressed HIV+ gbMSM/TGW Sexual Partner	36 (1)
Other (not graphed)	72 (1)

INDICATOR 9. BC-PrEP CLIENT STATUS (ACTIVE VS INACTIVE)⁹

This indicator describes patterns of program status (i.e., active vs inactive) among BC-PrEP clients by calendar quarter. By clicking the indicator sub-heading, you will be redirected to the full technical definition.

FIGURE 9.1. BC-PrEP CLIENTS BY PROGRAM STATUS (COUNT)



Note: BC= British Columbia; PrEP= pre-exposure prophylaxis; Q= calendar quarter; Q1= January to March; Q2= April to June; Q3= July to September; Q4= October to December.

⁹ BC-PrEP program discontinuations and restarts are not well captured due to information lag and provider underreporting.

BC-PrEP program re-enrolment for those who restarted PrEP is only required if >6 months elapses beyond the expected refill date, if the client restarts PrEP after formal discontinuation, or if the client returns to BC after having moved out of province.

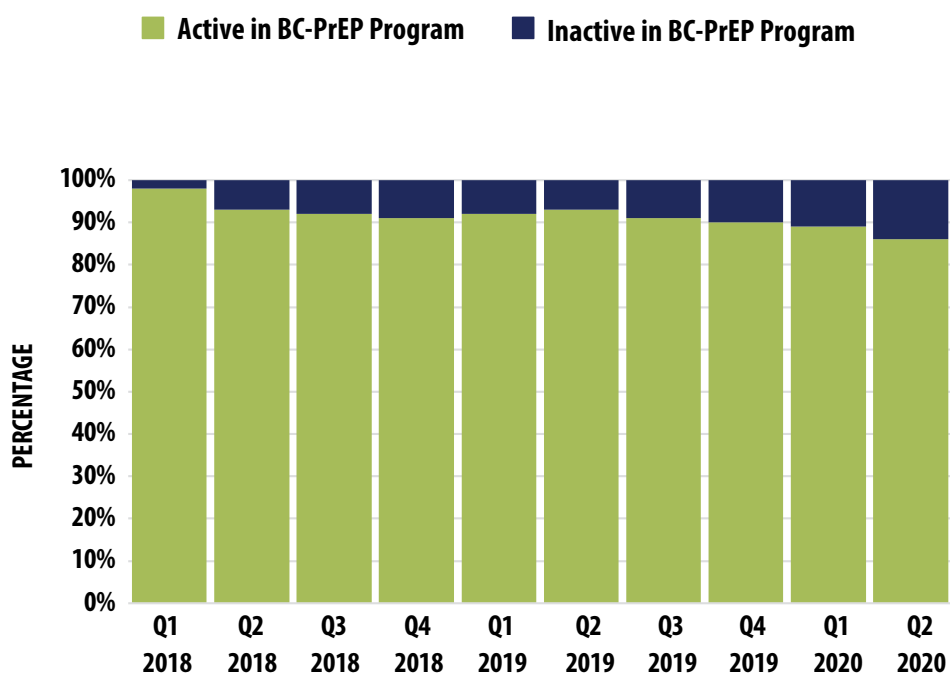
Given these limitations, it was entirely possible that a client may have discontinued and restarted PrEP within the 6-month window between 2 dispensations.

It is also possible that some clients who do not use PrEP on a daily basis remain engaged in PrEP care after >6-month gap in dispensing window.

Since the definition of inactive status requires >6 months with no dispensed PrEP prescription, this indicator was lagged by 6 months to allow for the possibility of meeting this definition or allow for increased capture of formal provider feedback from the PrEP Prescription Late Refill form.

Important note: The definitions of active and inactive are routinely being assessed in depth and may be updated in the future.

FIGURE 9.2. BC-PrEP CLIENTS BY PROGRAM STATUS (PERCENTAGE)



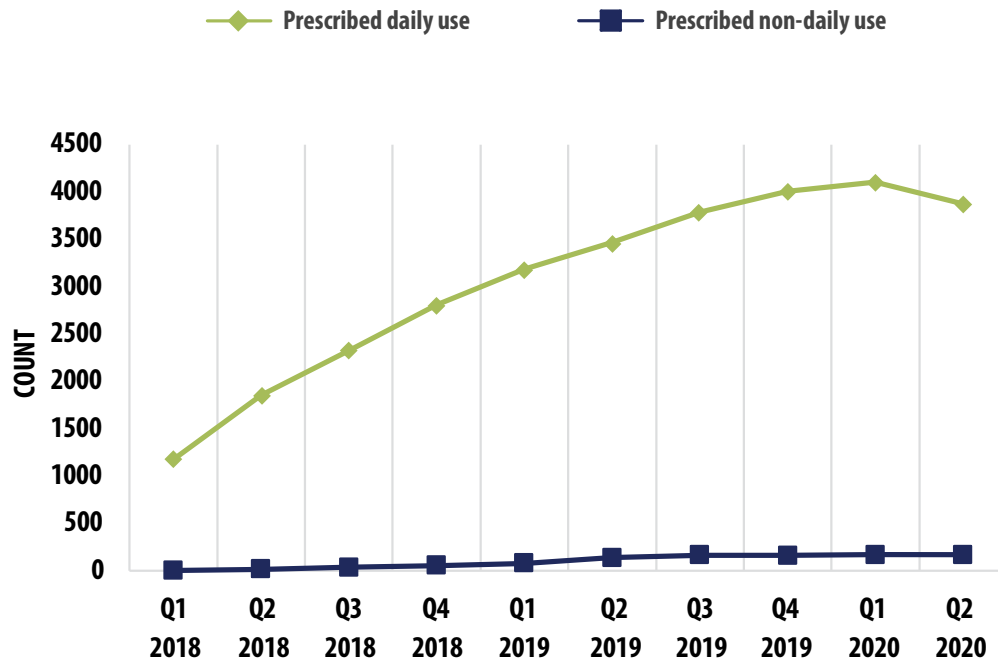
Note: BC= British Columbia; PrEP= pre-exposure prophylaxis; Q= calendar quarter; Q1= January to March; Q2= April to June; Q3= July to September; Q4= October to December.

BC-PrEP Program Status	Q1 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019	Q2 2019	Q3 2019	Q4 2019	Q1 2020	Q2 2020
	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)
Active	1153 (98)	1745 (93)	2176 (92)	2614 (91)	3002 (92)	3346 (93)	3614 (91)	3743 (90)	3814 (89)	3467 (86)
Inactive	25 (2)	124 (7)	183 (8)	253 (9)	261 (8)	258 (7)	337 (9)	428 (10)	460 (11)	574 (14)

INDICATOR 10. PrEP USAGE TYPE AMONG BC-PrEP CLIENTS¹⁰

This indicator describes patterns of the PrEP usage type (i.e., daily use vs non-daily use) among active BC-PrEP program clients. By clicking the indicator sub-heading, you will be redirected to the full technical definition.

FIGURE 10.1. PrEP USAGE TYPE AMONG BC-PrEP CLIENTS (COUNT)



Note: BC= British Columbia; PrEP= pre-exposure prophylaxis; Q= calendar quarter; Q1= January to March; Q2= April to June; Q3= July to September; Q4= October to December.

¹⁰ **Important note:** Non-daily use is likely more prevalent than reflected by the directions indicated on the prescription.

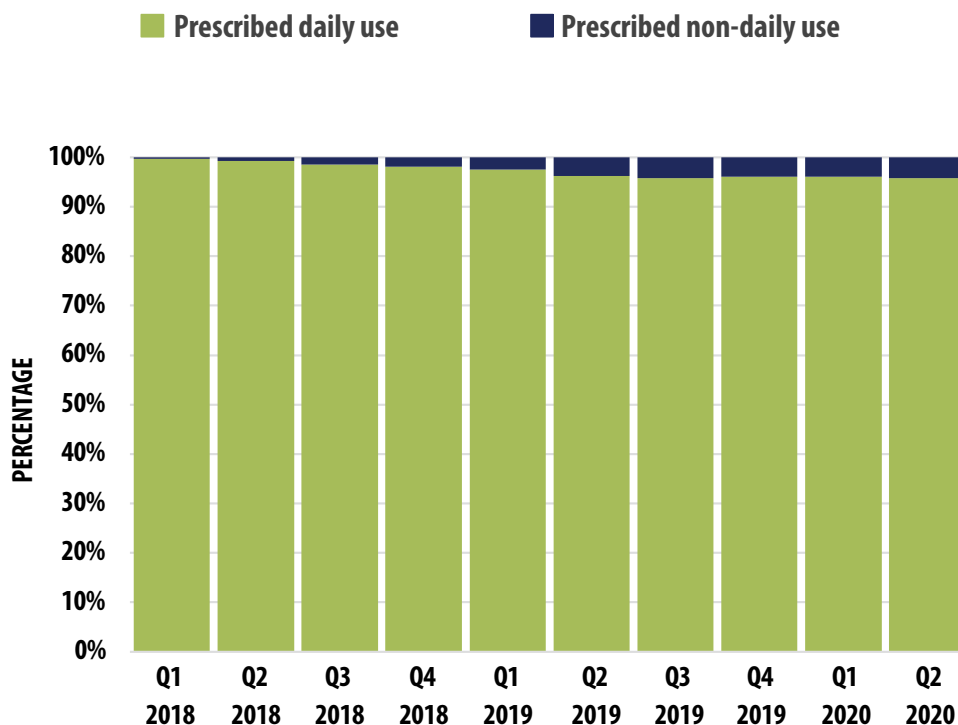
This indicator was lagged by 6 months, given that much of this data is derived from the PrEP Late Refill Notification form, which is sent after a 3-5-month lapse after the expected PrEP refill date.

