BC OPIOID SUBSTITUTION TREATMENT SYSTEM

Performance Measures 2013/2014

Office of the Provincial Health Officer

With contributions by:

Medical Beneficiary & Pharmaceutical Services Division &
Population and Public Health Division
British Columbia Ministry of Health

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1. INTRODUCTION

Opioid dependence is a chronic, recurrent medical illness often associated with co-morbid mental illness, transmission of infectious diseases (such as HIV/AIDS and hepatitis C), and premature mortality.[1] Opioid substitution treatment is widely regarded as both a highly effective treatment for opioid dependence and an evidence-based harm reduction intervention to prevent the transmission of blood-borne pathogens. Additionally, numerous studies have found that opioid substitution reduces harms associated with non-medical opioid use, including injection-related risks, opioid overdose deaths[2,3] and criminal activity, and increases the social functioning and quality of life of patients.[4,5]

The Government of British Columbia uses the term "opioid substitution treatment" (OST) to include the use of methadone and suboxone (buprenorphine and naloxone formulation) for maintenance treatment. This report includes overall OST data, along with separate methadone and suboxone data where relevant.

This report presents data related to the prescribing and dispensing components of British Columbia's OST system and addresses the recommendation in the Centre for Addictions Research of BC report *Methadone Maintenance Treatment in British Columbia, 1996-2008*,[6] to report regularly on the province's system. The reported indicators reflect available Ministry of Health provincial-level data, and may not capture all aspects of methadone/suboxone maintenance services. The data do not include health services provided to on-reserve First Nations patients, or health services provided to patients in the provincial or federal corrections systems. The PharmaNet data do not include OST provided to hospitalized patients.

Data related to suboxone prescribing and dispensing are provided for four years only, reflecting the Ministry of Health's decision to add suboxone to the PharmaCare formulary in 2010.

The performance measures in this report are provided on a fiscal year basis (April 2013 – March 2014), and are based in part on the methodology in *An Evaluation of Methadone Maintenance Treatment in British Columbia: 1996-2007*, by Nosyk et al.[1] The methods used to calculate a number of components of this year's report (e.g., new patients, dosing, retention) have been adjusted for improved accuracy; thus, some of the data in this report may not be congruent with that presented in previous years.

See the 2012/2013 *BC Opioid Substitution Treatment System Performance Measures*[7] report for further information about opioid substitution treatment in BC.

Data Sources

Data in this report were drawn from the Ministry of Health, HealthIdeas Data Warehouse. Ministry program area data were drawn from the following databases:

i. PharmaNet (records of prescription drug claims dispensed at community pharmacies).
ii. MSP Genesis (Medical Services Plan fee-for-service claims).
iii. DAD (hospital discharge abstract data).
iv. HealthIdeas Client Registry (client age, gender, date of death).

Acknowledgements: The Provincial Health Officer would like to thank Eric Larson, Patrick Day, Christine Voggenreiter, Kenneth Tupper, Kathleen Perkin and Manik Saini for their assistance in preparing this report.

2. OPIOID SUBSTITUTION TREATMENT – SYSTEM MEASURES

This section reports on indicators about the reach of BC's Opioid Substitution Treatment (OST) system. The indicators are as follows: the number of patients 18 years of age and older with methadone or suboxone maintenance prescriptions (whose medication is covered by PharmaCare); the number of physician prescribers of methadone or suboxone for maintenance purposes; and the number of methadone or suboxone-dispensing pharmacists and pharmacies. This section also includes a summary of the direct costs of methadone/suboxone maintenance in BC.

