BC HARM REDUCTION STRATEGIES AND SERVICES (HRSS) COMMITTEE

POLICY INDICATORS REPORT

DATA TO DECEMBER 31ST 2016

AUGUST 2017

PREPARED FOR THE HRSS COMMITTEE BY
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EXECUTIVE SUMMARY

Harm reduction is an approach to practice, policy-making, and programming that aims to minimize adverse health, social, and economic consequences associated with drug use. Harm reduction is important in informing strategies and services related to substance use and sexual health. Harm reduction measures related to injection drug use have been particularly pertinent in British Columbia (BC) recently, given the increasing rates of overdose and overdose deaths.

The goals of the BC Harm Reduction Strategies and Services Committee are to: (1) reduce incidence of drug-related health and social harms, including transmission of bloodborne pathogens; (2) promote and facilitate referral to primary health care, addiction and/or mental health services and social services; (3) reduce barriers to health and social services and raise public awareness of harm reduction principles, policies, and programs; and (4) ensure full and equitable reach of harm reduction programs to all British Columbians who use drugs, providing education to inform decision-making.

People who inject drugs are at risk for bloodborne illnesses, including hepatitis C (HCV) and HIV. Rates of HCV are lower than they were a decade ago and appear stable in the past few years despite more people being tested for HCV each year. Rates of HIV diagnoses in BC have decreased, and this decrease has been particularly drastic for people who inject drugs, with only 16 new diagnoses in 2016.

Access to opioid substitution treatment (OST), now called opioid agonist treatment, in BC has been increasing. The number of patients starting OST and the overall number on OST has been growing, with over 19,000 people on OST in 2015/2016, as have the numbers of physicians prescribing and pharmacists dispensing OST. However, OST retention rates seem to be decreasing. Overall, the number of harm reduction supplies distributed in BC each year has been increasing. This is particularly true for supplies related to injection drug use with approximately 15 million needles distributed in 2016. This increase is seen across all regional health authorities in BC. The number of condoms distributed has been stable.

The Take Home Naloxone program in BC distributes naloxone, which can reverse the effects of an opioid overdose, to people at risk of either having or witnessing an overdose. The program has grown drastically since its inception, corresponding with the opioid overdose emergency. Over 22,450 kits were distributed in 2016. Naloxone is also distributed to community sites through the Facility Overdose Response Box program. Overdose prevention sites are another measure that has been introduced in response to the opioid overdose emergency, providing spaces in which people who use drugs can be monitored in case of an overdose.

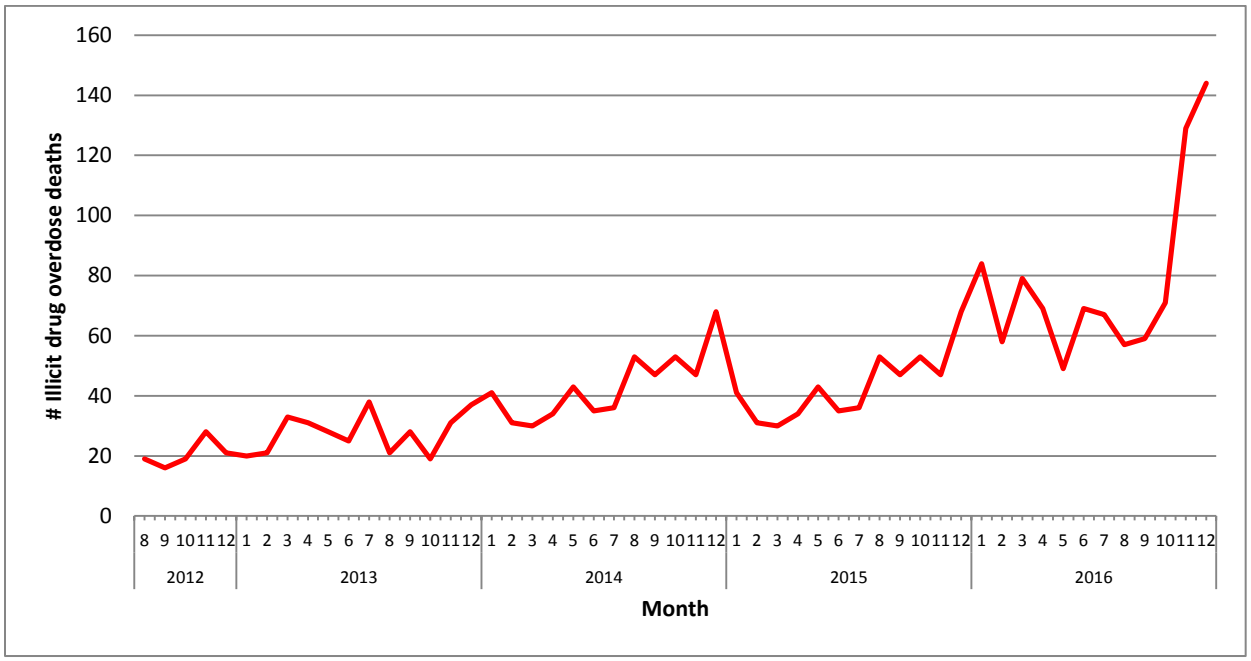
The aim of this report is to review the goals of the BC harm reduction guidelines and assess how these are being reached provincially using indicators available at BC Centre for Disease Control and those which are publicly available. The BC Harm Reduction Strategies and Services Committee is committed to improving access to harm reduction initiatives throughout the provinces and continues to work with partners towards this goal.

INTRODUCTION

Harm reduction is an approach to practice, policy-making, and programming that aims to minimize adverse health, social, and economic consequences associated with drug use. The approach recognizes that people engage in behaviours despite the potential for harm, and so rather than focusing on abstinence-based measures, the goal of harm reduction is to broaden the platform of engagement and to keep people as safe as possible. A harm reduction-based approach is evidence-based and non-judgemental, promoting informed decision-making and respecting individual autonomy.

Harm reduction is important in informing strategies and services related to substance use and sexual health. Harm reduction initiatives related to substance use are especially pertinent in British Columbia (BC) in recent years. The rate of overdoses and overdose deaths in BC has been increasing since 2012; since November 2016, rates of illicit drug overdose deaths have exceeded 100 deaths per month (Figure 1). In 2016, there were 967 deaths confirmed to be due to illicit drug overdose.[1]

Figure 1. Illicit Drug Overdose Deaths in BC by Month (Aug 2012 – Dec 2016)[1]



The overdose epidemic was declared a public health emergency in April 2016. Harm reduction initiatives have been a key aspect of the provincial response to the crisis. More information about the public health overdose emergency in BC is available at http://www.bccdc.ca/health-professionals/clinical-resources/harm-reduction/overdose-data-reports.

[1] BC Coroners Service. (2017). *Illicit drug overdose deaths in BC: January 1, 2007 – May 31, 2017.* Available from: http://www2.gov.bc.ca/assets/gov/public-safety-and-emergency-services/death-investigation/statistical/illicit-drug.pdf, accessed July 19, 2017.

THE BC HRSS COMMITTEE

The BC Harm Reduction Strategies and Services (HRSS) Committee guides the Provincial Harm Reduction Supplies Program, making recommendations with respect to best practices and supply distribution. The HRSS Committee reports to the BC Communicable Disease Policy Advisory Committee and develops provincial guidelines disseminated by the BCCDC. It also facilitates community capacity building by supporting harm reduction education across the province.

The HRSS Committee is comprised of representatives from:

- The BC Centre for Disease Control (an agency of the Provincial Health Services Authority)
- The BC regional health authorities (Fraser, Interior, Island, Northern, and Vancouver Coastal)
- First Nations Health Authority
- The Health Officer's Council of BC, and
- The BC Ministry of Health

The HRSS Committee is committed to meaningful and active engagement of peers (people with lived experience of drug use) in decision-making with respect to developing and delivering harm reduction interventions related to substance use. The vision of the HRSS Committee is to ensure British Columbians have access to evidence-based harm reduction strategies and services. Its four main goals are as follows:

Table 1. Goals of the HRSS Committee

1.	To reduce incidence of drug-related health and social harms, including transmission of bloodborne pathogens
2.	To promote and facilitate referral to primary health care, addiction and/or mental health services, and social services
3.	To reduce barriers to health and social services, including activities to reduce stigma and discrimination and raise public awareness of harm reduction principles, policies, and programs among those in the health systems, municipalities, and the general public
4.	To ensure full and equitable reach of harm reduction programs to all vulnerable British Columbians who use drugs, to provide education about health promotion and illness prevention to inform decision making

Further information about the HRSS Committee is available in the HRSS policy document.[2]

[2] BC Centre for Disease Control. (2011). *BC Harm Reduction Strategies and Services policy.* Available from: http://www.bccdc.ca/resource-gallery/Documents/Communicable-Disease-Manual/BCHRSSPolicyFinalMay2011.pdf

INCIDENCE OF DRUG-RELATED HARMS

Sharing of injection drug use equipment (such as needles, cookers, or water) can result in the acquisition or transmission of bloodborne pathogens, including hepatitis C virus (HCV) and human immunodeficiency virus (HIV). Thus, people who inject drugs are disproportionately affected by HCV and HIV.

HEPATITIS C (HCV)

Hepatitis C (HCV), a liver disease caused by the hepatitis C virus, is primarily transmitted through parenteral exposure to HCV-infected blood. The vast majority of newly acquired HCV is due to sharing injection equipment. HCV may be acute (transition from a negative to positive test result within 12 months) or chronic infection at diagnosis. The majority, about 75%, of HCV infections become chronic; chronic infection may lead to cirrhosis and end-stage liver disease.

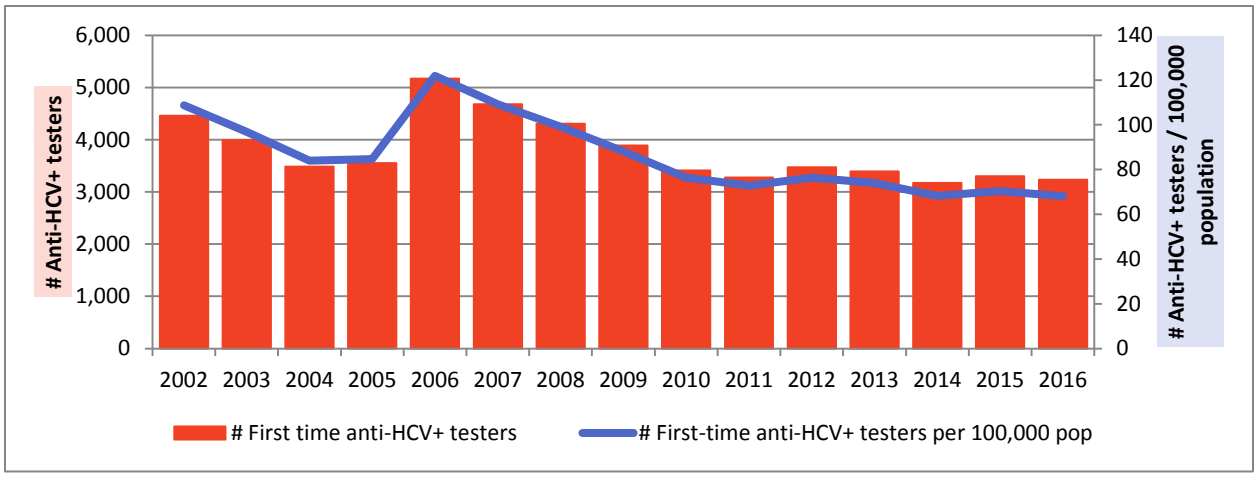
HCV infections are identified through laboratory testing of individuals with past or current risk factors for HCV (including injection drug use), to investigate symptoms of liver disease, or as a component of medical insurance testing. HCV cases are determined through anti-HCV testing, which detects the presence of antibodies to HCV.

The absolute number of new people in BC reported to have tested positive for HCV each year appears to be fairly consistent since 2010 (Figure 2). In 2016, there were 3,236 people in BC reported to have tested positive for HCV for the first time. The rate of people reported testing positive for HCV per 100,000 people in the population, which accounts for population growth in BC, has leveled out in recent years, though suggests a slight decline (Figure 2). In 2016, there were 68 people reported to have tested positive for HCV for the first time for every 100,000 people in BC.

The flattening of the decline of new positive HCV cases may be due to increased testing for HCV. This increase in HCV testing is likely due in part to the US Centre for Disease Control and Prevention's recommendation for "baby boomers" to be tested, the BC Generation hepatitis program, and awareness of the availability of new and effective HCV treatment regimens.[3] This increase in testing can result in more cases being identified and reported.

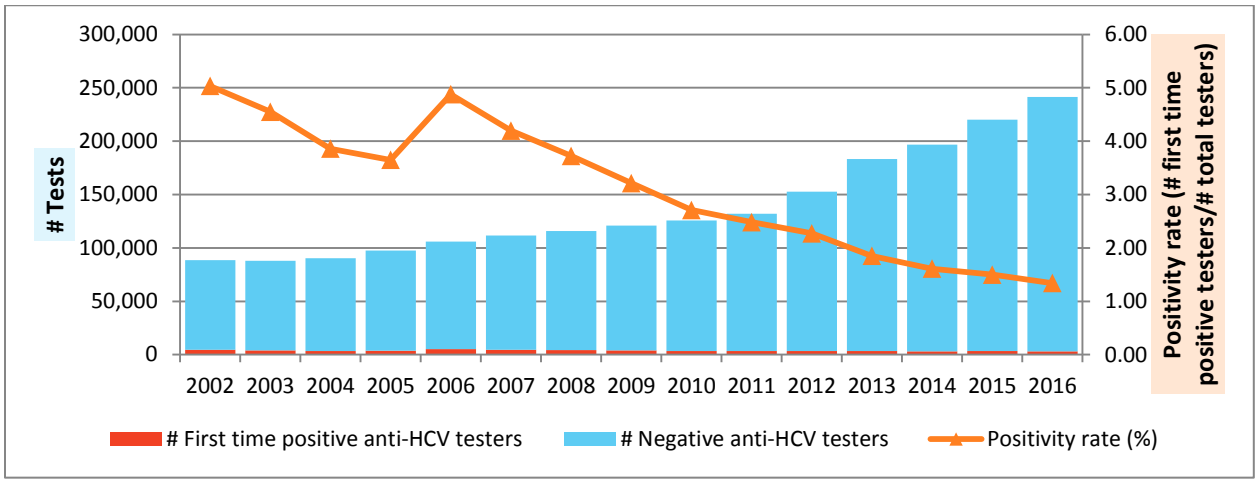
[3] BC Centre for Disease Control. (2015). Hepatitis C. Available from: http://www.bccdc.ca/resource-gallery/Documents/Statistics%20and%20Research/Statistics%20and%20Reports/Epid/Annual%20Reports/Hepatitis%20C.pdf

Figure 2. Number and Population Rate of New HCV Cases in BC[4]



While more people are being tested for HCV, of people who are tested, since 2006 the proportion of those who test positive for the first time has been declining (Figure 3). The positivity rate in 2016 was 1.3%, compared with 5.0% in 2002. Note that this trend may be confounded by differences in the populations being tested.