These reported PrEP usage categories do not provide comprehensive detail pertaining to specific patterns of PrEP medication use by clients.

Initially, per past guidelines, the forms did not allow for formal prescribing or reporting of non-daily use. However, since the 2019 guidelines update, the forms have been gradually updated. Thus, we anticipate that the capture of formal non-daily use will improve.

BC-PrEP program discontinuations and restarts are not well captured due to information lag and provider underreporting.

FIGURE 10.2. PrEP USAGE TYPE AMONG BC-PrEP CLIENTS (PERCENTAGE)



Note: BC= British Columbia; PrEP= pre-exposure prophylaxis; Q= calendar quarter; Q1= January to March; Q2= April to June; Q3= July to September; Q4= October to December.

PrEP Usage Type	Q1 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019	Q2 2019	Q3 2019	Q4 2019	Q1 2020	Q2 2020
	N	N	N	N	N	N	N	N	N	N
	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
Prescribed daily-use	1175 (100)	1854 (99)	2325 (99)	2811 (98)	3185 (98)	3466 (96)	3787 (96)	4010 (96)	4105 (96)	3871 (96)
Prescribed non-daily use	<5 (0)	15 (1)	34 (1)	55 (2)	78 (2)	138 (4)	164 (4)	161 (4)	167 (4)	170 (4)

INDICATOR 11. PrEP QUANTITY DISPENSED (PER 30-TABLET SUPPLY)¹¹

This indicator describes patterns of PrEP quantity (per 30-tablet supply) dispensed by pharmacy by calendar quarters. By clicking the indicator sub-heading, you will be redirected to the full technical definition.

FIGURE 11.1. PrEP QUANTITY (PER 30-TABLET SUPPLY) DISPENSED BY CLIENTS' HEALTH AUTHORITY OF RESIDENCE (COUNT)

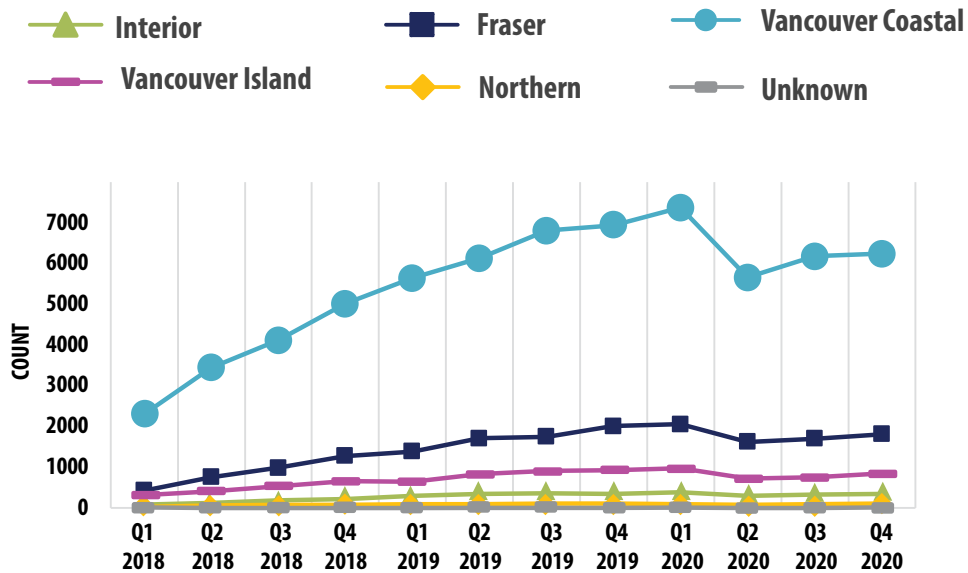
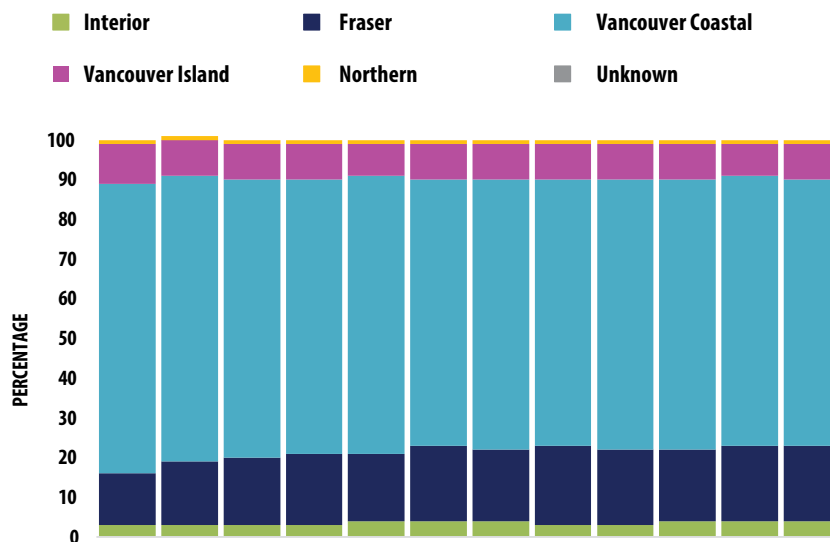


FIGURE 11.2. PrEP QUANTITY (PER 30-TABLET SUPPLY) DISPENSED BY CLIENTS' HEALTH AUTHORITY OF RESIDENCE (PERCENTAGE)



¹¹ This measure does not count tablets that were initially filled but not picked up by clients if known.

Clients' Health Authority of Residence	Q1 2018 N (%)	Q2 2018 N (%)	Q3 2018 N (%)	Q4 2018 N (%)	Q1 2019 N (%)	Q2 2019 N (%)	Q3 2019 N (%)	Q4 2019 N (%)	Q1 2020 N (%)	Q2 2020 N (%)	Q3 2020 N (%)	Q4 2020 N (%)
Interior	82 (3)	130 (3)	191 (3)	218 (3)	302 (4)	338 (4)	364 (4)	346 (3)	384 (4)	294 (4)	335 (4)	340 (4)
Fraser	425 (14)	755 (16)	984 (17)	1274 (18)	1384 (17)	1712 (19)	1752 (18)	2007 (19)	2058 (19)	1619 (19)	1702 (19)	1811 (19)
Vancouver Coastal	2305 (73)	3451 (72)	4113 (70)	5017 (69)	5646 (70)	6132 (67)	6806 (68)	6928 (67)	7374 (68)	5659 (68)	6181 (68)	6242 (67)
Vancouver Island	315 (10)	412 (9)	534 (9)	657 (9)	643 (8)	831 (9)	913 (9)	932 (9)	974 (9)	719 (9)	760 (8)	840 (9)
Northern	24 (1)	61 (1)	75 (1)	77 (1)	84 (1)	89 (1)	107 (1)	100 (1)	91 (1)	80 (1)	93 (1)	102 (1)
Unknown	6 (0)	<5 (0)	<5 (0)	<5 (0)	<5 (0)	0 (0)	<5 (0)	<5 (0)	8 (0)	<5 (0)	<5 (0)	6 (0)

FIGURE 11.3. PrEP QUANTITY (PER 30-TABLET SUPPLY) DISPENSED BY PROVIDERS' HEALTH AUTHORITY (COUNT)

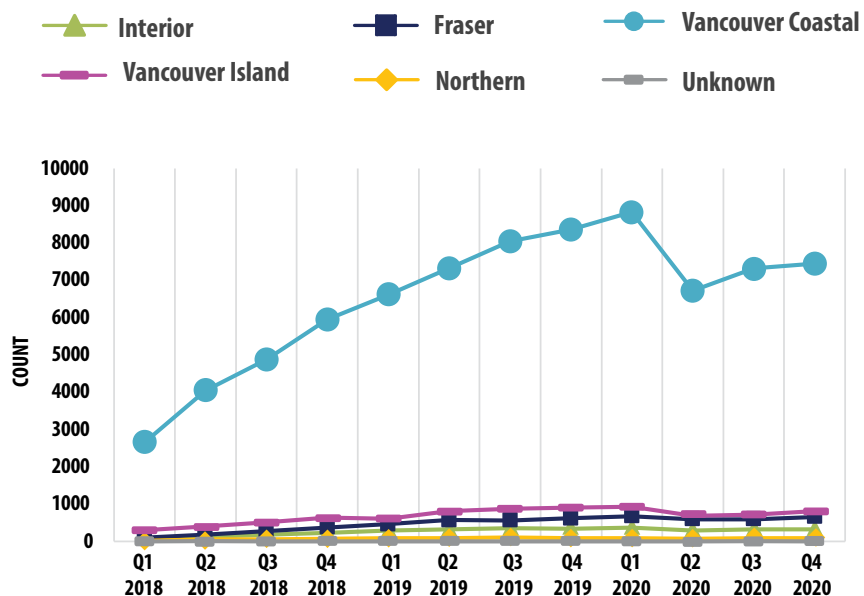
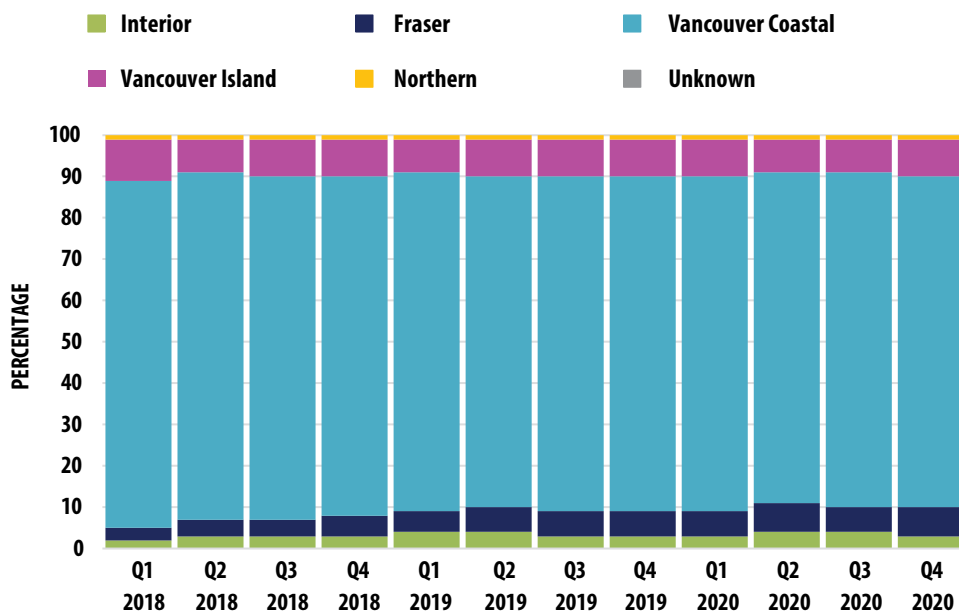