2.1 Opioid Substitution Treatment Patients

Figure 1. Opioid Substitution Treatment Patients by Local Health Area, 2013/2014

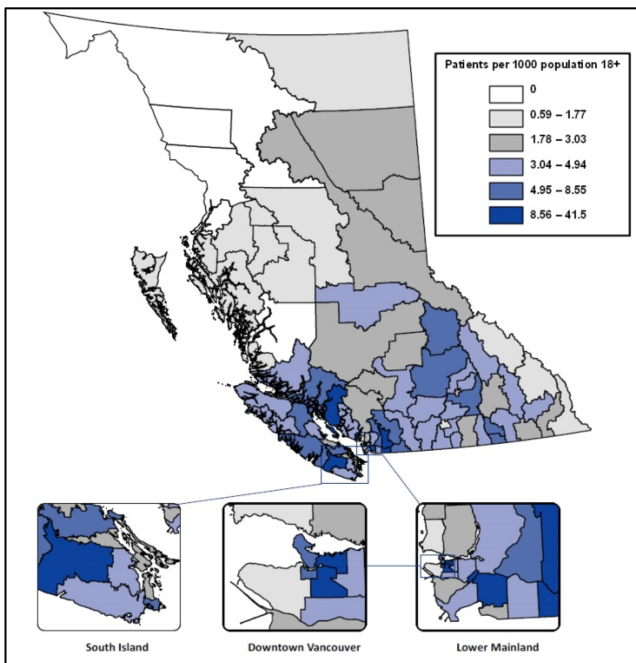
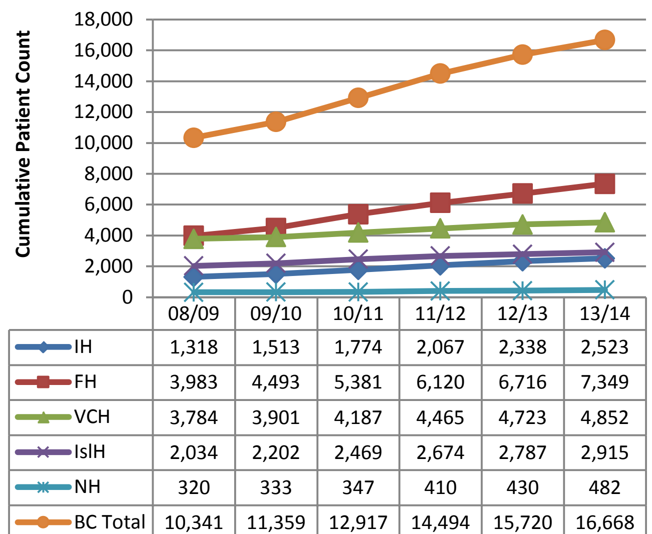


Figure 1 shows the number of OST patients per 1,000 population in each Local Health Area across the province in 2013/2014. Overall, urban areas like the Lower Mainland have higher rates of OST (more than 8 patients per 1,000 in some areas). However, some smaller population areas, such as Powell River and Lake Cowichan, have high rates. The relative rates of OST across Local Health Areas are similar to those seen in 2012/2013.

Please note that the health authority totals do not necessarily add up to the provincial total for each year. Patients may access OST in more than one health authority in a given year. Similarly, physicians and pharmacists may practice in more than one health authority and pharmacies occasionally move to a different location.

Figure 2. Opioid Substitution Patients by Health Authority, BC, 2008/2009 to 2013/2014[a]



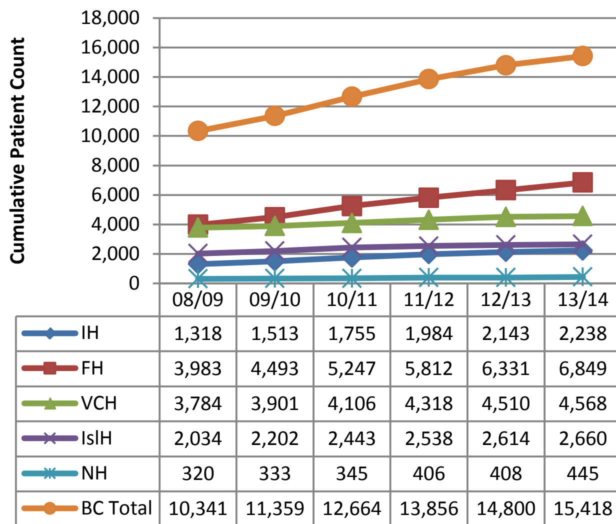
	08/09	09/10	10/11	11/12	12/13	13/14
IH	1,318	1,513	1,774	2,067	2,338	2,523
FH	3,983	4,493	5,381	6,120	6,716	7,349
VCH	3,784	3,901	4,187	4,465	4,723	4,852
IslH	2,034	2,202	2,469	2,674	2,787	2,915
NH	320	333	347	410	430	482
BC Total	10,341	11,359	12,917	14,494	15,720	16,668

[a] IH=Interior Health; FH=Fraser Health; VCH=Vancouver Coastal Health; IslH=Island Health; NH=Northern Health

BC's OST program continues to expand. The program had 16,668 patients in 2013/2014 (see Figure 2), a 6 per cent increase from the previous year and a 61 per cent increase from 2008/2009. Interior Health had the largest increase in the number of patients—approximately 91 per cent since 2008/2009.

Patients receiving OST are prescribed either methadone or suboxone. Figures 3 and 4 show the number of patients receiving each type of medication as a treatment for opioid dependence.