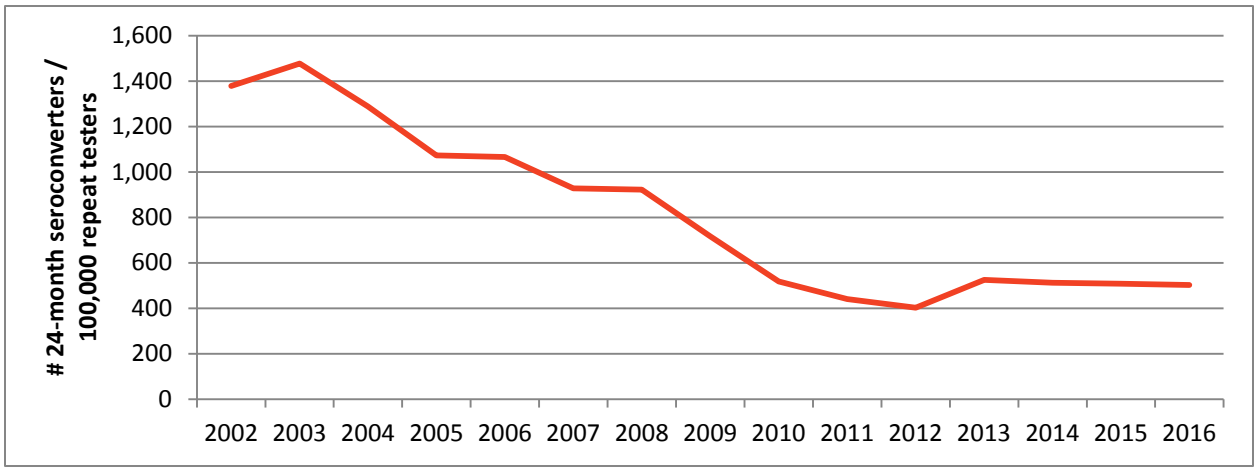
Figure 3. HCV Tests and Positivity Rate in BC[4]



The 24-month seroconversion rate is the proportion of people who, when tested again within two years, tested positive for HCV, out of those who had previously been negative. The seroconversion rate has decreased since the early 2000s (Figure 4), though appears to have stabilized in the past few years.

[4] BC Centre for Disease Control Public Health Laboratory. (9 May 2017).

Figure 4. 24-month HCV Seroconversion Rate per 100,000 Repeat Testers in BC[4]



The number of first time positive anti-HCV testers, number of negative anti-HCV testers, anti-HCV test positivity rate, and 24-month seroconversion rate each year in BC is summarized in Table 2.

Table 2. HCV Tests, Positivity Rate, and Seroconversion Rate in BC by Year[4]

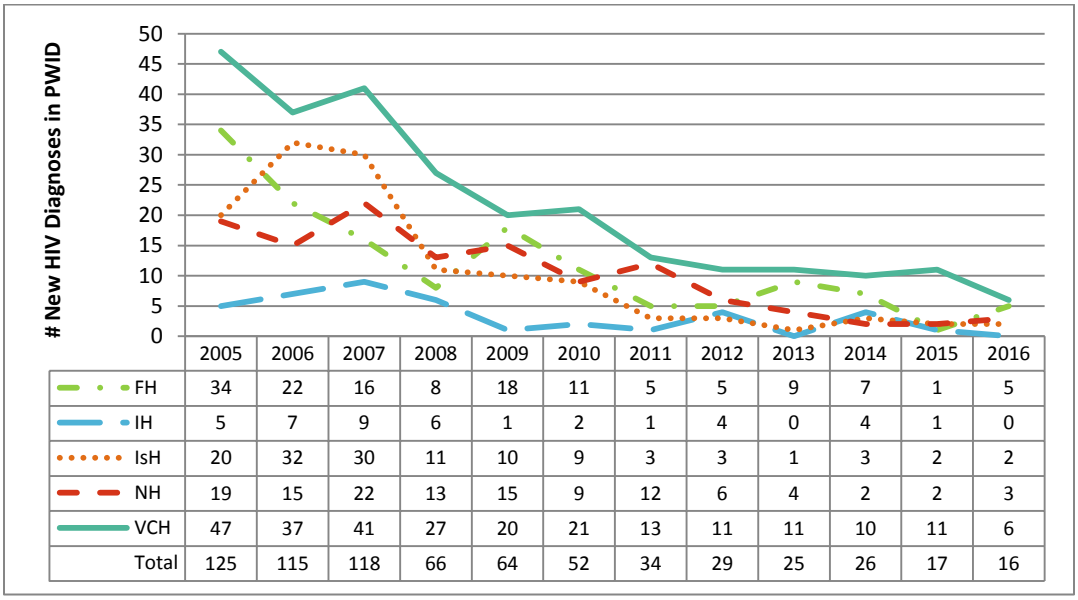
Year	# First time positive anti-HCV testers	# Negative anti-HCV testers	Positivity rate (%)	24-month seroconversion rate per 100,000 repeat testers
2002	4,460	84,125	5.03	1,379
2003	3,996	83,822	4.55	1,476
2004	3,486	86,824	3.86	1,288
2005	3,554	93,858	3.65	1,073
2006	5,168	100,748	4.88	1,065
2007	4,681	106,838	4.20	928
2008	4,309	111,407	3.72	922
2009	3,889	117,061	3.22	717
2010	3,410	122,378	2.71	518
2011	3,277	128,720	2.48	441
2012	3,470	149,131	2.27	402
2013	3,392	179,921	1.85	525
2014	3,170	193,547	1.61	512
2015	3,302	216,895	1.50	508
2016	3,236	238,211	1.34	503

HUMAN IMMUNODEFICIENCY VIRUS (HIV)

HIV is a virus that attacks the immune system, spread through contact with infected blood, semen, or vaginal fluids. There is no cure for HIV, though treatment is available. Without treatment, HIV can progress to Acquired Immunodeficiency Syndrome (AIDS).

In all Health Authorities, the number of new HIV diagnoses in people who inject drugs has been decreasing (Figure 5). In 2016, there were only 16 new diagnoses of HIV in people who inject drugs in BC, compared with 125 in 2005.

Figure 5. New HIV Diagnoses in People Who Inject Drugs in BC by Health Authority[5]

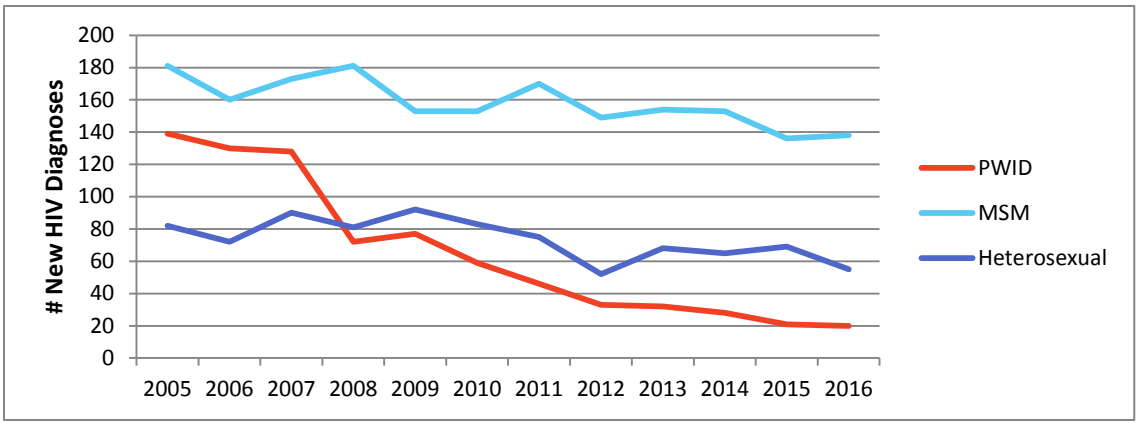


	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
FH	34	22	16	8	18	11	5	5	9	7	1	5
IH	5	7	9	6	1	2	1	4	0	4	1	0
IsH	20	32	30	11	10	9	3	3	1	3	2	2
NH	19	15	22	13	15	9	12	6	4	2	2	3
VCH	47	37	41	27	20	21	13	11	11	10	11	6
Total	125	115	118	66	64	52	34	29	25	26	17	16

Figure 6 shows the number of new HIV diagnoses each year for people who inject drugs, men who have sex with men, and people who have acquired HIV through heterosexual contact. (Note that men who have sex with men who also use drugs are counted in both respective groups). While the number of new HIV diagnoses have also dropped in men who have sex with men and in people who acquire HIV through heterosexual contact, the decrease has been greater for people who inject drugs. Although the number of new HIV diagnoses were initially much higher for people who inject drugs than for people who acquire HIV through heterosexual contact, since 2008, the reverse has been seen. In 2016, the number of new HIV diagnoses in people who inject drugs was less than a third that of the number of people who acquired HIV through heterosexual contact.

[5] BC Centre for Disease Control. (13 June 2017). *Please note that 2016 counts have not been finalized and thus may change.*

Figure 6. New HIV Diagnoses in BC per Year by Exposure Group[5]



New HIV diagnoses in people who inject drugs are broken down by age group in Figure 7 and by gender in Figure 8. Previously, among people who inject drugs, those identifying as male were more likely to be diagnosed with HIV compared with those identifying as female. This gap has been narrowing over time, with diagnoses in both groups declining. In 2016, the numbers of new HIV diagnoses were even between people identifying as male and people identifying as female.

Figure 7. New HIV Diagnoses in People Who Inject Drugs in BC by Age Group[5]

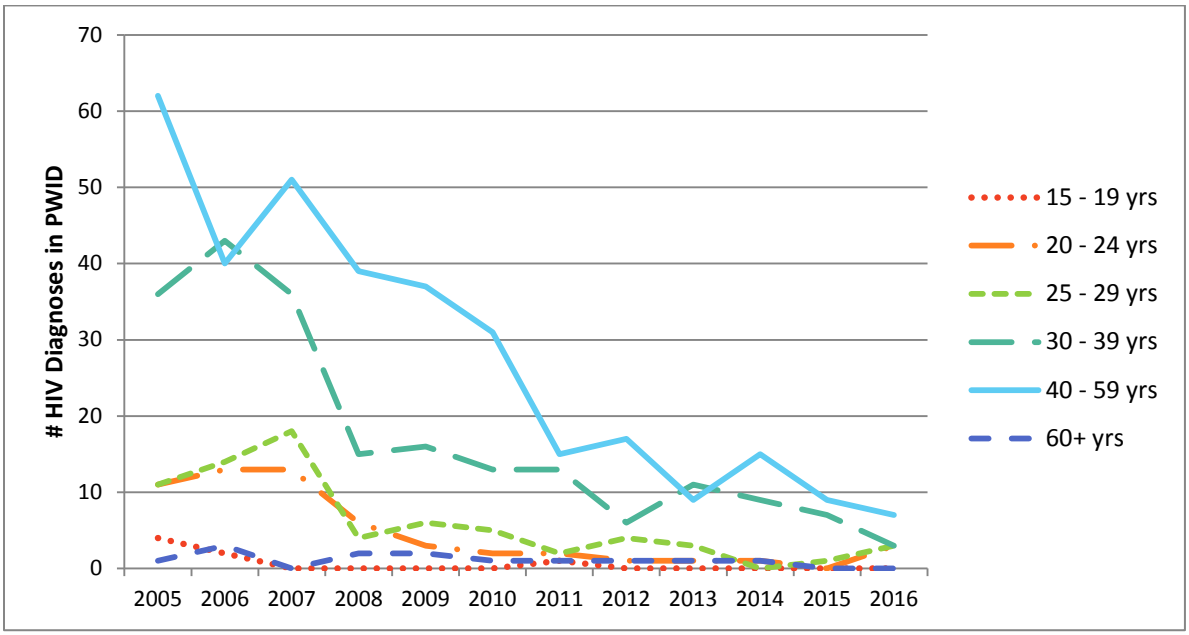
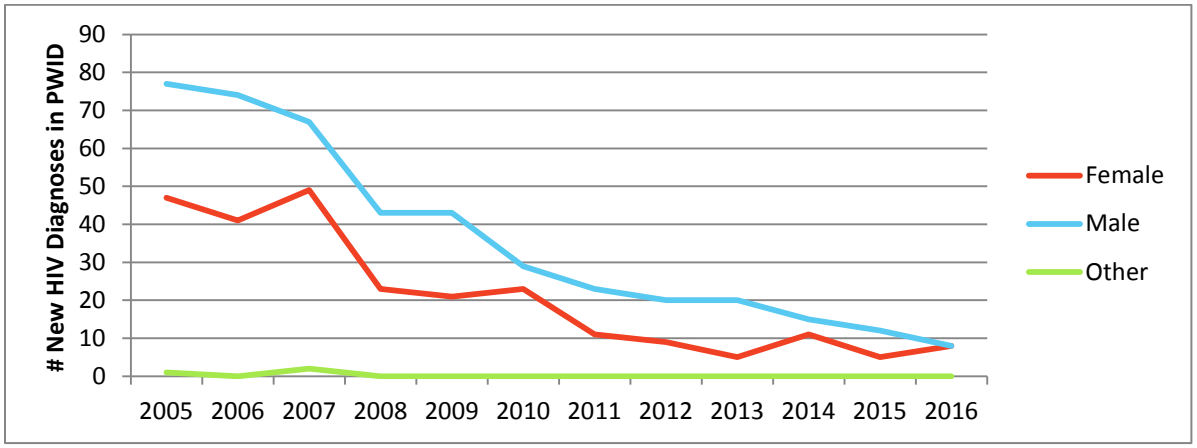


Figure 8. New HIV Diagnoses in People Who Inject Drugs in BC per Year by Gender[5]



OPIOID SUBSTITUTION TREATMENT SYSTEM PERFORMANCE MEASURES[6]

Opioid substitution treatment (OST), also referred to as opioid agonist treatment, is an effective, evidence-based intervention for opioid use disorder. Access to OST has been an integral part of the provincial response to the opioid overdose crisis.