FIGURE 11.4. PrEP QUANTITY (PER 30-TABLET SUPPLY) DISPENSED BY PROVIDERS' HEALTH AUTHORITY (PERCENTAGE)



Note: BC= British Columbia; PrEP= pre-exposure prophylaxis; Q= calendar quarter; Q1= January to March; Q2= April to June; Q3= July to September; Q4= October to December.

Providers' Health Authority	Q1 2018 N (%)	Q2 2018 N (%)	Q3 2018 N (%)	Q4 2018 N (%)	Q1 2019 N (%)	Q2 2019 N (%)	Q3 2019 N (%)	Q4 2019 N (%)	Q1 2020 N (%)	Q2 2020 N (%)	Q3 2020 N (%)	Q4 2020 N (%)
Interior	85 (2)	125 (3)	177 (3)	221 (3)	297 (4)	319 (4)	348 (3)	341 (3)	370 (3)	295 (4)	326 (4)	325 (3)
Fraser	101 (3)	185 (4)	273 (5)	378 (5)	460 (5)	572 (6)	564 (6)	617 (6)	674 (6)	594 (7)	596 (6)	662 (7)
Vancouver Coastal	2654 (84)	4047 (84)	4873 (83)	5946 (82)	6618 (82)	7320 (80)	8042 (81)	8362 (81)	8833 (81)	6723 (80)	7331 (81)	7442 (80)
Vancouver Island	300 (10)	402 (8)	520 (9)	634 (9)	607 (8)	806 (9)	882 (9)	904 (9)	929 (9)	689 (8)	725 (8)	818 (9)
Northern	17 (1)	48 (1)	57 (1)	68 (1)	80 (1)	85 (1)	107 (1)	92 (1)	83 (1)	73 (1)	91 (1)	94 (1)
Unknown	0 (0)	<5 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	6 (0)	0 (0)

CLINICAL MONITORING INDICATORS

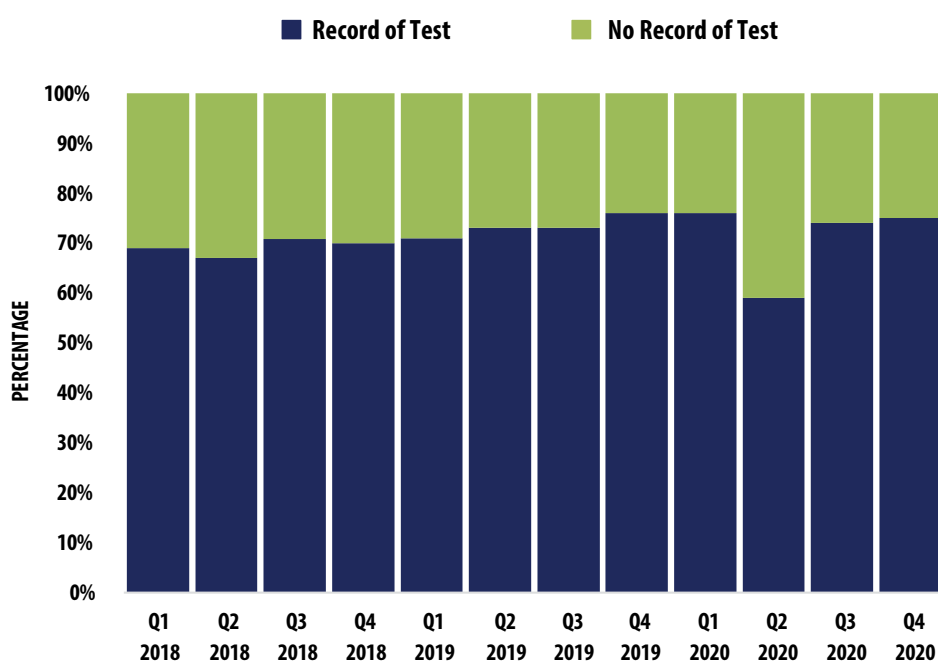
INDICATOR 12. INFECTIOUS SYPHILIS TESTING AND INCIDENT CASES¹²

This indicator describes two important aspects of syphilis screening in the context of PrEP use among active BC-PrEP clients:

- Whether an infectious syphilis test occurred within a 30-day window prior to a dispensed PrEP prescription, while allowing for a 15-day grace period following the dispensation date.
- The incident infectious syphilis cases detected among active BC-PrEP clients by calendar quarters.

By clicking the indicator sub-heading, you will be redirected to the full technical definition.

FIGURE 12.1. RECORD OF SYPHILIS TEST SURROUNDING A DISPENSED PrEP PRESCRIPTION AMONG BC-PrEP CLIENTS (PERCENTAGE)



Note: BC= British Columbia; PrEP= pre-exposure prophylaxis; Q= calendar quarter; Q1= January to March; Q2= April to June; Q3= July to September; Q4= October to December.

¹² The 30-day window prior to dispensation was supplemented with a 15-day grace period following the dispensation date in order to account for a potential information lag in syphilis testing.

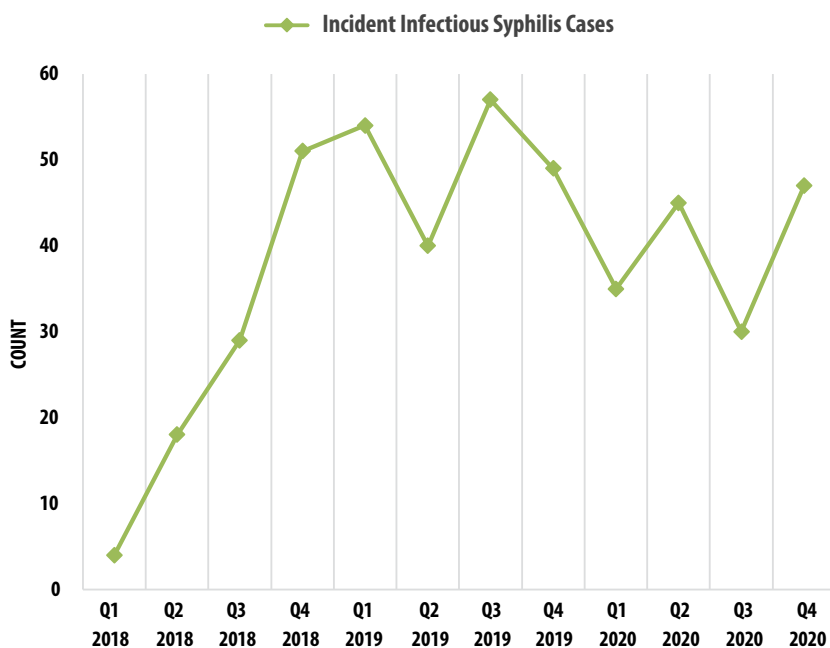
For the syphilis testing indicator, only syphilis serology tests were considered when determining a record of testing.

The algorithm applied to ascertain incident cases of infectious syphilis has been outlined in the [Appendix](#).

Syphilis serology testing is centralized at the British Columbia Centre for Disease Control (BCCDC); It is estimated that $\geq 95\%$ of all test performed in the province are captured via the laboratory linkage. Testing performed on a non-nominal basis is not captured.

Syphilis Test Status	Q1 2018 N (%)	Q2 2018 N (%)	Q3 2018 N (%)	Q4 2018 N (%)	Q1 2019 N (%)	Q2 2019 N (%)	Q3 2019 N (%)	Q4 2019 N (%)	Q1 2020 N (%)	Q2 2020 N (%)	Q3 2020 N (%)	Q4 2020 N (%)
Record of Test	1087 (69)	1363 (67)	1679 (71)	2000 (70)	2293 (71)	2501 (73)	2740 (73)	2880 (76)	2985 (76)	1673 (59)	2426 (74)	2544 (75)
No Record of Test	48 (31)	667 (33)	694 (29)	875 (30)	918 (29)	948 (27)	999 (27)	933 (24)	963 (24)	1142 (41)	840 (26)	842 (25)

FIGURE 12.2. INCIDENT INFECTIOUS SYPHILIS CASES AMONG BC-PrEP CLIENTS (COUNT)



Note: BC= British Columbia; PrEP= pre-exposure prophylaxis; Q= calendar quarter; Q1= January to March; Q2= April to June; Q3= July to September; Q4= October to December.