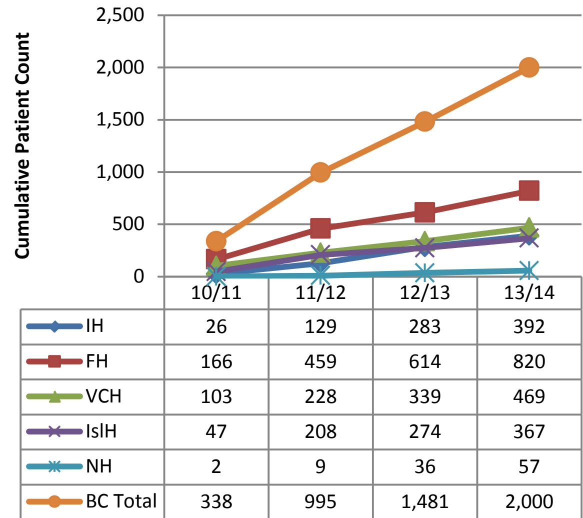
Figure 3. Methadone Maintenance Treatment Patients, by Health Authority, BC, 2008/2009 to 2013/2014



	08/09	09/10	10/11	11/12	12/13	13/14
IH	1,318	1,513	1,755	1,984	2,143	2,238
FH	3,983	4,493	5,247	5,812	6,331	6,849
VCH	3,784	3,901	4,106	4,318	4,510	4,568
IslH	2,034	2,202	2,443	2,538	2,614	2,660
NH	320	333	345	406	408	445
BC Total	10,341	11,359	12,664	13,856	14,800	15,418

In 2013/2014, the number of methadone maintenance treatment patients increased by 618 compared to 2012/2013 (see Figure 3). All health authorities have had increases in the number of patients. Fraser Health has seen the biggest expansion in patient numbers, with a 72 per cent increase since 2008/2009. This trend continues in 2013/2014, with an increase of 518 patients in Fraser Health from the previous year, making up 84 per cent of the total increase in BC in 2013/2014.

Figure 4. Suboxone Treatment Patients, by Health Authority, BC, 2010/2011 to 2013/2014

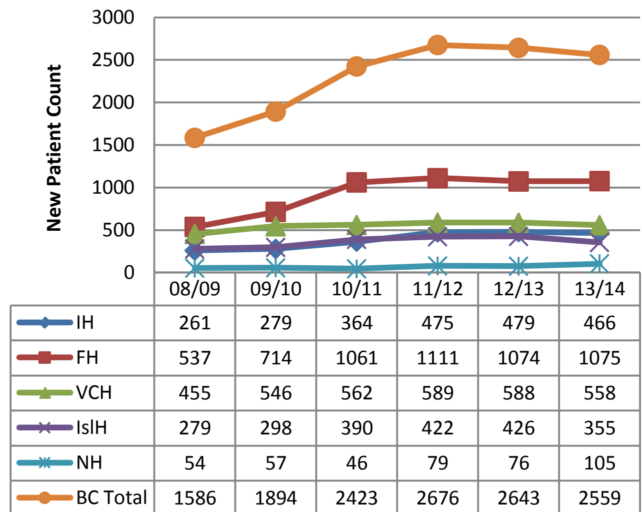


	10/11	11/12	12/13	13/14
IH	26	129	283	392
FH	166	459	614	820
VCH	103	228	339	469
IslH	47	208	274	367
NH	2	9	36	57
BC Total	338	995	1,481	2,000

The number of patients on suboxone has increased steadily since 2010 in all health authorities (see Figure 4).

Figure 5. New Opioid Substitution Treatment Patients, by Health Authority, BC, 2008/2009 to 2013/2014

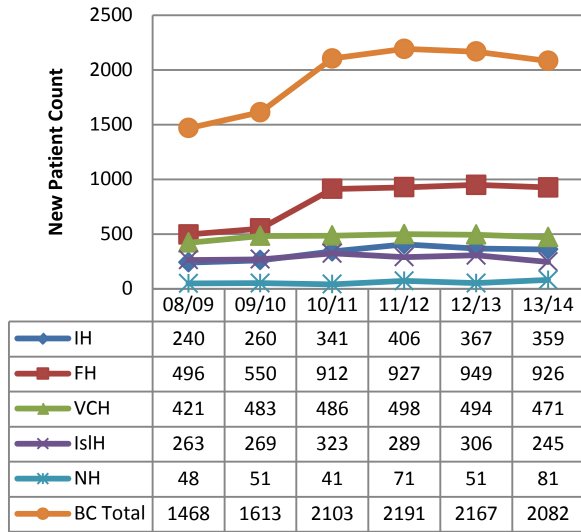
Figure 5 shows the number of new patients entering opioid substitution treatment. A new patient is someone who begins OST for the first time, according to PharmaCare data. This includes patients who have



	08/09	09/10	10/11	11/12	12/13	13/14
IH	261	279	364	475	479	466
FH	537	714	1061	1111	1074	1075
VCH	455	546	562	589	588	558
IslH	279	298	390	422	426	355
NH	54	57	46	79	76	105
BC Total	1586	1894	2423	2676	2643	2559

been on OST in another province and continue treatment when they relocate to BC, and patients who have been on OST in the corrections system or while in hospital and continue treatment upon release. Someone who simply leaves the program and re-enters it would not be counted as a new patient. The number of new patients has been fairly consistent in the last few years.