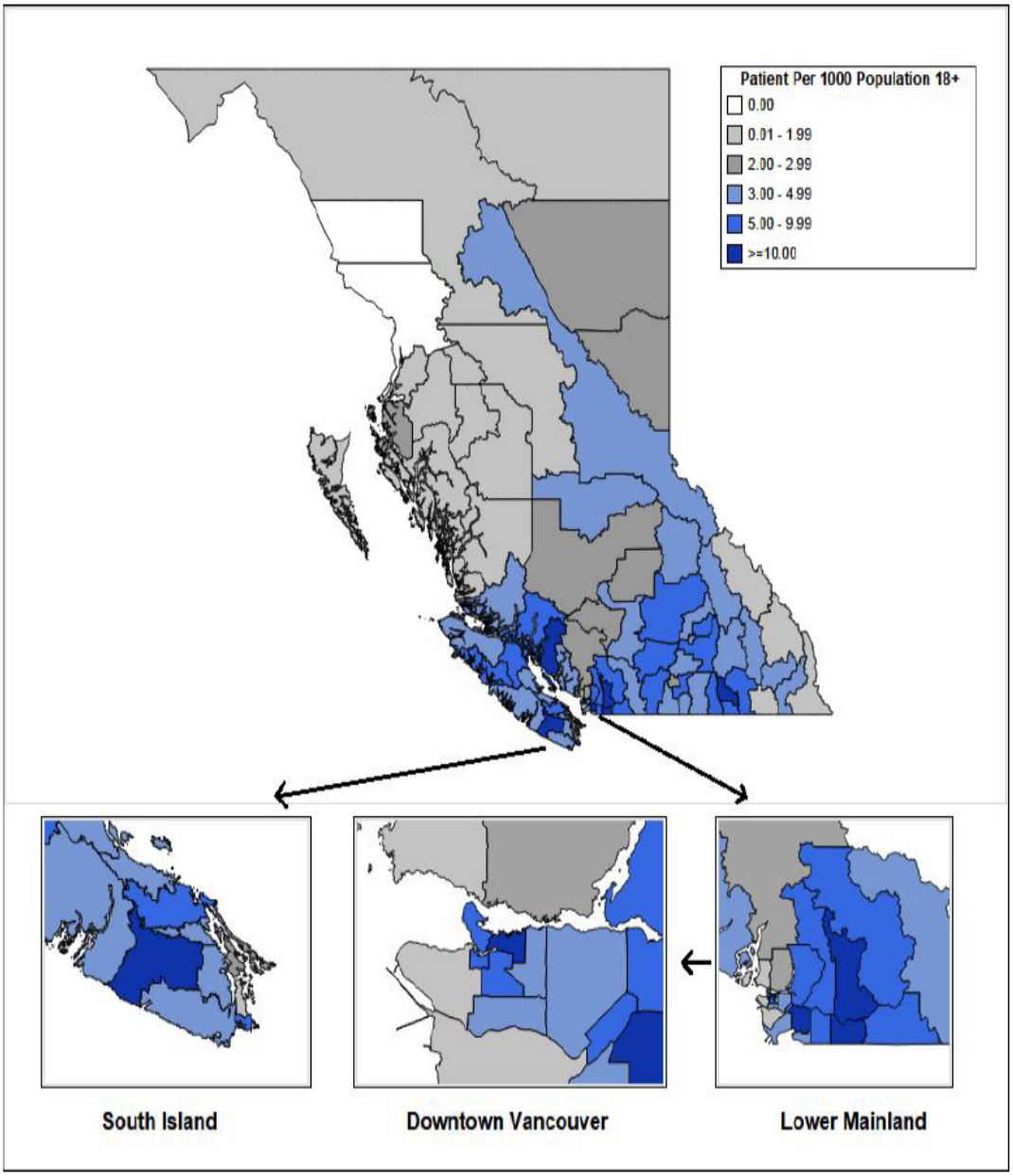
OST includes the use of methadone and Suboxone® or its generic versions for maintenance treatment. Suboxone® is a combination of buprenorphine, a long acting partial agonist with naloxone that is taken under the tongue. In 2016, the College of Physicians and Surgeons of BC announced new recommendations regarding Suboxone® to improve patient access to OST.[7] Physicians are no longer required to hold an exemption to prescribe methadone for opioid use disorder before being able to prescribe Suboxone®.

The opioid substitution treatment (OST) figures and interpretations within the following section are based on the performance measures report by the Office of the Provincial Health Officer.[6] In general, urban areas tend to have higher rates of OST, though there are some smaller population areas—such as Powell River, Lake Cowichan, and Castlegar—with high rates (Figure 9).

[6] Office of the Provincial Health Officer (2017). *BC opioid substitution treatment system: Performance measures 2014/2015 – 2015/2016.* Available from: http://www2.gov.bc.ca/assets/gov/health/about-bc-s-health-care-system/office-of-the-provincial-health-officer/reports-publications/special-reports/bc-ost-system-measures-14-15-and-15-16.pdf

[7] College of Physicians and Surgeons of BC. (4 July 2016). Important notice regarding Suboxone. Available from: https://www.cpsbc.ca/important-notice-regarding-suboxone%C2%AE

Figure 9. Opioid Substitution Treatment Patients by Local Health Authority, 2015/2016

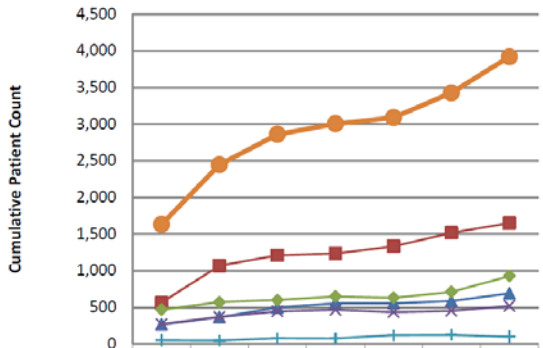


In February 2014, methadone maintenance treatment formulation transitioned from the orange flavoured pharmacist compounded formulation to Methadose™ an oral liquid which was 10 times more concentrated by volume and dispensed undiluted. People reported a worse taste which was positively associated with feeling more dope sick and worsening pain. Feeling more dope sick was positively associated with dose increase and supplementing opioids.[8]

[8] Greer A, Hu S, Amlani A, Moreheart S, Sampson O, Buxton JA, Patient perspectives of methadone formulation change in British Columbia, Canada: outcomes of a provincial survey. *SATPP* (2016) 11:3 http://substanceabusepolicy.biomedcentral.com/articles/10.1186/s13011-016-0048-3

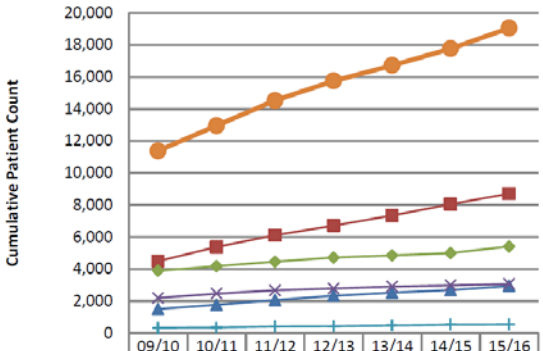
BC's OST program continues to expand. The number of new patients beginning OST for the first time has been increasing, with 3,918 new patients in 2015/2016 (Figure 10). There was a 7% increase in the number of total OST patients in 2015/2016 from 2014/2015, a 67% from 2009/2010 (Figure 11). While rates have increased for all health authorities, Interior Health has had the largest percentage increase in OST patients—approximately 95% since 2009/2010. The number of physicians prescribing OST in BC has increased over the years, as has the number of pharmacists dispensing OST (Figure 13).

Figure 10. New Opioid Substitution Treatment Patients by Health Authority by Fiscal Year



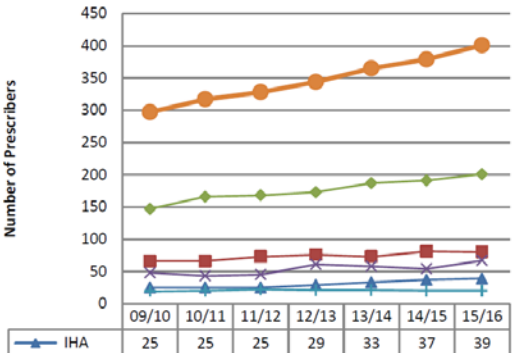
	09/10	10/11	11/12	12/13	13/14	14/15	15/16
IHA	264	365	497	554	554	584	690
FHA	563	1,067	1,208	1,235	1,331	1,516	1,648
VCHA	467	570	599	648	629	710	926
IslHA	269	367	445	464	434	453	517
NHA	51	44	78	76	117	122	98
BC Total	1,628	2,446	2,860	3,005	3,087	3,426	3,918

Figure 11. Opioid Substitution Treatment Patients by Health Authority by Fiscal Year



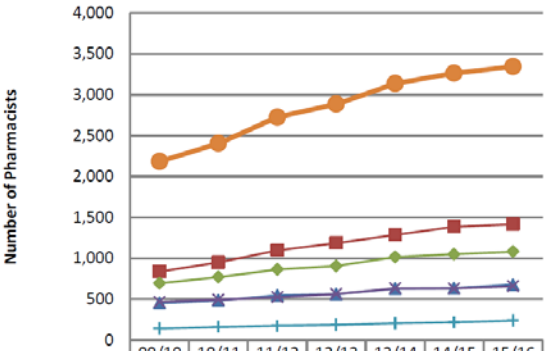
	09/10	10/11	11/12	12/13	13/14	14/15	15/16
IHA	1,511	1,772	2,066	2,338	2,524	2,688	2,947
FHA	4,493	5,380	6,118	6,715	7,347	8,049	8,706
VCHA	3,898	4,185	4,464	4,721	4,852	5,005	5,412
IslHA	2,200	2,468	2,674	2,787	2,915	2,991	3,073
NHA	333	347	410	430	482	538	541
BC Total	11,378	12,953	14,530	15,751	16,716	17,765	19,057

Figure 12. Opioid Substitution Treatment Active Prescribers by Health Authority by Fiscal Year



	09/10	10/11	11/12	12/13	13/14	14/15	15/16
IHA	25	25	25	29	33	37	39
FHA	66	66	73	76	73	81	80
VCHA	147	166	168	173	187	191	201
IslHA	48	43	45	61	58	54	67
NHA	19	20	22	21	21	20	20
BC Total	297	317	328	344	365	379	401

Figure 13. Opioid Substitution Treatment Pharmacists by Health Authority by Fiscal Year

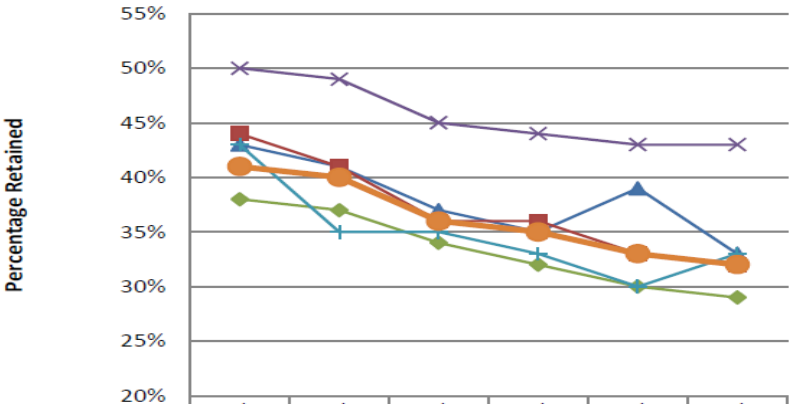


	09/10	10/11	11/12	12/13	13/14	14/15	15/16
IHA	453	486	546	563	631	636	679
FHA	838	950	1,098	1,188	1,287	1,385	1,419
VCHA	697	772	864	906	1,017	1,051	1,083
IslHA	467	496	525	564	634	633	660
NHA	143	163	178	189	207	220	241
BC Total	2,184	2,404	2,726	2,886	3,136	3,263	3,343

The length of time a patient spends in OST is an indicator of treatment effectiveness. People who stay longer in OST tend to have better long-term health outcomes. Approximately one-third of new

patients are still in methadone maintenance treatment after 12 months (Figure 14). Possible reasons for these low retention rates in BC include: a) people who receive methadone maintenance treatment care in hospitals or jails may count as different treatment episodes in the community upon release, and b) transitioning between methadone and buprenorphine/naloxone will result in different treatment episodes.

Figure 14. Percentage of People Started on Methadone Maintenance Treatment Retained at 12 Months by Health Authority by Fiscal Year



	09/10	10/11	11/12	12/13	13/14	14/15
IHA	43%	41%	37%	35%	39%	33%
FHA	44%	41%	36%	36%	33%	32%
VCHA	38%	37%	34%	32%	30%	29%
IslHA	50%	49%	45%	44%	43%	43%
NHA	43%	35%	35%	33%	30%	33%
BC Total	41%	40%	36%	35%	33%	32%

There does not appear to be an increase in mortality among OST patients corresponding with the increase in number of OST patients. The mortality rate among OST patients is significantly lower than the mortality rate among regular or dependent users of opioids such as heroin or illegally acquired fentanyl, which is estimated to be 2.09 per 100 person-years.[9]

In 2016, the BC Ministry of Health provided resources to a group of patients who, with assistance from Centre for Addictions Research BC, developed a handbook for patients on opioid substitution therapy.[10]

[9] Degenhardt, L., Bucello, C., Mathers, B., Briegleb, C., Ali, H., Hickman, M., & McLaren, J. (2011). Mortality among regular or dependent users of heroin and other opioids: a systematic review and meta-analysis of cohort studies. *Addiction*, *106*(1), 32-51.