Incident Infectious Syphilis Cases	Q1 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019	Q2 2019	Q3 2019	Q4 2019	Q1 2020	Q2 2020	Q3 2020	Q4 2020
Incident Cases	N	N	N	N	N	N	N	N	N	N	N	N
	<5	18	29	51	54	40	57	49	35	45	30	47

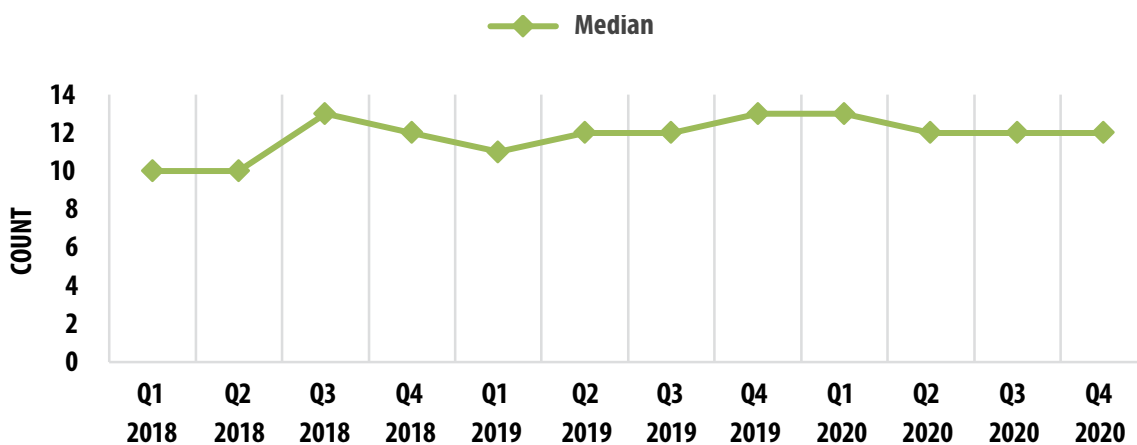
INDICATOR 13. HIV TESTING¹³

This indicator describes two important aspects of HIV testing in the context of PrEP use among active BC-PrEP clients:

- Days between the most recent negative HIV test and the date of the first dispensed PrEP prescription.
- Whether an HIV test occurred within a 30-day window prior to a dispensed PrEP prescription, while allowing for a 15-day grace period following the dispensation date.

By clicking the indicator sub-heading, you will be redirected to the full technical definition.

FIGURE 13.1. DAYS FROM MOST RECENT NEGATIVE HIV TEST AND THE FIRST DISPENSED PRESCRIPTION AMONG BC-PrEP CLIENTS (COUNT)



Note: BC= British Columbia; PrEP= pre-exposure prophylaxis; Q= calendar quarter; Q1= January to March; Q2= April to June; Q3= July to September; Q4= October to December.

Number of Days	Q1 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019	Q2 2019	Q3 2019	Q4 2019	Q1 2020	Q2 2020	Q3 2020	Q4 2020
	N	N	N	N	N	N	N	N	N	N	N	N
Median	10	10	13	12	11	12	12	13	13	12	12	12
25th Percentile	7	7	9	8	7	8	9	8	9	8	8	9
75th Percentile	14	13	19	17	16	17	17	17	17	18	15	17

¹³ The 30-day window prior to dispensation was supplemented with a 15-day grace period following the dispensation date in order to account for a potential information lag.

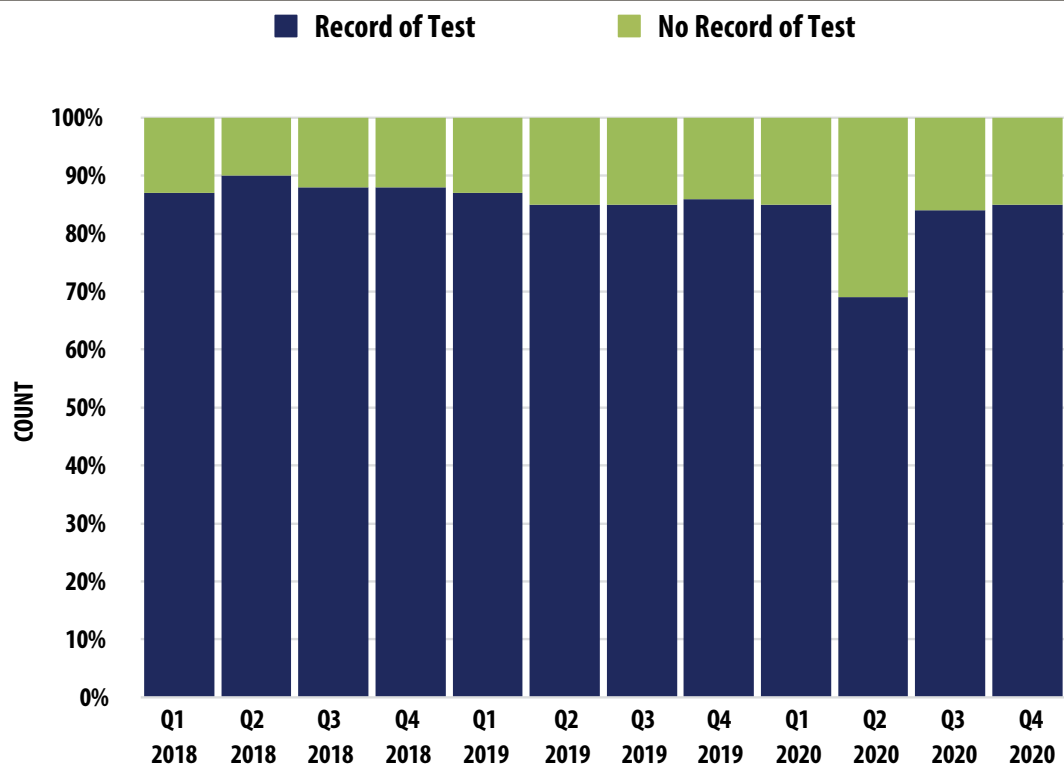
Point-of-care testing results do not qualify as confirmed negative HIV serology.

HIV serology testing is mainly centralized at the BCCDC; It is estimated that ≥95% of all HIV tests performed in the province are captured via the laboratory linkage.

Screening testing performed on a non-nominal basis is not be captured, additionally, the capture of screening tests from Vancouver Island Health Authority was incomplete.

Given that we only have the sample collection date available to calculate the number days between the most recent negative HIV test and the date of the first dispensed PrEP prescription, this calculation includes the time required for the test to be processed and results to get back to the provider.

FIGURE 13.2. RECORD OF HIV TEST SURROUNDING A DISPENSED PrEP PRESCRIPTION AMONG BC-PrEP CLIENTS



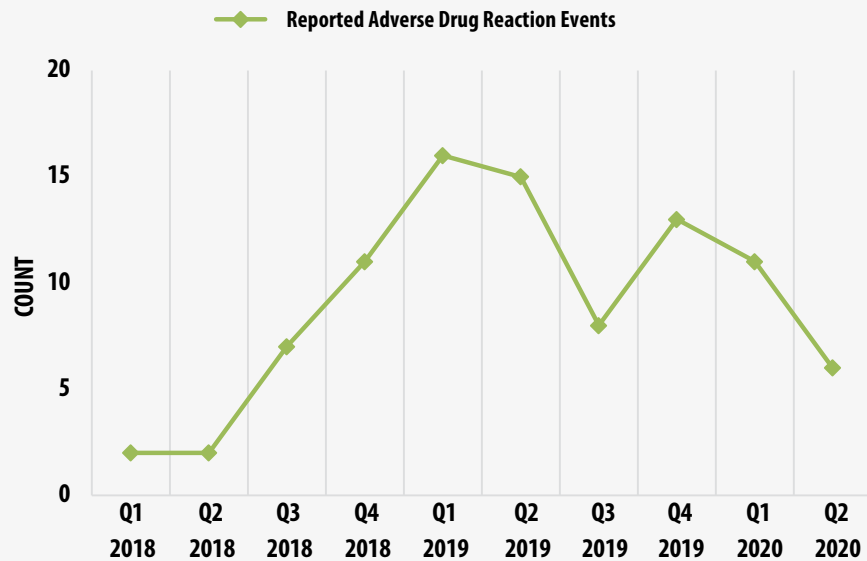
Note: BC= British Columbia; PrEP= pre-exposure prophylaxis; Q= calendar quarter; Q1= January to March; Q2= April to June; Q3= July to September; Q4= October to December.

HIV Test Status	Q1 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019	Q2 2019	Q3 2019	Q4 2019	Q1 2020	Q2 2020	Q3 2020	Q4 2020
	N	N	N	N	N	N	N	N	N	N	N	N
	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
Record of Test	1378 (87)	1833 (90)	2091 (88)	2535 (88)	2795 (87)	2919 (85)	3183 (85)	3271 (86)	3370 (85)	1937 (69)	2736 (84)	2863 (85)
No Record of Test	207 (13)	197 (10)	282 (12)	340 (12)	416 (13)	530 (15)	556 (15)	542 (14)	578 (15)	879 (31)	530 (16)	523 (15)

INDICATOR 14. ADVERSE DRUG REACTION EVENTS¹⁴

This indicator describes patterns of ADR events among active BC-PrEP clients by calendar quarter. By clicking the indicator sub-heading, you will be redirected to the full technical definition.