[10] Patients helping patients understand opioid substitution treatment. Centre for Addictions Research BC 2017. Available at https://www.uvic.ca/research/centres/carbc/assets/docs/ost-patient.pdf

HARM REDUCTION SUPPLY DISTRIBUTION

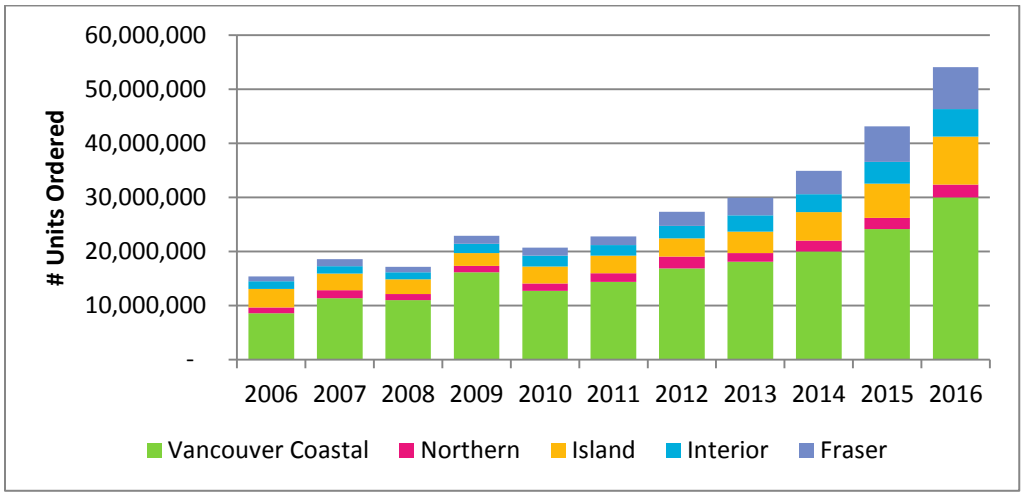
Harm reduction supplies distributed in BC include: needles/syringes, disposable cookers, sterile water vials, ascorbic acid, tourniquets, alcohol swabs, personal sharps containers, screens, push sticks, vinyl tubing, and condoms. Supplies can be ordered by authorized harm reduction distribution sites, which are approved by the appropriate regional health authority.

More information about harm reduction supply distribution in BC is available in the HRSS policy and guidelines document[11] and at http://towardtheheart.com/supplies. Canadian best practice recommendations regarding harm reduction supply distribution are available at http://www.catie.ca/en/programming/best-practices-harm-reduction.

TOTAL SUPPLIES

The number of harm reduction supplies ordered has increased exponentially in BC (Figure 15). In 2016, a total of 54,081,770 units were ordered in the province, which is over triple that of the 15,398,260 units ordered in 2006.

Figure 15. Total Supplies Ordered in BC Each Year by Health Authority



[11] Harm Reduction Strategies and Services. (December 2014). *BC Harm Reduction Strategies and Services policy and guidelines.* Available from: http://www.bccdc.ca/resource-gallery/Documents/Guidelines%20and%20Forms/Guidelines%20and%20Manuals/Epid/Other/BCHRSSPolicyandGuidelinesDecember2014.pdf

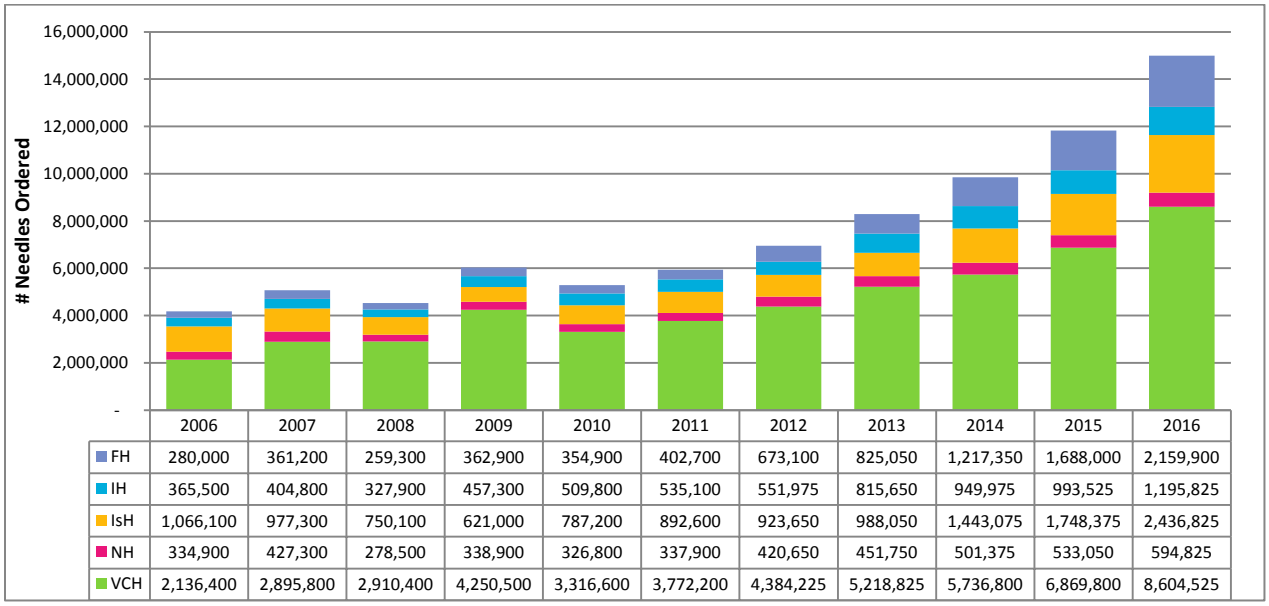
SAFER INJECTION SUPPLIES

STERILE NEEDLES AND SYRINGES

The number of needles ordered each year in BC has been increasing. Needles and syringes are counted by totaling the number of needle/syringe combinations (the majority) and syringes alone ordered. Needles alone are excluded to avoid double counting. In 2016, a total of 14,991,900 needle/syringes were ordered in BC, more than twice the number ordered 5 years previously.

The number of needles ordered each year has been increasing in all regional health authorities (Figure 16). The increase varied between the health authorities. In 2016 Fraser Health ordered more than 5 times the number of needles compared to 2011, while other health authorities the increase was 1.5 to 2.5 times.

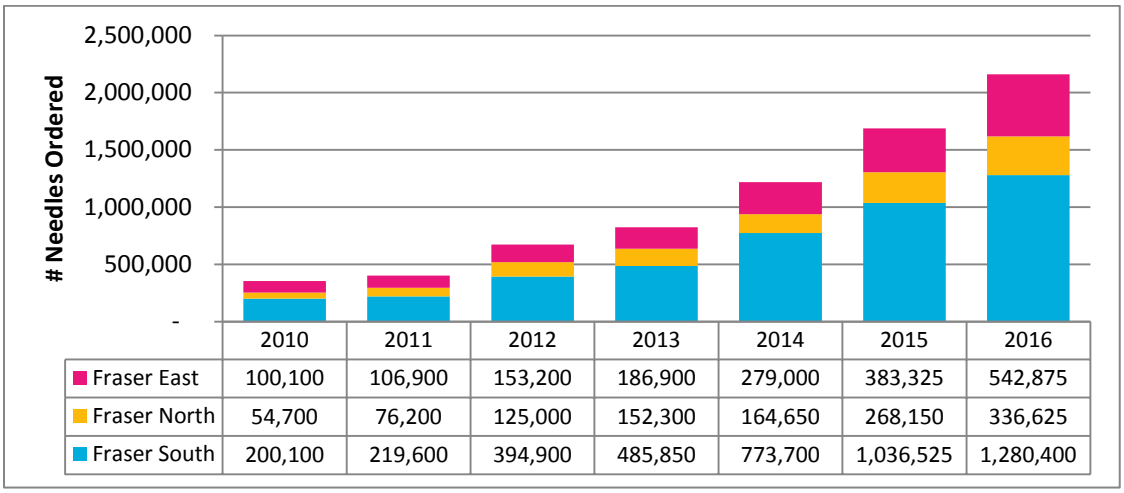
Figure 16. Needle/Syringes Ordered in BC Each Year by Health Authority



	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
FH	280,000	361,200	259,300	362,900	354,900	402,700	673,100	825,050	1,217,350	1,688,000	2,159,900
IH	365,500	404,800	327,900	457,300	509,800	535,100	551,975	815,650	949,975	993,525	1,195,825
IsH	1,066,100	977,300	750,100	621,000	787,200	892,600	923,650	988,050	1,443,075	1,748,375	2,436,825
NH	334,900	427,300	278,500	338,900	326,800	337,900	420,650	451,750	501,375	533,050	594,825
VCH	2,136,400	2,895,800	2,910,400	4,250,500	3,316,600	3,772,200	4,384,225	5,218,825	5,736,800	6,869,800	8,604,525

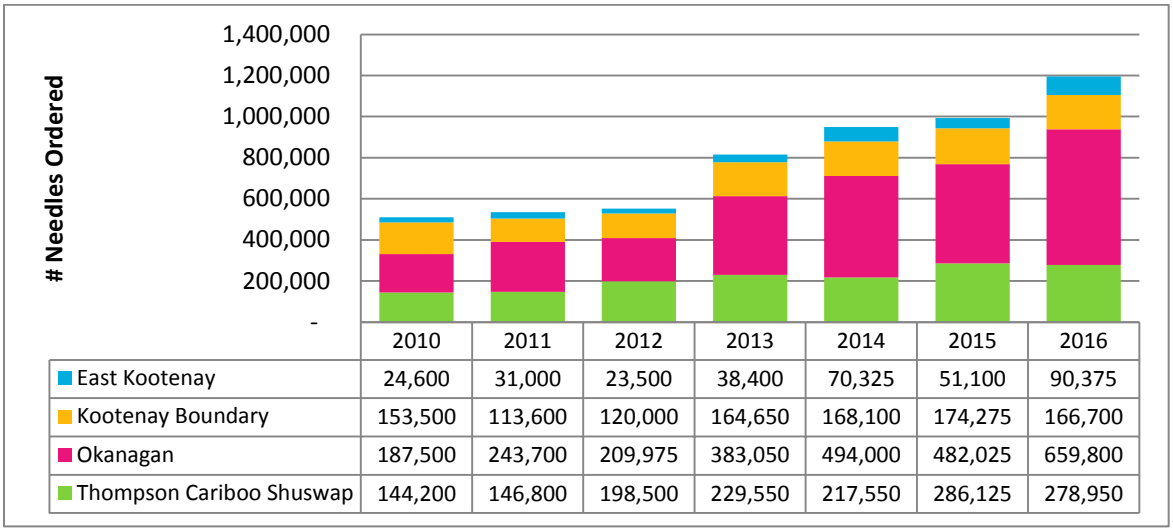
The increase needle/syringes ordered also varied within health authorities. Needles ordered each year between 2010 and 2016 by each health service delivery area are shown in Figure 17 through Figure 21. Please note the Y axis varies between each health authority.

Figure 17. Needle/Syringes Ordered Each Year by Health Service Delivery Area for Fraser Health



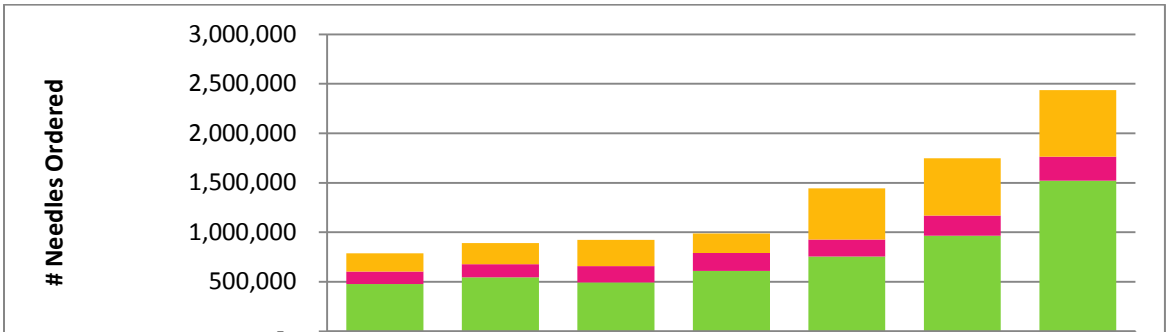
	2010	2011	2012	2013	2014	2015	2016
Fraser East	100,100	106,900	153,200	186,900	279,000	383,325	542,875
Fraser North	54,700	76,200	125,000	152,300	164,650	268,150	336,625
Fraser South	200,100	219,600	394,900	485,850	773,700	1,036,525	1,280,400

Figure 18. Needle/Syringes Ordered Each Year by Health Service Delivery Area for Interior Health



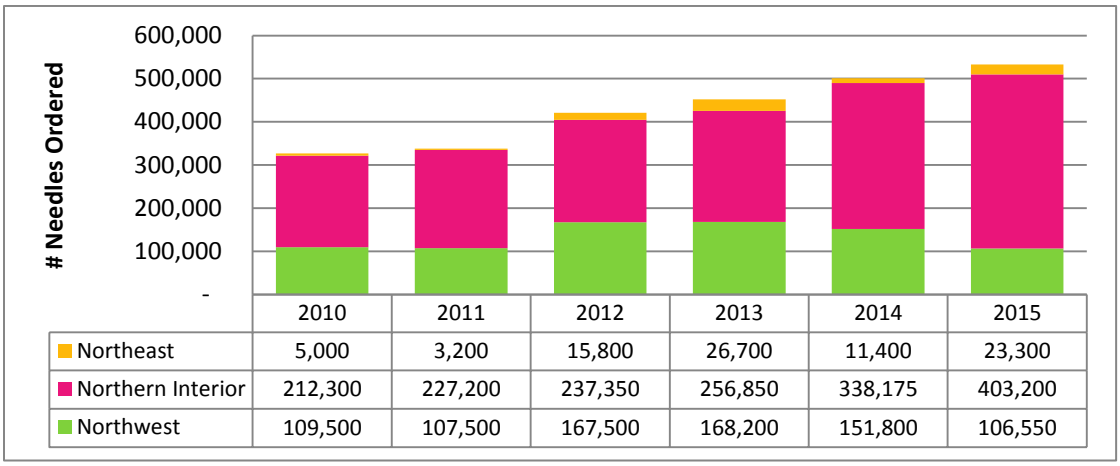
	2010	2011	2012	2013	2014	2015	2016
East Kootenay	24,600	31,000	23,500	38,400	70,325	51,100	90,375
Kootenay Boundary	153,500	113,600	120,000	164,650	168,100	174,275	166,700
Okanagan	187,500	243,700	209,975	383,050	494,000	482,025	659,800
Thompson Cariboo Shuswap	144,200	146,800	198,500	229,550	217,550	286,125	278,950

Figure 19. Needle/Syringes Ordered Each Year by Health Service Delivery Area for Island Health



	2010	2011	2012	2013	2014	2015	2016
Central Vancouver Island	184,500	213,800	264,700	198,000	516,500	577,400	672,525
North Vancouver Island	126,100	133,700	163,425	180,050	171,300	204,500	242,675
South Vancouver Island	476,600	545,100	495,525	610,000	755,275	966,475	1,521,625