FIGURE 14. ADVERSE DRUG REACTIONS REPORTED AMONG BC-PrEP CLIENTS (COUNT)



Note: BC= British Columbia; PrEP= pre-exposure prophylaxis; Q= calendar quarter; Q1= January to March; Q2= April to June; Q3= July to September; Q4= October to December.

Number of ADR Events	Q1 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019	Q2 2019	Q3 2019	Q4 2019	Q1 2020	Q2 2020
ADR Events	<5	<5	7	11	16	15	8	13	11	6

¹⁴ This indicator was lagged by 6 months, given that much of this data is derived from the PrEP Late Refill Notification form, which is sent after a 3-5-month lapse after the expected PrEP refill date.

ADR reports are also evaluated by a Pharmacovigilance clinical reviewer prior to inclusion in the PrEP report.

Reports of ADRs are voluntarily submitted by health care providers, patients, and caregivers, and may underestimate actual incidence.

Due to the time delay in receiving some ADR reports, some PrEP participants may have already discontinued PrEP by the time the report was received.

Reported ADR events do not necessarily result in BC-PrEP program discontinuation for the clients affected.

More detailed PrEP adverse drug reactions information is available in the BC-CfE Pharmacovigilance Annual Report.

APPENDIX: INDICATOR TECHNICAL DEFINITIONS

INDICATOR 1. CLIENT GENDER IDENTITY

<p>Rationale</p>	<p>It is essential for HIV prevention programs, including the BC-PrEP program, to consider and meet the specific needs of clients with regards to sociocultural gender identity differences (i.e., gender-responsive programming) to enhance impact [7]. This information may inform practices relating to the more effective provision of gender-affirming care, which is crucial for optimal uptake and utilization of PrEP in BC [8].</p>
<p>Description of Measure</p>	<p>This indicator describes the gender identity of unique BC-PrEP clients who were dispensed PrEP by calendar quarters.</p>
<p>Definition/ Calculation</p>	<p>The gender identity of unique BC-PrEP clients was obtained and reported by the provider via the PrEP Enrolment & Prescription Request form or the PrEP Prescription Refill form. This indicator was based on the most recent recorded client gender identity information at the time of report production. The reporting calendar quarters were based on the PrEP prescription dispensation date.</p> <p><u>Measurement</u></p> <p>a. Displayed as a count and percentage (percentage only shown in the corresponding table).</p> <p>Numerator: Number of unique BC-PrEP clients dispensed PrEP, whose most recent recorded gender identity corresponds to the following categories within the specified quarter:</p> <ul style="list-style-type: none"> ● Cisgender male ● Cisgender female ● Transgender male ● Transgender female ● Other or Unspecified <p><u>Denominator:</u> Total number of unique BC-PrEP clients who were dispensed PrEP within the specified quarter.</p>
<p>Cautionary Notes: Use and Interpretation</p>	<ul style="list-style-type: none"> ● The BC-PrEP database does not capture longitudinal gender identity information, thus only the most recent gender identity recorded can be reported. ● The number of BC-PrEP clients in each quarter represent unique clients (i.e., each client was only counted once per quarter). ● The percentages were not graphed given the particularly low percentages of BC-PrEP clients in most categories.
<p>Reporting Timeframe</p>	<p>Quarterly</p>

INDICATOR 2. CLIENT AGE

Rationale	Age represents an important demographic variable which contributes to the comprehensive understanding of the population accessing PrEP via the BC-PrEP program. In this context, this information can potentially identify gaps in access and uptake of PrEP in various age sub-populations, and potentially inform targeted action.
Description of Measure	This indicator describes the age of unique BC-PrEP clients who were dispensed PrEP by calendar quarters.
Definition/ Calculation	<p>Age was derived from the date of birth reported by the provider via the PrEP Enrolment & Prescription Request form or the PrEP Prescription Refill form. The age presented corresponds to that reported at the time of the PrEP prescription dispensation within the reporting quarter. The reporting calendar quarters were based on the PrEP prescription dispensation date. The age categories were chosen to be generally consistent with age risk categories represented in the HIV Incidence Risk Index for Men Who Have Sex with Men (HIRI-MSM) [9].</p> <p>Measurement Displayed as a count and percentage.</p> <p>Numerator: Number of unique BC-PrEP clients dispensed PrEP, whose age corresponds to the following categories within the specified quarter:</p> <ul style="list-style-type: none"> ● <18 years ● 18-28 years ● 29-40 years ● 41-48 years ● ≥49 years <p>Denominator: Total number of unique BC-PrEP clients who were dispensed PrEP within the specified quarter.</p>
Cautionary Notes: Use and Interpretation	The number of BC-PrEP clients in each quarter represent unique clients (i.e., each client was only counted once per quarter).
Reporting Timeframe	Quarterly

INDICATOR 3. HEALTH AUTHORITY (CLIENTS' RESIDENCE AND PROVIDERS' PRACTICE)

Rationale	BC-PrEP clients' health authority of residence and their providers' health authority of practice provides crucial geographical information which may be instrumental in discerning the heterogeneity in geographical uptake of PrEP across the province.
Description of Measure	This indicator describes the BC-PrEP clients' health authority of residence and their providers' health authority of practice among those who were dispensed PrEP by calendar quarters.
Definition/ Calculation	<p>The clients' health authority of residence and the providers' health authority of practice were obtained and reported by the provider via the PrEP Enrolment & Prescription Request form or the PrEP Prescription Refill form. The health authority corresponds to the one reported at the time of the PrEP prescription dispensation. The reporting calendar quarters were based on the PrEP prescription dispensation date.</p> <p>Measurement</p> <p>Displayed as a count and percentage.</p> <p>Numerator: Number of unique BC-PrEP clients dispensed PrEP, whose health authority of residence (numerator 1) and providers' health authority of practice (numerator 2), respectively, corresponds to the following categories within the specified quarter:</p> <ul style="list-style-type: none"> ● Interior ● Fraser ● Vancouver Coastal ● Vancouver Island ● Northern ● Unknown <p>Denominator: Total number of unique BC-PrEP clients who were dispensed PrEP within the specified quarter.</p>
Cautionary Notes: Use and Interpretation	The number of BC-PrEP clients in each quarter represent unique clients (i.e., each client was only counted once per quarter).
Reporting Timeframe	Quarterly

INDICATOR 4. NEW BC-PrEP CLIENTS ENROLLED BY PROVIDER TYPE

Rationale	Describing the type of healthcare provider enrolling new clients into the BC-PrEP program allows program administrators to identify patterns of referral practices among specific provider types across the province. From a programmatic standpoint, it is important to be aware of these patterns in order to identify and address any potential gaps in the delivery of this intervention.
Description of Measure	This indicator describes the type of provider enrolling new clients into the BC-PrEP program by calendar quarters.
Definition/ Calculation	<p>New BC-PrEP clients authorized for enrolment were ascertained via the first authorized PrEP Enrolment & Prescription Request form for each unique client. Provider type was ascertained as follows: physicians and nurse practitioners were differentiated based on the enrolling provider information (e.g., College ID Number and Medical Services Commission number) obtained from the aforementioned forms. Physician category (i.e., family physician vs specialist physician) was identified via a data linkage with the College of Physicians and Surgeons of British Columbia). The reporting calendar quarters were based on the date of enrolment authorization.</p> <p>Measurement Displayed as a count and percentage.</p> <p>Numerator: Number of new authorized BC-PrEP clients who were enrolled by a provider belonging to the following categories within the specified quarter:</p> <ul style="list-style-type: none"> ● Family Physician ● Nurse Practitioner ● Specialist Physician <p>Denominator: Total number of new BC-PrEP clients authorized for enrolment within the specified quarter.</p>
Cautionary Notes: Use and Interpretation	<ul style="list-style-type: none"> ● Includes BC-PrEP clients who have an authorized PrEP Enrolment & Prescription Request form regardless if PrEP was subsequently dispensed. ● It was not possible to stratify this indicator by clinic type as the BC-PrEP program is currently unable to accurately determine specific models of care on an ongoing basis. ● The BC-CfE's educational initiative that expanded the role of nurse practitioners to prescribe PrEP only launched in the fall of 2018.
Reporting Timeframe	Quarterly

INDICATOR 5. NEW BC-PrEP CLIENTS ENROLLED BY HEALTH AUTHORITY

Rationale	Describing enrolment patterns of new clients into the BC-PrEP program allows program administrators to identify trends in enrolment across the province.
Description of Measure	This indicator describes enrolment patterns of new clients in the BC-PrEP program by calendar quarters.
Definition/ Calculation	<p>New BC-PrEP clients authorized for enrolment were ascertained via the first authorized PrEP Enrolment & Prescription Request form. The reporting calendar quarters were based on the date of BC-PrEP program authorization.</p> <p>Measurement Displayed as a count and percentage.</p> <p>Numerator: Number of new BC-PrEP clients authorized for enrolment whose health authority of residence (numerator 1) and providers' health authority of practice (numerator 2), respectively, corresponds to the following categories within the specified quarter:</p> <ul style="list-style-type: none"> ● Interior ● Fraser ● Vancouver Coastal ● Vancouver Island ● Northern ● Unknown <p>Denominator: Total number of new BC-PrEP clients authorized for enrolment within the specified quarter.</p>
Cautionary Notes: Use and Interpretation	<ul style="list-style-type: none"> ● Includes BC-PrEP clients who have an authorized PrEP Enrolment & Prescription Request form regardless if PrEP was subsequently dispensed. ● In the event that BC-PrEP clients were re-enrolled into the program after a period of discontinuation, they were only counted once.
Reporting Timeframe	Quarterly

INDICATOR 6. NEW BC-PrEP CLIENTS DISPENSED PrEP

Rationale	Describing patterns of new BC-PrEP clients enrolled who were dispensed PrEP for the first time allows program administrators to identify trends in PrEP initiation across the province.
Description of Measure	This indicator describes patterns of new BC-PrEP clients enrolled who were dispensed PrEP for the first time by calendar quarters.
Definition/ Calculation	<p>The first PrEP prescription dispensation dates among new BC-PrEP clients authorized for enrolment were ascertained via the first authorized and dispensed PrEP Enrolment & Prescription Request form. The reporting calendar quarters were based on the date of first PrEP prescription dispensation. The clients' health authority of residence and the providers' health authority of practice were obtained and reported by the provider via the abovementioned form. The clients' and providers' health authority correspond to the one reported at the time of the first PrEP prescription dispensation.</p> <p>Measurement</p> <p>Displayed as a count and percentage.</p> <p>Numerator: Number of new BC-PrEP clients dispensed PrEP for the first time, whose health authority of residence (numerator 1) and providers' health authority of practice (numerator 2), respectively, corresponds to the following categories within the specified quarter:</p> <ul style="list-style-type: none"> ● Interior ● Fraser ● Vancouver Coastal ● Vancouver Island ● Northern ● Unknown <p>Denominator: Total number of new BC-PrEP clients dispensed PrEP for the first time within the specified quarter.</p>
Cautionary Notes: Use and Interpretation	<ul style="list-style-type: none"> ● In the event that BC-PrEP clients were re-enrolled into the program after a period of discontinuation, they were only counted once.
Reporting Timeframe	Quarterly

INDICATOR 7. BC-PrEP CLIENTS PER PROVIDER

Rationale	Providers play an important role in disseminating information regarding PrEP as an HIV prevention method. This is due to their relevant clinical training and ability to link individuals to PrEP and engage in ongoing monitoring of the client. In addition, from a programmatic standpoint, client volume information may provide insights into capacity of the BC-PrEP program.
Description of Measure	This indicator describes the following aspects of client volume among providers: <ul style="list-style-type: none"> a. The volume of BC-PrEP clients who were dispensed PrEP per distinct provider by calendar quarters. b. The proportion of BC-PrEP clients covered by provider volume category.
Definition/ Calculation	<p>The number of BC-PrEP clients who were dispensed PrEP was ascertained by identifying the dispensed date of the PrEP Enrolment & Prescription Request form or the PrEP Prescription Refill form for each client. The distinct provider was determined based on provider information (e.g., College ID Number and Medical Services Commission number) obtained from the aforementioned forms. The reporting calendar quarters were based on the PrEP prescription dispensation date</p> <p>Measurement</p> <ul style="list-style-type: none"> a. Displayed as a count and percentage (percentage only shown in the corresponding table). <p>Numerator: Number of distinct providers whose volume of BC-PrEP program client(s) dispensed PrEP corresponds to the following categories within the specified quarter:</p> <ul style="list-style-type: none"> ● 1 client ● 2-5 clients ● 6-19 clients ● 20-49 clients ● ≥50 clients <p>Denominator:Total number of distinct providers within the specified quarter.</p> <ul style="list-style-type: none"> b. Displayed as a percentage. <p>Numerator: Number of BC-PrEP program clients covered by each of the abovementioned provider volume category.</p> <p>Denominator: Total number of BC-PrEP program clients dispensed PrEP within the specified quarter.</p>
Cautionary Notes: Use and Interpretation	These categories were informed and established on the basis of the data distribution.
Reporting Timeframe	Quarterly

INDICATOR 8. KEY QUALIFYING HIV RISK FACTOR(S) REPORTED AT BC-PrEP PROGRAM ENROLMENT

<p>Rationale</p>	<p>Daily PrEP is recommended for cis and transgender gay and bisexual men who have sex with men (gbMSM) and transgender women (TGW), heterosexual men and women, and persons who inject drugs (PWID) at high risk of acquiring HIV infection in accordance with BC-CfE PrEP guidelines [2]. These guidelines specify six key qualifying HIV risk factors which establish the eligibility for BC-PrEP program enrolment.</p>
<p>Description of Measure</p>	<p>This indicator summarizes the six key qualifying HIV risk factors reported at enrolment into the BC-PrEP program among clients who were dispensed PrEP for the first time by calendar quarters. This indicator presents this aforementioned information in two parts:</p> <ol style="list-style-type: none"> a. Clients who qualified under each key qualifying HIV risk factors at enrolment, respectively. Note that providers could specify more than one applicable key HIV risk factor, thus these categories are not mutually exclusive. b. Clients belonging to different categories of key qualifying HIV risk factor(s) specified at enrolment by BC-PrEP providers. This measure reflecting the exact key qualifying risk factor(s) specified for each client was presented as a cumulative count updated quarterly. Thus, clients cannot belong to more than one category.
<p>Definition/ Calculation</p>	<p>Key qualifying HIV risk factors reported at program enrolment were obtained and reported by the provider via the first authorized PrEP Enrolment & Prescription Request form among BC-PrEP clients dispensed PrEP. The reporting calendar quarters were based on the first PrEP prescription dispensation date.^{ff}</p> <p>Qualifying HIV risk factors among cis and transgender gbMSM and TGW</p> <p>Condomless anal sex (reported at program enrolment) in conjunction with one or more of the following criteria constitute a qualifying HIV risk factor for cis and transgender gbMSM and TGW:</p> <ol style="list-style-type: none"> a. Infectious syphilis or rectal bacterial sexually transmitted infection (STI), particularly if diagnosed in the preceding 12 months. b. Use of non-occupational post-exposure prophylaxis (nPEP) on more than one occasion. c. In an ongoing sexual relationship with an HIV-positive partner who is not receiving stable antiretroviral therapy (ART) and/or does not have an HIV viral load <200 copies/mL. d. HIV Incidence Risk Index for men who have sex with men (HIRI-MSM) score ≥ 10. <p>Qualifying HIV risk factor among heterosexual men and women</p> <p>Condomless vaginal or anal sex (reported at program enrolment) in conjunction with the following criterion constitute a qualifying HIV risk factor for heterosexual men and women:</p> <ol style="list-style-type: none"> e. In an ongoing sexual relationship with an HIV-positive partner who is not receiving stable ART and/or does not have an HIV viral load <200 copies/mL.

Definition/ Calculation	<p>Qualifying HIV risk factor among PWID</p> <p>Shared injection equipment (reported at program enrolment) in conjunction with the following criterion constitute a qualifying HIV risk factor for PWID:</p> <p>f. Having an HIV-positive injecting partner who is not receiving stable ART and/or does not have an HIV viral load <200 copies/mL.</p> <p>Measurement</p> <p>a. Displayed as a count and percentage.</p> <p>Numerator: Number of BC-PrEP clients dispensed PrEP for the first time who qualified under each key qualifying HIV risk factor at enrolment within the specified quarter. Providers could select more than one applicable HIV risk factor; thus, these categories are not mutually exclusive.</p> <p>Denominator: Total number of BC-PrEP clients dispensed PrEP for the first time within the specified quarter.</p> <p>b. Displayed as a count and percentage (percentage only shown in the corresponding table).</p> <p>Numerator: Number of BC-PrEP clients dispensed PrEP for the first time belonging to each category of key qualifying HIV risk factor(s) specified at enrolment (including different combinations). Categories of key qualifying HIV risk factor(s) with <5 clients were not displayed.</p> <p>Denominator: Total number of BC-PrEP clients dispensed PrEP for the first time at the end of the most recent available quarter.</p>
Cautionary Notes: Use and Interpretation	<ul style="list-style-type: none"> • This indicator solely focused on representing the distribution of the six aforementioned key qualifying HIV risk factors; this was due to the exceptionally low counts corresponding to other risks. Clients who qualified based on other risks remained in the denominator. • The key qualifying HIV risk factors were strictly derived from provider-reported information which is not verified by any other means.
Reporting Timeframe	<p>Quarterly</p>

INDICATOR 9. BC-PrEP CLIENT STATUS (ACTIVE VS INACTIVE)