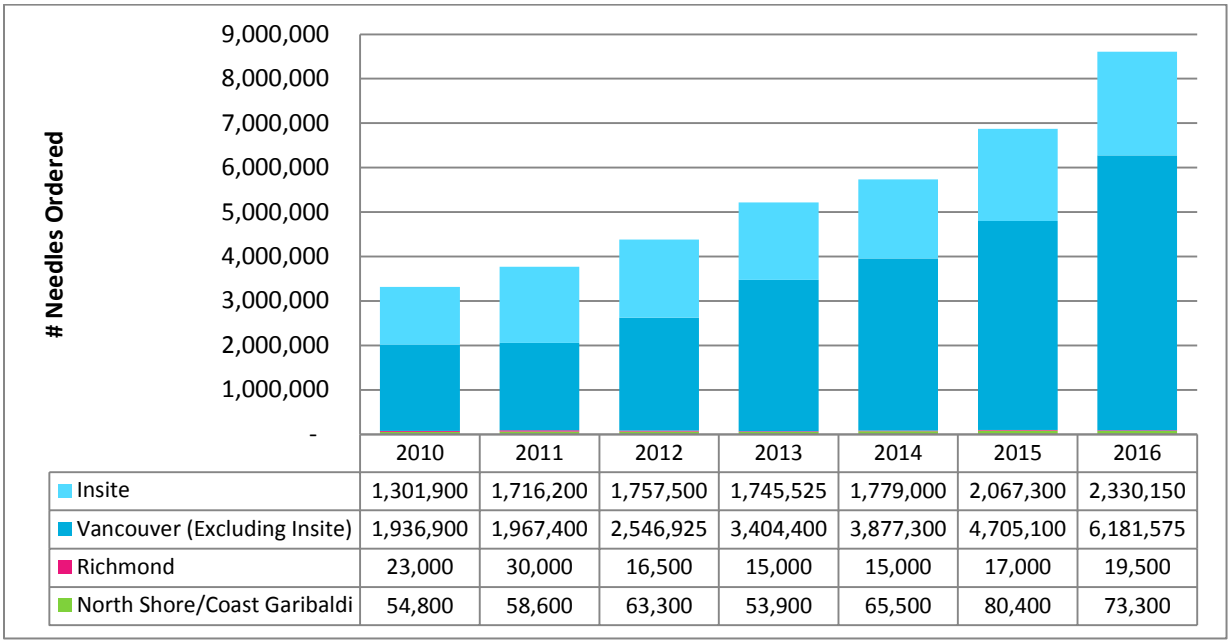
Figure 20. Needle/Syringes Ordered Each Year by Health Service Delivery Area for Northern Health



	2010	2011	2012	2013	2014	2015
Northeast	5,000	3,200	15,800	26,700	11,400	23,300
Northern Interior	212,300	227,200	237,350	256,850	338,175	403,200
Northwest	109,500	107,500	167,500	168,200	151,800	106,550

Insite, the supervised injection site in the Downtown Eastside of Vancouver, also distributes harm reduction supplies. While Insite continues to order a substantial proportion of the supplies in Vancouver, the rate of increase has slowed compared to the rest of Vancouver. In 2011, Insite ordered 47% of total needles ordered by Vancouver but in 2016 Insite received 27% of the needles ordered by Vancouver overall (Figure 21).

Figure 21. Needle/Syringes Ordered Each Year by Health Service Delivery Area for Vancouver Coastal Health



	2010	2011	2012	2013	2014	2015	2016
Insite	1,301,900	1,716,200	1,757,500	1,745,525	1,779,000	2,067,300	2,330,150
Vancouver (Excluding Insite)	1,936,900	1,967,400	2,546,925	3,404,400	3,877,300	4,705,100	6,181,575
Richmond	23,000	30,000	16,500	15,000	15,000	17,000	19,500
North Shore/Coast Garibaldi	54,800	58,600	63,300	53,900	65,500	80,400	73,300

REACH OF NEEDLE/SYRINGES

The estimated numbers of people who inject drugs by sex and health authority are based on the BC Hepatitis Testers Cohort and provided in Table 3. [12] Estimates of people who inject drugs by health service delivery area are provided in Table 4. Note that estimates of people who inject drugs are based on data collected from 2010-2012.

Fraser Health is the health authority with the largest population; it is also estimated to have the highest number of people who inject drugs (13,300) with Vancouver Coastal Health close behind at 12,900. Vancouver is the health service delivery area with the highest number of people who inject drugs, an estimated 3,169 of whom are located in the Downtown Eastside.[14] The Downtown Eastside makes up over 10% of the total population of people who inject drugs in BC.

[12] BC Centre for Disease Control. (October 5, 2016). Estimation of key population size of people who use injection drugs (PWID), men who have sex with men (MSM) and sex workers (SW) who are at risk of acquiring HIV and hepatitis C in the five health regions of the province of British Columbia. Available from: http://www.bccdc.ca/resource-gallery/Documents/Statistics%20and%20Research/Statistics%20and%20Reports/STI/PSE%20Project%20Final%20Report.pdf

Table 3. Estimated Numbers of People Who Inject Drugs by Sex by Health Authority[12]

Health Authority	# Females Who Inject Drugs	# Males Who Inject Drugs	Total # People Who Inject Drugs
Fraser	5,100	8,200	13,300
Interior	2,600	3,000	5,600
Island	3,000	3,800	6,800
Northern	1,600	1,700	3,300
Vancouver Coastal	4,600	8,300	12,900
BC TOTAL*	**17,000**	**25,200**	**42,200**

***** Includes individuals with unknown health authority residence

Table 4. Estimated Numbers of People Who Inject Drugs by Health Service Delivery Area[14]

Health Authority	Health Service Delivery Area	Total Population (2016)[13]	# People Who Inject Drugs[14]	# People Who Inject Drugs per 1,000 Population
Fraser	Fraser East	300,724	2,663	8.9
	Fraser North	663,916	3,445	5.2
	Fraser South	816,928	5,203	6.4
Interior	East Kootenay	78,105	398	5.1
	Kootenay Boundary	78,679	523	6.6
	Okanagan	362,868	2,343	6.5
	Thompson Cariboo Shuswap	223,819	1,545	6.9
Island	Central Vancouver Island	272,751	2,392	8.8
	North Vancouver Island	122,160	1,047	8.6
	South Vancouver Island	382,646	2,414	6.3
Northern	Northeast	72,261	526	7.3
	Northern Interior	138,340	1,649	11.9
	Northwest	70,366	641	9.1
Vancouver Coastal	North Shore / Coast Garibaldi	282,320	1,746	6.2
	Richmond	213,392	696	3.3
	Vancouver	672,337	8,387	12.5

In Figure 22, needle/syringes ordered in 2016 are shown beside estimated numbers of people who inject drugs for each health service delivery area.

[13] BC Government. (2017). Sub-provincial population estimates. Available from: https://www.bcstats.gov.bc.ca/apps/PopulationEstimates.aspx

[14] Kuo, M., Janjua, N.Z., Islam, N., Samji, H., Butt, A., Tyndall, M., Krajden, M. Assessment of injection drug use based on diagnostic codes in administrative datasets. 5th Annual Canadian Conference on HIV/AIDS Research, Winnipeg, MB, May 12th to 15th 2016.

Figure 22. Needle/Syinges Ordered in 2016 and Number of People Who Inject Drugs[14] by Health Service Delivery Area

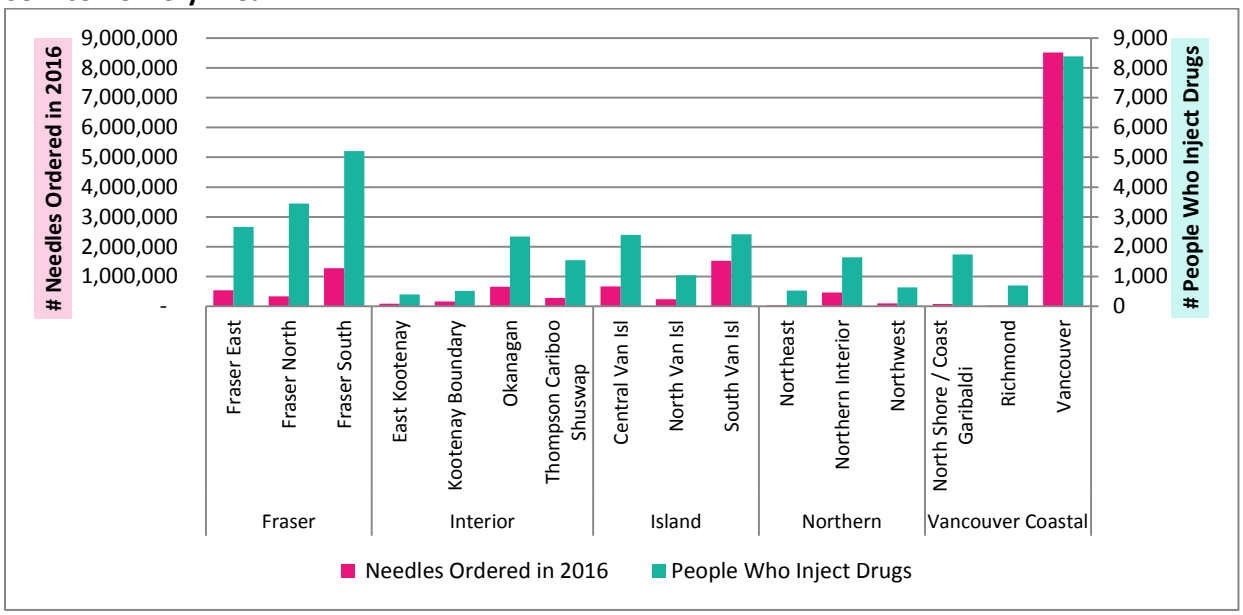


Figure 23. Needle/Syringes Ordered per Person Who Injects Drugs[14] by Health Service Delivery Area 2016

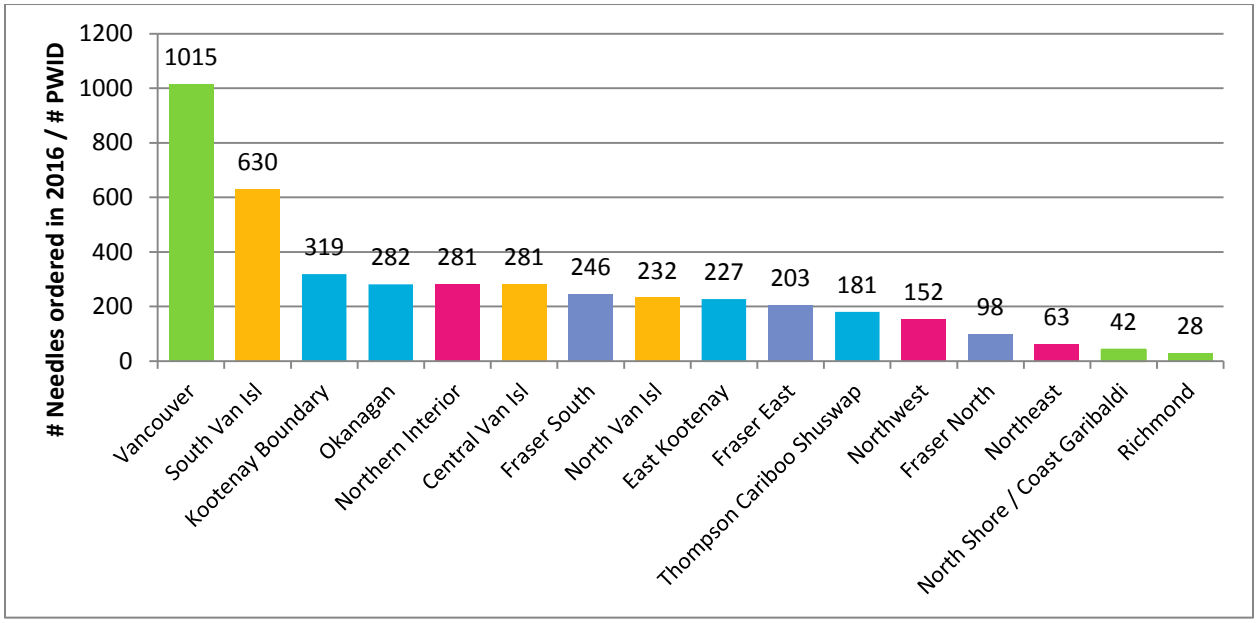


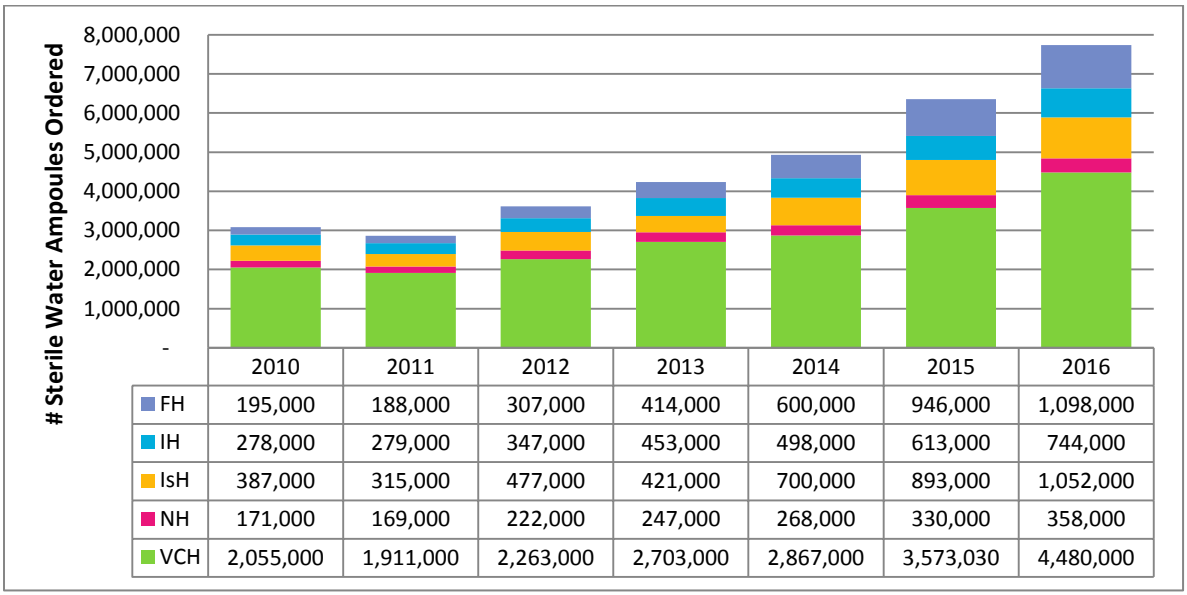
Figure 23 is ordered from highest to lowest (colours indicate health authority, as per Figure 16). Vancouver had the highest number of needles ordered per person who injects drugs, at approximately three needles per day.

STERILE WATER

Drugs may be sold as powder, crystals (rocks), or tablets. To reduce the risk of vein damage and developing infections, drugs should be dissolved in sterile water when injected. In BC, water is available in low volume plastic ampoules with a snap off top to encourage single use.

The number of sterile water ampoules ordered each year has been increasing (Figure 24), though the ratio of needles to water remains around 2:1. BC HRSS continues to encourage the use of a sterile water ampoule with every injection, aiming for a ratio closer to 1:1.

Figure 24. Sterile Water Ampoules Ordered in BC Each Year by Health Authority



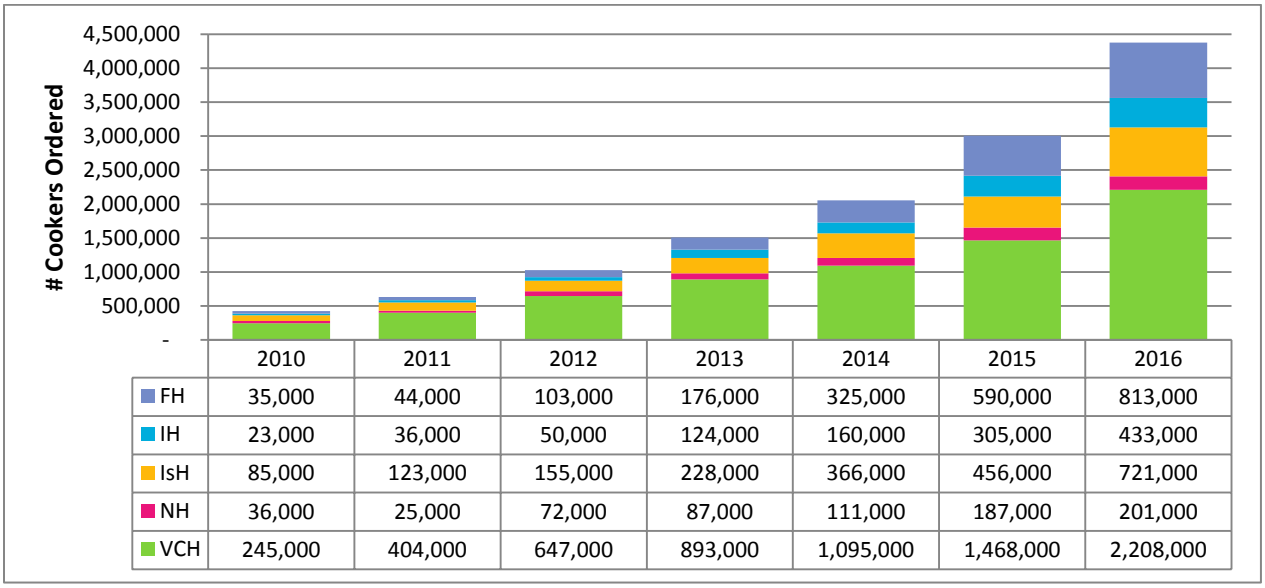
	2010	2011	2012	2013	2014	2015	2016
FH	195,000	188,000	307,000	414,000	600,000	946,000	1,098,000
IH	278,000	279,000	347,000	453,000	498,000	613,000	744,000
IsH	387,000	315,000	477,000	421,000	700,000	893,000	1,052,000
NH	171,000	169,000	222,000	247,000	268,000	330,000	358,000
VCH	2,055,000	1,911,000	2,263,000	2,703,000	2,867,000	3,573,030	4,480,000

COOKERS

Cookers are used for mixing and heating a drug for injection. Drugs sold as powder, crystals (rocks), or tablets should be fully dissolved in sterile water, and cooking the drug facilitates this process. Non-sterile cookers may be contaminated by bacteria, which can lead to infections. Cookers are one of the most commonly shared items used in drug injections, which can further lead to transmission of bloodborne infections between individuals.

In BC, sterile, disposable cookers are provided. Each package also includes a sterile filter to remove large particles from a solution and a cotton swab to stop bleeding at the injection site. All items are designed to be used only once, becoming fragile after being heated once. The number of cookers ordered in BC each year is shown in Figure 25.

Figure 25. Cookers Ordered in BC Each Year by Health Authority



	2010	2011	2012	2013	2014	2015	2016
FH	35,000	44,000	103,000	176,000	325,000	590,000	813,000
IH	23,000	36,000	50,000	124,000	160,000	305,000	433,000
IsH	85,000	123,000	155,000	228,000	366,000	456,000	721,000
NH	36,000	25,000	72,000	87,000	111,000	187,000	201,000
VCH	245,000	404,000	647,000	893,000	1,095,000	1,468,000	2,208,000

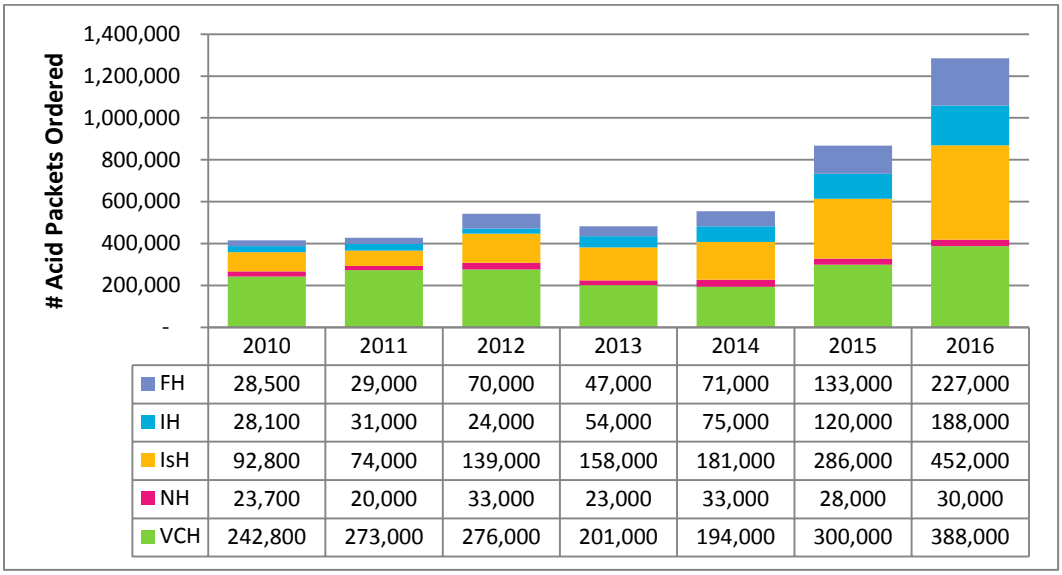
ASCORBIC ACID

Ascorbic acid, or vitamin C, can be used as an acidifier, dissolved in water to form a mild acidic solution. Crack cocaine and 'black tar' (or 'brown') heroin are usually sold as solid crystals (rock) or powder, and to inject them, the user must dissolve them in an acidic solution. In a cooker, small amounts of ascorbic acid are added to the drug combined with sterile water until the drug is fully dissolved.

Lemon juice and vinegar are often used as acidifiers due to availability, but these harsher acids can cause more pain, irritation, and damage to the veins. Repeated damage causes veins to collapse, and so an individual may begin to use veins closer to major arteries, which, if accidentally hit, may lead to life-threatening blood loss. Furthermore, vinegar and lemon juice may be contaminated with bacteria or fungus, which may lead to infection.

HRSS provides waterproof packets of medical-grade 100mg ascorbic acid, which is nontoxic and sterile. The number of ascorbic acid packets ordered in BC each year is shown in Figure 26. In 2016, the amount of ascorbic acid ordered within Island Health surpassed the amount in Vancouver Coastal Health.

Figure 26. Ascorbic Acid Ordered in BC Each Year by Health Authority



	2010	2011	2012	2013	2014	2015	2016
FH	28,500	29,000	70,000	47,000	71,000	133,000	227,000
IH	28,100	31,000	24,000	54,000	75,000	120,000	188,000
IsH	92,800	74,000	139,000	158,000	181,000	286,000	452,000
NH	23,700	20,000	33,000	23,000	33,000	28,000	30,000
VCH	242,800	273,000	276,000	201,000	194,000	300,000	388,000

ALCOHOL SWABS

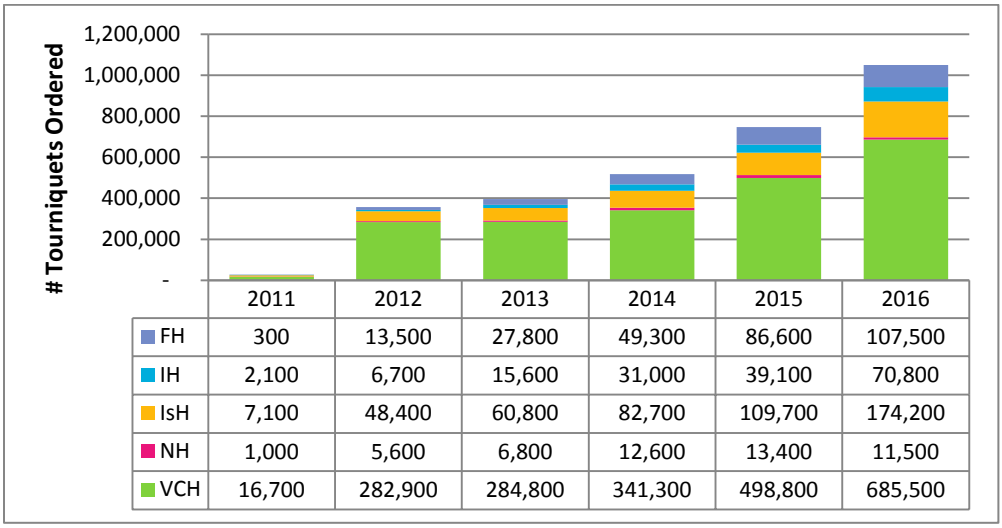
Sterile alcohol swabs can be used for purposes including cleaning hands and the injection site before injecting drugs and cleaning crack pipes. This can help prevent bacterial infection. Distribution of single use swabs reduces the risk of people sharing or reusing swabs, which can lead to transmission of pathogens such as HIV and HCV. In 2016, 16,854,800 alcohol swabs were ordered in BC.

TOURNIQUETS

Tourniquets, or ties, are tied around the arm to help make veins more evident for injection. While not all people who inject drugs need to use a tourniquet to help protrude veins, those who do may use makeshift products, such as belts, shoelaces, ropes, or wires. These may be more difficult to release and can potentially cause vein damage or other injury.

The tourniquets that are offered in BC, when tied properly, offer quick release. The number of tourniquets ordered in BC each year is shown in Figure 27.

Figure 27. Tourniquets Ordered in BC Each Year by Health Authority



	2011	2012	2013	2014	2015	2016
FH	300	13,500	27,800	49,300	86,600	107,500
IH	2,100	6,700	15,600	31,000	39,100	70,800
IsH	7,100	48,400	60,800	82,700	109,700	174,200
NH	1,000	5,600	6,800	12,600	13,400	11,500
VCH	16,700	282,900	284,800	341,300	498,800	685,500

SHARPS CONTAINERS

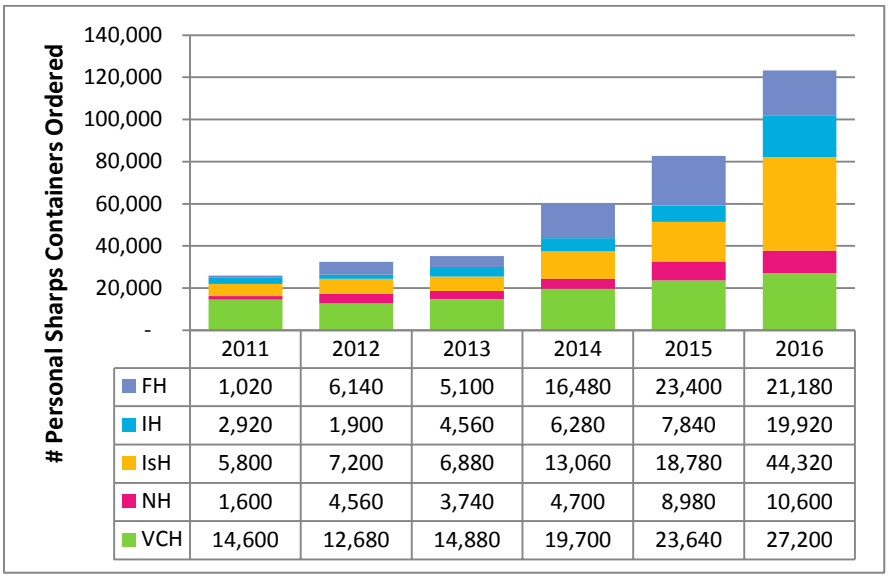
Sharps containers provide a safe place to dispose of used injection and inhalation materials. They are made of hard plastic that needles and broken glass cannot penetrate. Personal sharps containers fit several needles and/or crack pipe stems while being convenient enough to carry around.

It is important to have a method of disposing used injection and inhalation materials safely and conveniently, as when needles and stems are kept on the body or are disposed of improperly, unintentional injuries may lead to the transmission of bloodborne infections.

Personal sharps containers are distributed in BC in addition to disposal services provided at harm reduction distribution sites and sharps boxes on the street. Full sharps containers can be returned to distribution sites, or they can be sealed tightly and placed in the garbage for disposal.

Numbers of personal sharps containers ordered in BC each year are shown in Figure 28. The number of personal sharps containers ordered in Island Health and Interior Health more than doubled between 2015 and 2016.

Figure 28. Personal Sharps Containers Ordered in BC Each Year by Health Authority



	2011	2012	2013	2014	2015	2016
FH	1,020	6,140	5,100	16,480	23,400	21,180
IH	2,920	1,900	4,560	6,280	7,840	19,920
IsH	5,800	7,200	6,880	13,060	18,780	44,320
NH	1,600	4,560	3,740	4,700	8,980	10,600
VCH	14,600	12,680	14,880	19,700	23,640	27,200

SAFER SMOKING SUPPLIES

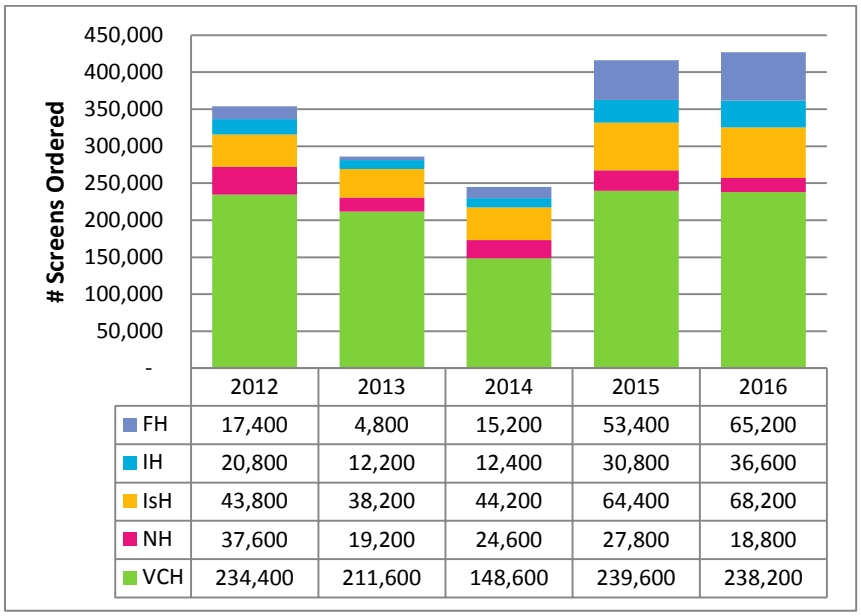
SCREENS

When smoking crack cocaine, a screen is used to hold the rock of crack cocaine in place near the end of the glass stem (also known as a crack pipe). Screens fit within the stem and are made from a small piece of metal with holes to allow for inhalation of crack vapour.