Rationale	Retention in PrEP care is a key step in the HIV prevention strategy ultimately aimed at HIV elimination through prevention of transmission in the population. Therefore, dedicated efforts should be put toward ensuring optimal retention of client in the BC-PrEP program.
Description of Measure	This indicator describes patterns of program status (i.e., active vs inactive) among BC-PrEP clients by calendar quarter.
Definition/ Calculation	<p>BC-PrEP clients are considered to have active program status starting from the date of the first PrEP prescription dispensation until the date of formal program discontinuation or the date in which the client's prescription has lapsed >6 months. The BC-PrEP program inactive date was ascertained as follows:</p> <ul style="list-style-type: none"> • The formal notification date of BC-PrEP program discontinuation obtained from the PrEP Prescription Refill form or the PrEP Late Refill Notification form. • Determined by >6 months between 2 PrEP prescription periods before the last date of Q2 2019 (i.e., cut-off date based on the most recent quarter reported). • Determined by >6 months lapse beyond the expected PrEP refill date occurring before the last date of Q2 2019 2019 (i.e., cut-off date based on the most recent quarter reported), and no formal notification of program discontinuation has been received (i.e., lost to follow-up). <p>Measurement Displayed as a count and percentage.</p> <p>Numerator: Number of BC-PrEP clients corresponding to the following program status categories within the specified quarter:</p> <ul style="list-style-type: none"> • Inactive status in BC-PrEP program • Active status in BC-PrEP program <p>Denominator: Total number of BC-PrEP clients within the specified quarter.</p>
Cautionary Notes: Use and Interpretation	<ul style="list-style-type: none"> • BC-PrEP program discontinuations and restarts are not well captured due to information lag and provider underreporting. • BC-PrEP program re-enrolment for those who restarted PrEP is only required if >6 months elapses beyond the expected refill date, if the client restarts PrEP after formal discontinuation, or if the client returns to BC after having moved out of province. • Given these limitations, it was entirely possible that a client may have discontinued and restarted PrEP within the 6-month window between 2 dispensations. • It is also possible that some clients who do not use PrEP on a daily basis remain engaged in PrEP care after >6-month gap in dispensing window. • Since the definition of inactive status requires >6 months with no dispensed PrEP prescription, this indicator was lagged by 6 months to allow for the possibility of meeting this definition or allow for increased capture of formal provider feedback from the PrEP Prescription Late Refill form. • Important note: The definitions of active and inactive are routinely being assessed in depth and may be updated in the future.
Reporting Timeframe	Quarterly

INDICATOR 10. PrEP USAGE TYPE AMONG BC-PrEP CLIENTS

Rationale	PrEP usage type refers to the approach by which PrEP is utilized by active BC-PrEP program clients, i.e., daily use (i.e., continuous use) vs non-daily use (i.e., intermittent, or on-demand use). This information may be particularly useful for evaluating patterns of PrEP usage over time.
Description of Measure	This indicator describes patterns of the PrEP usage type (i.e., daily use vs non-daily use) among active BC-PrEP program clients.
Definition/ Calculation	<p>BC-PrEP clients are considered active starting from the date of the first PrEP prescription dispensation until the date of program discontinuation or the date in which the client has been lost to follow-up, as previously defined. Among active BC-PrEP program clients, daily use vs non-daily use of PrEP was ascertained and calculated as follows:</p> <p>Measurement</p> <p>Displayed as a count and percentage.</p> <p>Numerator: Number of active BC-PrEP clients corresponding to the following PrEP usage type categories within the specified quarter:</p> <ul style="list-style-type: none"> ● Prescribed daily use: Active BC-PrEP clients who were formally prescribed PrEP for daily use and the BC-PrEP program did not receive a formal notification from the corresponding provider indicating non-daily use. ● Prescribed non-daily use: Active BC-PrEP clients who were prescribed PrEP for non-daily use (e.g. intermittent), or clients who were initially prescribed daily use, but the BC-PrEP program received a formal notification from the corresponding provider indicating non-daily use. The effective date for clients prescribed non-daily use is the date when the BC-PrEP program was first formally notified that the client is being prescribed PrEP for use on a non-daily basis (via the Prescription Request Form, or PrEP Late Refill Notification Form). <p>Denominator: Total number of active BC-PrEP clients within the specified quarter.</p>
Cautionary Notes: Use and Interpretation	<ul style="list-style-type: none"> ● Important note: Non-daily use is likely more prevalent than reflected by the directions indicated on the prescription. ● This indicator was lagged by 6 months, given that much of this data is derived from the PrEP Late Refill Notification form, which is sent after a 3-5-month lapse after the expected PrEP refill date. ● These reported PrEP usage categories do not provide comprehensive detail pertaining to specific patterns of PrEP medication use by clients. ● Initially, per past guidelines, the forms did not allow for formal prescribing or reporting of non-daily use. However, since the 2019 guidelines update, the forms have been gradually updated. Thus, we anticipate that the capture of formal non-daily use will improve. ● BC-PrEP program discontinuations and restarts are not well captured due to information lag and provider underreporting.
Reporting Timeframe	Quarterly

INDICATOR 11. PrEP QUANTITY DISPENSED (PER 30-TABLET SUPPLY)

Rationale	Monitoring and assessing geographical variation in the quantity of PrEP (per 30-tablet supply) dispensed by pharmacy may potentially inform program planning.
Description of Measure	This indicator describes patterns of PrEP quantity (per 30-tablet supply) dispensed by pharmacy by calendar quarters.
Definition/ Calculation	<p>PrEP quantity (per 30-tablet supply) dispensed by pharmacy was ascertained by dividing the total number of tablets ever dispensed by a unit of 30 tablets. The reporting calendar quarters were based on the date in which the dispensed PrEP prescription was picked up by the corresponding client if known, otherwise defaults to the date of prescription fill (dispensed).</p> <p>Measurement Displayed as a count and percentage.</p> <p>Numerator: PrEP quantity (per 30-tablet supply) dispensed for BC-PrEP clients whose health authority of residence (numerator 1) and providers' health authority of practice (numerator 2), respectively, corresponds to the following categories within the specified quarter:</p> <ul style="list-style-type: none"> ● Interior ● Fraser ● Vancouver Coastal ● Vancouver Island ● Northern ● Unknown <p>Denominator: Total number of 30-tablet supply units dispensed.</p>
Cautionary Notes: Use and Interpretation	<ul style="list-style-type: none"> ● This measure does not count tablets that were initially filled but not picked up by clients if known.
Reporting Timeframe	Quarterly

INDICATOR 12. INFECTIOUS SYPHILIS TESTING AND INCIDENT CASES

Rationale	Regular follow-up monitoring while on PrEP is crucial to providing optimal care to clients. It includes regular full sexually transmitted infections (STI) screening from all appropriate body sites [2]. It is recommended that an STI screen be performed from all appropriate body sites every three months to allow for timely diagnosis and treatment of incident STI among BC-PrEP program clients. Due to limited capture of gonorrhea and chlamydia testing in our database, only syphilis is presented in the report.
Description of Measure	This indicator describes two important aspects of syphilis screening in the context of PrEP use among active BC-PrEP clients: <ul style="list-style-type: none"> a. Whether an infectious syphilis test occurred within a 30-day window prior to a dispensed PrEP prescription, while allowing for a 15-day grace period following the dispensation date. b. The incident infectious syphilis cases detected among active BC-PrEP clients by calendar quarters.
Definition/ Calculation	<p>Syphilis testing and incident cases data among active BC-PrEP clients were ascertained via data from the laboratory linkage. Active refers to clients who have not discontinued the program or were not lost to follow-up, as previously defined. The reporting calendar quarter was based on the date of testing or incident case. The date utilized for the dispensed PrEP prescription was the date in which the PrEP prescription was picked up by the corresponding client if known, otherwise defaults to the date of prescription fill.</p> <p>Measurement</p> <ul style="list-style-type: none"> a. Syphilis testing surrounding a dispensed PrEP prescription Displayed as a count and percentage (count only shown in the corresponding table) Numerator: Among active BC-PrEP clients, the number of dispensed PrEP prescriptions (including initial prescriptions and refills) in which a record of syphilis testing was present within a 30-day window prior to dispensation, while allowing for a 15-day grace period following the dispensation date, within the specified quarter. <ul style="list-style-type: none"> • Record of Test • No Record of Test Denominator: Total number of dispensed PrEP prescriptions among active BC-PrEP clients within the specified quarter. b. Syphilis incident cases Displayed as a count. The number of active BC-PrEP clients who had an incident syphilis case within the specified quarter.
Cautionary Notes: Use and Interpretation	<ul style="list-style-type: none"> • The 30-day window prior to dispensation was supplemented with a 15-day grace period following the dispensation date in order to account for a potential information lag in syphilis testing. • For the syphilis testing indicator, only syphilis serology tests were considered when determining a record of testing. • The algorithm applied to ascertain incident cases of infectious syphilis has been outlined in the Appendix. • Syphilis serology testing is centralized at the British Columbia Centre for Disease Control (BCCDC); It is estimated that $\geq 95\%$ of all test performed in the province are captured via the laboratory linkage. Testing performed on a non-nominal basis is not captured.
Reporting Timeframe	Quarterly

INFECTIOUS SYPHILIS INCIDENCE CASE-FINDING ALGORITHM

1. We extracted the following laboratory tests:

Test Code	Test Name	Sample Type
TPE1	T. pallidum EIA	Blood
RPR2	Rapid Plasma Reagin	Blood
RPR3	Rapid Plasma Reagin Titer	Blood
TPPA	T.pallidum Particle Agglute	Blood
TPPT	Treponema pallidum NAAT or Treponema pallidum PCR	Swab
DFATP	Treponema pallidum DFA	Swab

2. We categorized test results as follows*:

Test Code	Possible Results
TPE1	0 – Negative/non-reactive 1 – Positive/reactive 2 – Borderline/equivocal
TPPA	
RPR2	0 – Negative/non-reactive 1 – Positive/reactive
TPPT	
DFATP	

*except for RPR3, which is a numeric value R, representing a titer ratio 1:R

3. We ordered records chronologically, and tests performed on the same day were grouped as a single visit.

4. We examined any visit with negative swab results and no other test results on the same day; these visits were discarded, as the results aren't informative, and can interfere with the remainder of the algorithm

(as it may lead to false interpretation of cleared infection, see step 9):

- If TPPT = 0 or DFATP = 0 and no TPE1/RPR2/RPR3/TPPA on same day, then discard TPPT/DFATP

5. We created a flag EVER_SYPH representing whether the BC-PrEP client has ever had syphilis at each visit:

- Set EVER_SYPH = 0
- Starting from first visit, until last visit:
 - If TPE1 = 1 or 2, and:
 - RPR2 = 1 and any RPR3 result, or
 - TPPA = 1
 - then EVER_SYPH = 1

- If EVER_SYPH = 1, then EVER_SYPH = 1 for all subsequent visits

Note: We did not consider swab tests for determining the first-ever syphilis infection; we must only consider positive/reactive blood tests.