People who smoke crack often use wire wool (frequently referred to by the brand name 'Brillo®') as screens. This practice has been associated with injury, as small pieces of steel wool may break off, which can cause burns on the lips or mouth. The hot metal can cause further damage if inhaled or ingested.

In BC, brass screens are provided as an alternative to steel wool. (Brass screens may also be wrapped completely around steel wool and used together, which can make using a screen easier). The number of screens ordered in BC each year is shown in Figure 29.

Figure 29. Screens Ordered in BC Each Year by Health Authority



	2012	2013	2014	2015	2016
FH	17,400	4,800	15,200	53,400	65,200
IH	20,800	12,200	12,400	30,800	36,600
IsH	43,800	38,200	44,200	64,400	68,200
NH	37,600	19,200	24,600	27,800	18,800
VCH	234,400	211,600	148,600	239,600	238,200

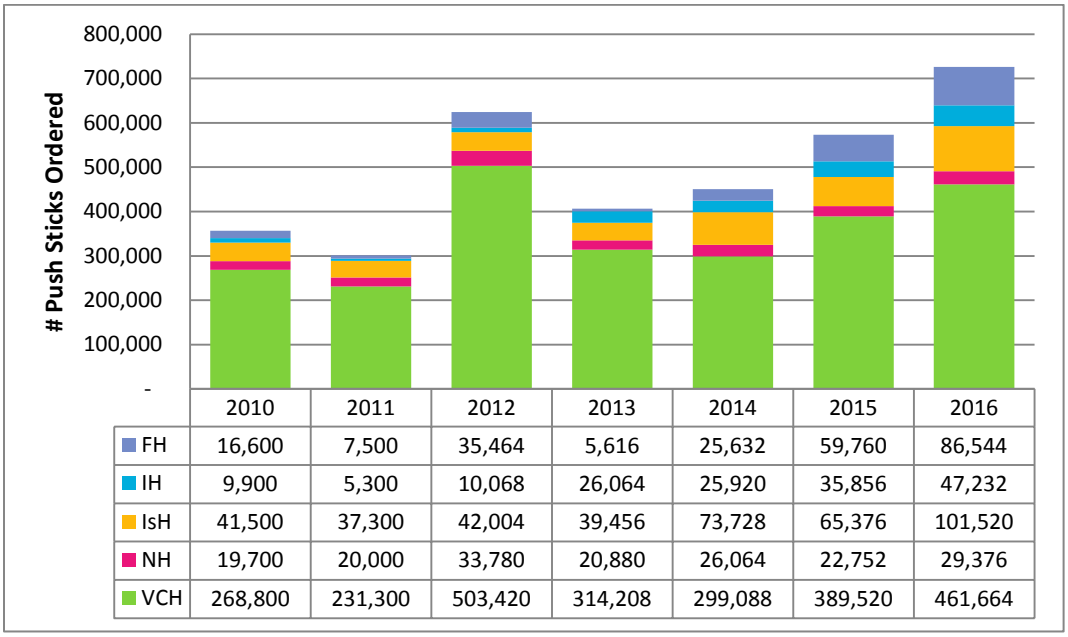
PUSH STICKS

Push sticks are used to pack and position the filter or screen inside the crack pipe. Once the crack has been smoked, the push stick is used to partially recover the residual crack that has hardened on the inside wall of the pipe as the pipe cools.

In BC, wooden push sticks are provided to prevent the use of alternatives such as coat hangers, car aerials, or syringe plungers as push sticks. Using metal can chip the glass inside of the pipe and cause the ends of the pipe to break. When syringe plungers are used, the rest of the syringe is discarded, including the attached needle; furthermore, the plastic may melt inside of the pipe. Wooden push sticks are also less expensive than syringes.

The number of wooden push sticks ordered in BC each year is shown in Figure 30.

Figure 30. Push Sticks Ordered in BC Each Year by Health Authority



	2010	2011	2012	2013	2014	2015	2016
FH	16,600	7,500	35,464	5,616	25,632	59,760	86,544
IH	9,900	5,300	10,068	26,064	25,920	35,856	47,232
IsH	41,500	37,300	42,004	39,456	73,728	65,376	101,520
NH	19,700	20,000	33,780	20,880	26,064	22,752	29,376
VCH	268,800	231,300	503,420	314,208	299,088	389,520	461,664

CRACK PIPE MOUTHPIECES

A crack pipe mouthpiece is a length of vinyl tubing that is attached to the pipe in which solid crack is heated. The vinyl tubing comes in three different diameters to fit different size crack pipes. The tubing is sent to sites in 100 foot lengths which are then cut into individual pieces of varying lengths. The size of the plastic tubing cut varies according to site and individual's preferences. The mouthpiece can be taken off of the pipe as necessary.

Mouthpieces can reduce the risk of oral lesions, as it prevents direct contact of the mouth with hot crack pipes or broken glass stems. Providing mouthpieces protects against the transmission of communicable diseases that may occur when pipes are shared, including HCV, hepatitis B, and HIV.

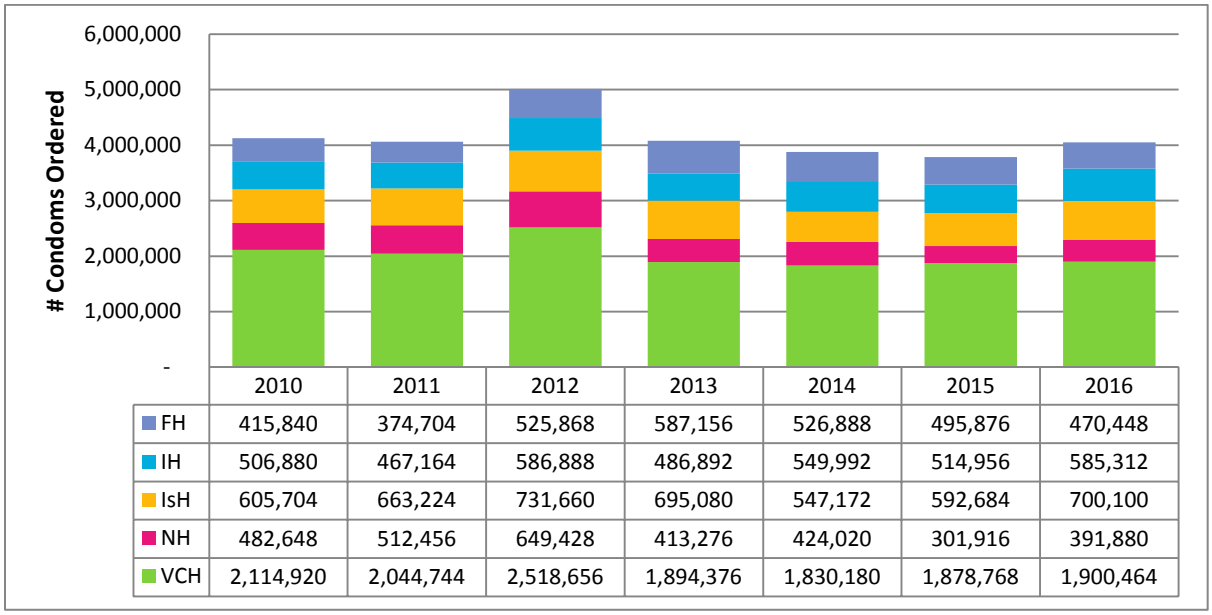
In 2016, 1,657 items of 100 foot lengths of vinyl tubing were distributed in BC; 700 of these lengths were to VCH, 428 to IsH and 321 to IH.

CONDOMS

Condoms are important in preventing the spread of sexually transmitted infections and preventing unwanted pregnancy. HRSS aims to make condoms available to most marginalized and high risk populations. In 2016, 4,048,204 condoms were ordered across BC. Total condoms ordered by each health authority each year are shown in Figure 31.

Of the over four million condoms ordered, 3,028,320 (74.8%) were lubricated; 265,104 (6.5%) were unlubricated; 683,280 (16.9%) were flavoured; and 71,500 (1.8%) were insertive (female) condoms.

Figure 31. Condoms Ordered in BC Each Year by Health Authority



	2010	2011	2012	2013	2014	2015	2016
FH	415,840	374,704	525,868	587,156	526,888	495,876	470,448
IH	506,880	467,164	586,888	486,892	549,992	514,956	585,312
IsH	605,704	663,224	731,660	695,080	547,172	592,684	700,100
NH	482,648	512,456	649,428	413,276	424,020	301,916	391,880
VCH	2,114,920	2,044,744	2,518,656	1,894,376	1,830,180	1,878,768	1,900,464

Insertive (internal or female) condoms are as effective as non-insertive (male) condoms at preventing pregnancy and prevent the spread of sexually transmitted infections. Insertive condoms have several advantages, including that: they; do not reduce a male partner's stimulation; they provide females with control and choice about their sexual health; they are available without a prescription and have no hormonal side effects; they can be used by people with latex sensitivities; they are pre-lubricated and can be used with oil-based and water-based lubricants; they can be inserted before sex; erection is not necessary to keep the condom in place; and they do not affect future fertility.

NALOXONE

THE TAKE HOME NALOXONE PROGRAM

Naloxone is an opioid antagonist (antidote) that can reverse the effects of an opioid (e.g. heroin, methadone, fentanyl, morphine) overdose. Naloxone pushes the opioids from the receptors in the brain to temporarily reverse the overdose. The effect of naloxone begins to wear off after about 20 minutes and another dose of naloxone may be required if the overdose returns.

The Take Home Naloxone program in BC distributes kits containing naloxone to individuals who are at risk of having an overdose or at risk of witnessing an overdose at no cost to the recipient through more than 550 sites across the province. Kits contain: three 1-mL ampoules of naloxone, three syringes, a case, a labeled medication bottle, three plastic ampoule breakers, a pair of non-latex gloves, two alcohol swabs, and an individual breathing mask in a pouch.

The Take Home Naloxone program in BC started in August of 2012. It has grown considerably since its inception, ramping up in the past few years. Figure 32 shows kit distribution and illicit drug overdose deaths by month. Figure 33 shows kits used to reverse an overdose and illicit drug overdose deaths by month. The increase in naloxone kits both distributed and used appears to correspond with the rise in illicit drug overdose deaths.

Figure 32. Take Home Naloxone Kits Distributed and Illicit Drug Overdose Deaths[1] by Month

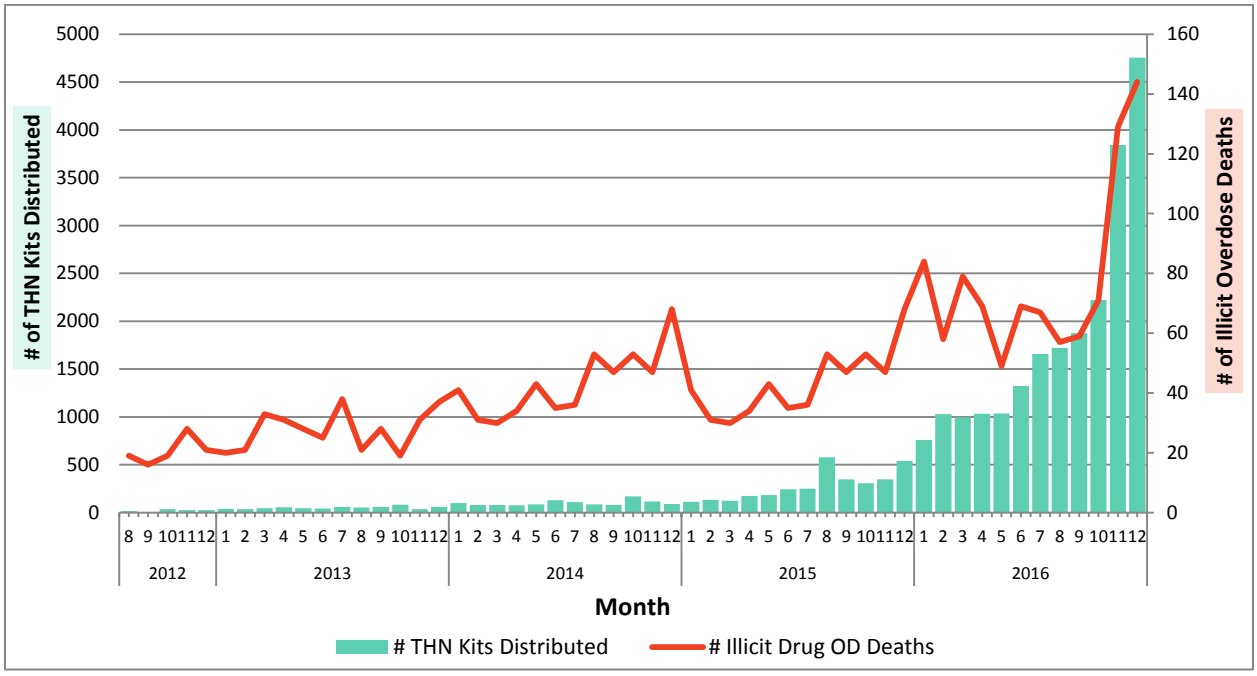
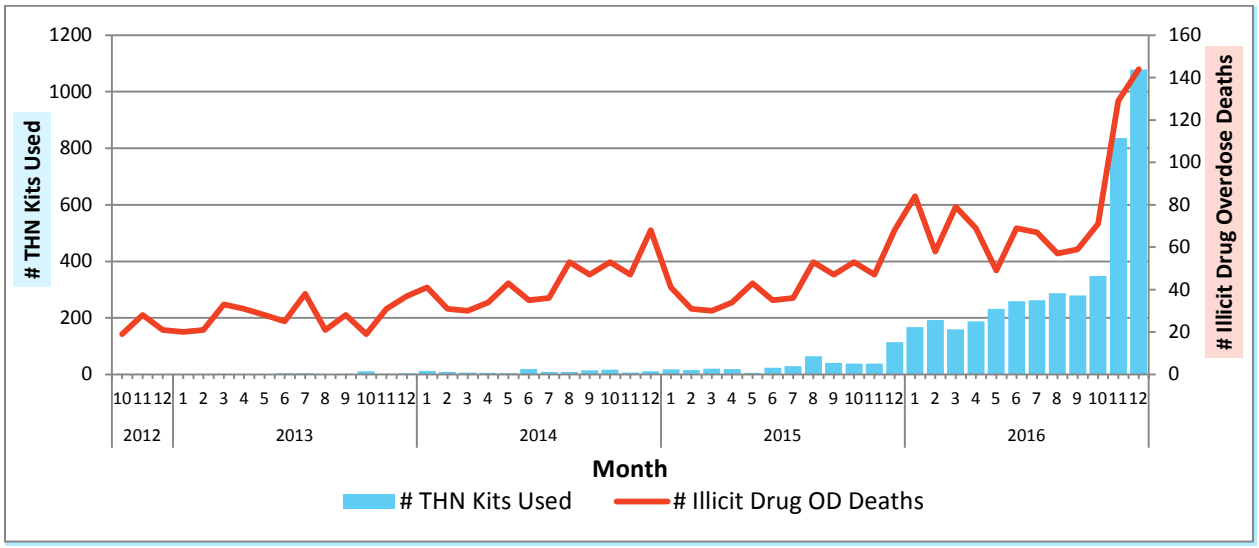


Figure 33. Take Home Naloxone Kits Used and Illicit Drug Overdose Deaths[1] by Month



In 2016, the Take Home Naloxone program distributed 22,450 naloxone kits through 299 participating sites, and 4,290 kits were reported to be used to reverse an overdose. The number of kits distributed by each health service delivery area in 2016 is shown in Figure 34; the number of kits used by each health service delivery area in 2016 is shown in Figure 35. Numbers of kits are shown for each health service delivery area and health authority in Table 5**.**

Figure 34. Take Home Naloxone Kits Distributed by Health Service Delivery Area in 2016

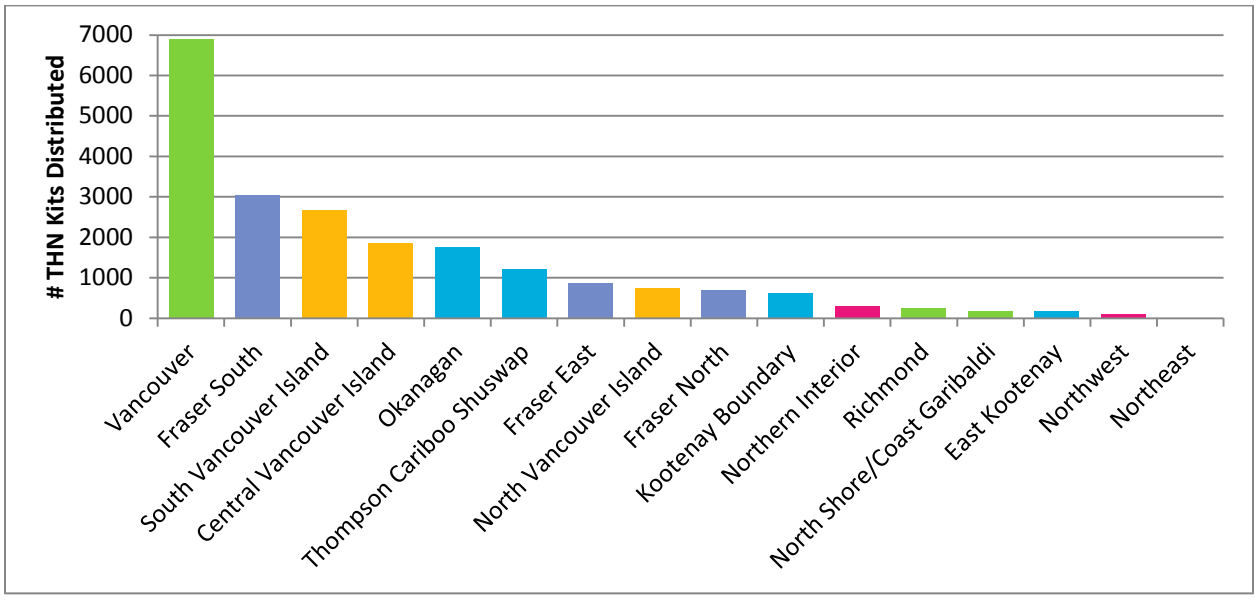


Figure 35. Take Home Naloxone Kits Reported as Used by Health Service Delivery Area in 2016

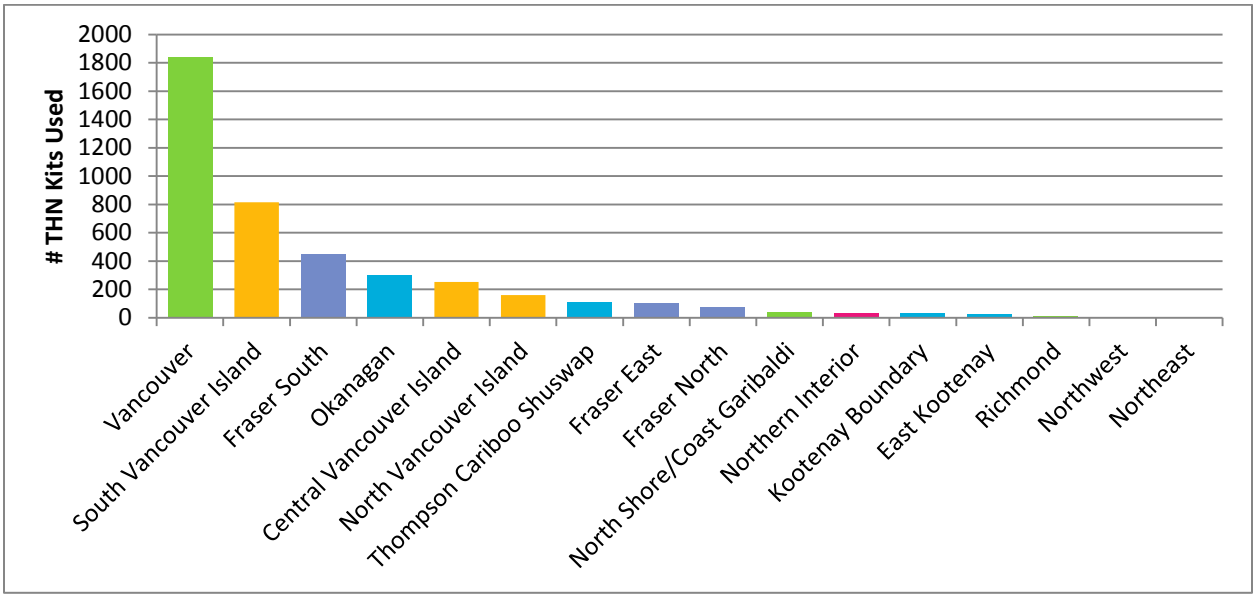


Table 5. Take Home Naloxone Kits Reported as Used and Distributed by Health Service Delivery Area in 2016

	# Kits Used	# Kits Distributed
Fraser	**619**	**4620**
Fraser East	100	868
Fraser North	71	699
Fraser South	448	3053
Interior	**467**	**3778**
East Kootenay	27	179
Kootenay Boundary	28	630
Okanagan	300	1742
Thompson Cariboo Shuswap	112	1227
Northern	**38**	**405**
Northeast	0	11
Northern Interior	31	298
Northwest	7	96
Vancouver Coastal	**1889**	**7330**
North Shore/Coast Garibaldi	35	192
Richmond	13	244
Vancouver	1841	6894
Vancouver Island	**1227**	**5292**
Central Vancouver Island	252	1867
North Vancouver Island	160	751
South Vancouver Island	815	2674

Further information about the Take Home Naloxone program and more recent statistics are available at http://towardtheheart.com/assets/uploads/THN%20timeline_Colour%2020170628.pdf.

FACILITY OVERDOSE RESPONSE BOXES

The Facility Overdose Response Box program was launched in December 2016. The program provides naloxone to community sites with clients at high risk of having an opioid overdose. Eligible sites may include shelters, supportive housing, friendship centres, and non-profit community care facilities. To receive response boxes, approved sites must complete planning exercises, develop an overdose response policy and protocol for the organization, and make a training plan. After 6 months there were more than 200 participating sites. Response boxes include 5, 10, or 20 doses of 1-mL ampoules of naloxone for injection with a plastic ampoule breaker, safety syringes, breathing masks, and gloves.

OVERDOSE PREVENTION SERVICES

Overdose prevention sites (OPS) were introduced in December of 2016 as a provincial response to the opioid overdose emergency. The goal of OPS is to provide a space for people to inject their previously obtained illicit substances with sterile equipment in a setting where OPS staff can observe and intervene in overdoses as needed. OPS staff includes peers (people whose lived experience with drug use informs their professional work), lay staff, and occasionally nurses or paramedics can intervene rapidly to prevent brain injury and death. Some OPS are in new locations whereas others are enhancements of existing harm reduction or social service settings.

REDUCING BARRIERS INCLUDING STIGMA

Stigma is an attribute or quality which discredits an individual in the eyes of others. Stigma is also defined as a process in which society devalues and excludes people with a socially undesirable attribute by associating this attribute with negative stereotypes.[15,16] It can negatively affect a person's self-esteem, cause shame about their substance use and may prevent those with substance use disorder from accessing harm reduction and treatment services or telling friends or family members about their health challenges. Social determinants of health may exacerbate the stigma and discrimination experienced by peers. It is at the core of health equity practices such as harm reduction. Discrimination refers to behaviour such as the unjustifiable different treatment given to different people.

Healthcare providers and members of the media have a responsibility to use respectful language about substance use disorders, addiction, and those who use drugs. This includes using people-first

[15] Link B, Phelan J. Conceptualizing Stigma. Annual Review of Sociology. 2001;27(1):363-385.
[16] Livingston J, Milne T, Fang M, Amari E. The effectiveness of interventions for reducing stigma related to substance use disorders: a systematic review. Addiction. 2011;107(1):39-50.

language to reflect the medical nature of substance use disorders and treatment, language that promotes recovery and avoids slang and idioms.[17]

The Compassion, Inclusion and Engagement initiative (CIE) is a provincial collaboration between FNHA and BCCDC that works closely with regional Health Authorities to support innovative local improvements in harm reduction service. CIE facilitates community based dialogues across BC that provide opportunities to build capacity and develop networks across and within health services and community agencies to foster and promote accessible, inclusive and culturally safe harm reduction services through ongoing peer engagement.

CIE recognizes that some people experience multiple barriers when accessing services such as racism, poverty, and concurrent mental health and substance use issues and is working to address these by supporting equitable and culturally safe processes and practices. With leadership support, engaging people who use harm reduction services and their network of peers in service design, delivery and evaluation has been identified as an effective strategy to address stigma and discrimination by building respectful relationships and shared understanding[18]. Through the engagement process, CIE has learned that harm reduction services built on trust, respect, understanding and acceptance provide a safe and welcoming environment where people who use drugs are accessing harm reduction supplies and services most often.

EQUITABLE REACH OF HARM REDUCTION PROGRAMS

Assessing needles ordered by total population and by estimated population who inject drugs by health authority and health service delivery area (HSDA) indicates considerable discrepancies between and within health authorities. In 2016, Vancouver had the highest rate of needles ordered per person who inject drugs (PWID) at 1,000, South Vancouver Island was next with 633; at the lower end of the less than 200 needles per PWID in Thompson Cariboo Shuswap, Northwest, Fraser North, Northeast, Northshore Coast Garibaldi and Richmond HSDAs (see Figure 23). Availability, accessibility and acceptability of services also vary between rural and urban regions as does reported concerns about confidentiality. To identify the issues met by people with lived experience, the experts who use the services should be engaged.

Engaging with people with lived experience can provide insights into the realities of substance use and the local risk environments. Peer engagement can promote health equity in programs and policies while building capacity for peers. The BCHRSS is committed to engaging peers to ensure harm

[17] Respectful language and stigma regarding people who use substances. BCCDC. March 03, 2017. Available at http://www.bccdc.ca/resource-gallery/Documents/respectful-language-and-stigma-final_244.pdf

[18] Learning from each other: Enhancing community-based harm reduction programs and practices in Canada. Canadian AIDS Society and the Canadian Harm Reduction Network. 2008. Available at http://www.canadianharmreduction.com/sites/default/files/final_report_en.pdf

reduction services across the province meet the needs of people who use substances.[19] Through research and engagement BCHRSS has developed peer engagement principles and best practices which has been distributed to and widely endorsed by health authorities.[20]

CONCLUSION

Harm reduction services across BC have been implemented to minimize potential adverse outcomes associated with high risk behaviour. The number of harm reduction supplies ordered in BC, especially safer injection supplies, has increased across all health authorities. Rates of HCV in BC have decreased considerably in the past decade, as have rates of HIV—particularly in people who inject drugs.

Overdose events and overdose deaths, however, have risen in recent years. As the overdose crisis has escalated, the Take Home Naloxone program has responded by scaling up.

Access to opioid substitution treatment has been increasing, although retention rates appear to have decreased. As Suboxone becomes increasingly available, it is important to assess retention of opioid substitution therapy. New initiatives, such as the Facility Overdose Response Box program and overdose prevention sites, have only recently been introduced, and appear promising.

Language used by service providers and the media can influence the public discourse. Using people first language can reduce stigma and encourage people who use drugs to seek assistance. Hearing the voices of peers can help to identify and help to address issues of inequity.

The HRSS Committee and its partners continue to work together towards improving access to harm reduction services and strategies throughout BC in order for individuals, families and communities to be as healthy as possible.

ACKNOWLEDGEMENTS

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[19] Greer AM, Luchenski SA, Amlani A, Lacroix K, Burmeister C, Buxton JA. Peer engagement in harm reduction strategies and services: a critical case study and evaluation framework from British Columbia, Canada. *BMC Public Health* (2016)16:452 http://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-016-3136-4

[20] Greer AM, Amlani AA, Buxton JA & the PEEP team. (2017) Peer engagement principles and best practices. A guide for BC Health Authorities and other providers. http://www.bccdc.ca/resource-gallery/Documents/PEEP%20Best%20Practice%20Guidelines.pdf