6. We created a flag SYPH_STATUS representing infectious status of the BC-PrEP client (infectious or non-infectious) at each visit. This flag will be updated for all visits in the next steps (7-10).

7. We set the status to non-infectious for visits where BC-PrEP clients were infection-naïve:

- If EVER_SYPH = 0 then SYPH_STATUS = 0

8. We identified incidence cases INC_SYPH = 1, resulting from first-ever syphilis infections, and set the status to infectious:

- If EVER_SYPH = 1 and previous visit EVER_SYPH = 0 then INC_SYPH = 1 and SYPH_STATUS = 1

9. We set the status to infectious for visits with positive swab results (occurring on or after the first-ever infection):

- If EVER_SYPH = 1 and (TPPT = 1 or DFATP = 1) then SYPH_STATUS = 1

10. We identified the status for remaining visits:

- First visit required SYPH_STATUS set, if SYPH_STATUS is not already set:
 - If RPR₃ < 1:4 then SYPH_STATUS = 0
 - If RPR₃ ≥ 1:4 then SYPH_STATUS = 1
- For remaining visits:
 - If at previous visit SYPH_STATUS = 0:
 - Set SYPH_STATUS = 0 for subsequent visits until you reach a visit with:
 - a 4-fold increase of RPR₃, with RPR₃ ≥ 1:4, or
 - TPPT = 1 or DFATP = 1
 - then set SYPH_STATUS = 1
 - If at previous visit SYPH_STATUS = 1:
 - Set SYPH_STATUS = 1 for subsequent visits until you reach a visit with:
 - a 4-fold decrease of RPR₃, or
 - RPR₃ < 1:4
 - then set SYPH_STATUS = 0

Note: Although positive swab results are sufficient for a SYPH_STATUS switch from non-infectious to infectious, negative swab results alone are insufficient for a SYPH_STATUS switch from infectious to non-infectious.

11. We identified incidence cases INC_SYPH = 1 as a result changed status from non-infectious to infectious:

- If SYPH_STATUS = 1 and previous visit SYPH_STATUS = 0, then INC_SYPH = 1

INDICATOR 13. HIV TESTING

Rationale	In accordance with the BC-CfE PrEP guidelines [2], clients must undergo HIV testing to ascertain negative status prior to initiating PrEP. It is also recommended that PrEP prescriptions be renewed only after repeat HIV testing confirms that the BC-PrEP client remains HIV-negative.
Description of Measure	<p>This indicator describes two important aspects of HIV testing in the context of PrEP use among active BC-PrEP clients:</p> <ul style="list-style-type: none"> c. Days between the most recent negative HIV test and the date of the first dispensed PrEP prescription. d. Whether an HIV test occurred within a 30-day window prior to a dispensed PrEP prescription, while allowing for a 15-day grace period following the dispensation date.
Definition/ Calculation	<p>HIV testing data among active BC-PrEP clients were ascertained via data from the laboratory linkage. Active refers to clients who have not discontinued the program or were not lost to follow-up as previously defined. The reporting calendar quarter was based on the date of HIV testing. The date utilized for the dispensed PrEP prescription was the date in which the PrEP prescription was picked up by the corresponding client if known, otherwise defaults to the date of prescription fill.</p> <p>Measurement</p> <ul style="list-style-type: none"> a. Days between the most recent negative HIV test and the date of the first dispensed PrEP prescription Displayed as a count in days (median, 25th percentile and 75th percentiles). Calculation: Among active BC-PrEP clients, we subtracted the date of the most recent negative HIV test (i.e., negative antigen/antibody [Ag/Ab] test result or negative HIV nucleic acid amplification [NAAT]) from the date of the first dispensed PrEP prescription. b. HIV testing surrounding a dispensed PrEP prescription Displayed as a count and percentage (count only shown in the corresponding table) Numerator: Among active BC-PrEP clients, the number of dispensed PrEP prescriptions (including initial prescriptions and refills) in which a record of HIV testing was present within a 30-day window prior to dispensation, while allowing for a 15-day grace period following the dispensation date, within the specified quarter. <ul style="list-style-type: none"> • Record of Test • No Record of Test Denominator: Total number of dispensed PrEP prescriptions among active BC-PrEP clients within the specified quarter.
Cautionary Notes: Use and Interpretation	<ul style="list-style-type: none"> • The 30-day window prior to dispensation was supplemented with a 15-day grace period following the dispensation date in order to account for a potential information lag. • Point-of-care testing results do not qualify as confirmed negative HIV serology. • HIV serology testing is mainly centralized at the BCCDC; It is estimated that $\geq 95\%$ of all HIV tests performed in the province are captured via the laboratory linkage. • Screening testing performed on a non-nominal basis is not captured, additionally, the capture of screening tests from Vancouver Island Health Authority was incomplete. • Given that we only have the sample collection date available to calculate the number days between the most recent negative HIV test and the date of the first dispensed PrEP prescription, this calculation includes the time required for the test to be processed and results to get back to the provider.
Reporting Timeframe	Quarterly

INDICATOR 14. ADVERSE DRUG REACTION EVENTS

Rationale	The demonstrated effectiveness of PrEP in preventing HIV transmission among high risk individuals has led to scale-up of PrEP coverage in BC. In this context, safety concerns in the form adverse drug reactions (ADR) must be at the forefront of PrEP clinical care and monitoring.
Description of Measure	This indicator describes patterns of ADR events among active BC-PrEP clients by calendar quarter.
Definition/ Calculation	<p>An “adverse drug reaction” includes side effects or medication intolerance possibly associated with PrEP medication, as reported by a healthcare provider or the BC-PrEP client.</p> <p>Counts of ADR events among active BC-PrEP program clients were extracted from the BC-CfE Pharmacovigilance Initiative database. This patient safety monitoring program receives ADR reports from the following data sources:</p> <ul style="list-style-type: none"> ● PrEP Prescription Refill form ● PrEP Late Refill Notification form ● ADR reports submitted directly by healthcare providers or PrEP clients <p>Active refers to clients who have not discontinued the program or were not lost to follow-up, as previously defined.</p> <p><u>Measurement</u></p> <p>Displayed as a count. The number of reported ADR events among active BC-PrEP program within the specified quarter. These counts exclude duplicate reports of the same event, or ADRs classified as being unlikely to be associated with PrEP medication (based on Pharmacovigilance causality classification criteria). ADR counts in the reporting calendar quarter are based on the date of the reported ADR event.</p>
Cautionary Notes: Use and Interpretation	<ul style="list-style-type: none"> ● This indicator was lagged by 6 months, given that much of this data is derived from the PrEP Late Refill Notification form, which is sent after a 3-5-month lapse after the expected PrEP refill date. ADR reports are also evaluated by a Pharmacovigilance clinical reviewer prior to inclusion in the PrEP report. ● Reports of ADRs are voluntarily submitted by health care providers, patients, and caregivers, and may underestimate actual incidence. ● Due to the time delay in receiving some ADR reports, some PrEP participants may have already discontinued PrEP by the time the report was received. ● Reported ADR events do not necessarily result in BC-PrEP program discontinuation for the clients affected. ● More detailed PrEP adverse drug reactions information is available in the BC-CfE Pharmacovigilance Annual Report.
Reporting Timeframe	Quarterly

REFERENCES

1. Hull, M. and D. Tan, Setting the stage for expanding HIV pre-exposure prophylaxis use in Canada. *Can Commun Dis Rep*, 2017. 43(12): p. 272-278.
2. British Columbia Centre for Excellence in HIV/AIDS. Guidance For The Use of Pre-Exposure Prophylaxis (PrEP) For The Prevention of HIV Acquisition in British Columbia. 2019 August 2019 04 October 2019]; Available from: http://www.bccfe.ca/sites/default/files/uploads/publications/centredocs/prep_guidelines_17-jun-2020.pdf.
3. Prevention, C.f.D.C.a., Framework for program evaluation in public health. 1999. p. 1-40.
4. Lourenco, L., et al., Process monitoring of an HIV treatment as prevention program in British Columbia, Canada. *J Acquir Immune Defic Syndr*, 2014. 67(3): p. e94-e109.
5. Organization, W.H., WHO Implementation Tool for Pre-exposure Prophylaxis (PrEP) of HIV Infection: Module 5: Monitoring and evaluatio. 2018: Geneva.
6. Schedule, O.P.T.I.o., OPTIONS Review and Documentation of M&E Indicators for Oral PrEP. 2016.
7. Page, K., et al., Biomedical HIV Prevention Including Pre-exposure Prophylaxis and Opiate Agonist Therapy for Women Who Inject Drugs: State of Research and Future Directions. *J Acquir Immune Defic Syndr*, 2015. 69 Suppl 2: p. S169-75.
8. Grant, R.M., et al., Transgender Women in Clinical Trials of Pre-Exposure Prophylaxis. *J Acquir Immune Defic Syndr*, 2016. 72 Suppl 3: p. S226-9.
9. Smith, D.K., et al., Development of a clinical screening index predictive of incident HIV infection among men who have sex with men in the United States. *J Acquir Immune Defic Syndr*, 2012. 60(4): p. 421-7.