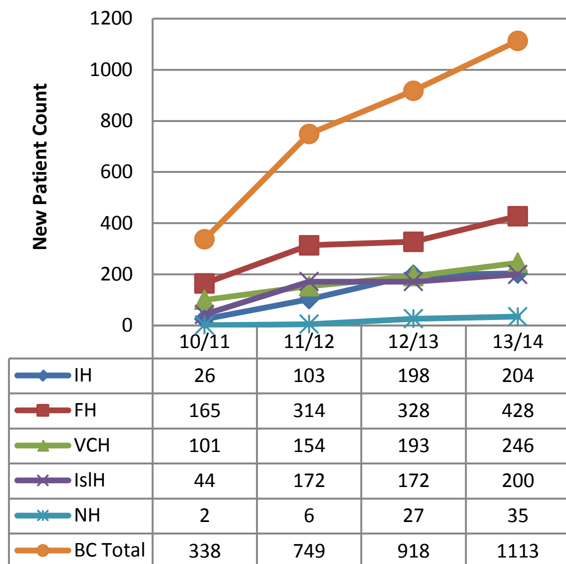
Figure 6. New Methadone Maintenance Treatment Patients, by Health Authority, BC, 2008/2009 to 2013/2014



	08/09	09/10	10/11	11/12	12/13	13/14
IH	240	260	341	406	367	359
FH	496	550	912	927	949	926
VCH	421	483	486	498	494	471
IslH	263	269	323	289	306	245
NH	48	51	41	71	51	81
BC Total	1468	1613	2103	2191	2167	2082

The number of patients entering methadone maintenance treatment has been relatively consistent over the last few years (see Figure 6). A patient who switched from suboxone to methadone would be counted as a new methadone patient as long as they had not been prescribed methadone in the past.

Figure 7. New Suboxone Treatment Patients, by Health Authority, BC, 2010/2011 to 2013/2014



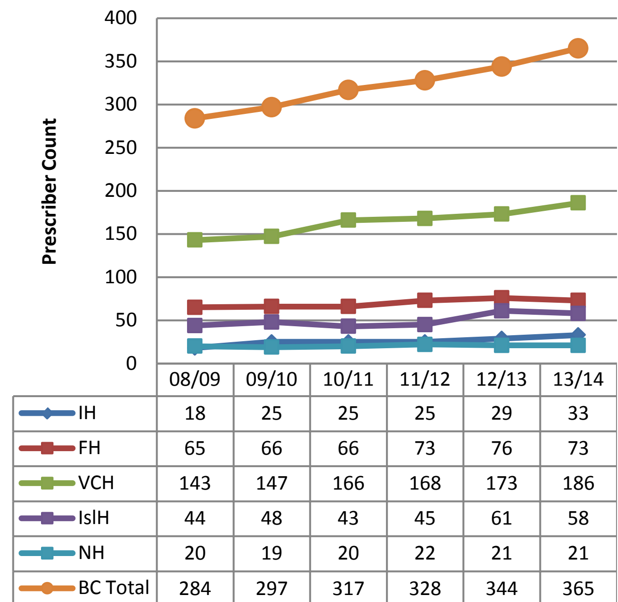
	10/11	11/12	12/13	13/14
IH	26	103	198	204
FH	165	314	328	428
VCH	101	154	193	246
IslH	44	172	172	200
NH	2	6	27	35
BC Total	338	749	918	1113

The number of new suboxone patients has increased every year since 2010, when suboxone was approved as a limited coverage benefit in PharmaCare (see Figure 7). Although the number of new patients on suboxone is increasing, twice as many people started methadone maintenance treatment as initiated suboxone in 2013/2014. A patient who switched from methadone to suboxone would be counted as a new suboxone patient as long as they had not been prescribed suboxone in the past.

2.2 Prescribers of Opioid Substitution Treatment

In order to prescribe methadone or suboxone for maintenance purposes, physicians need authorization from the College of Physicians and Surgeons of British Columbia (CPSBC). Physicians seeking this authorization must attend a day-long certification course, complete a preceptorship, undertake annual continuing medical education in addiction medicine, and re-certify on an ongoing basis.

Figure 8. Opioid Substitution Treatment Active Prescribers, by Health Authority, BC, 2008/2009 to 2013/2014



	08/09	09/10	10/11	11/12	12/13	13/14
IH	18	25	25	25	29	33
FH	65	66	66	73	76	73
VCH	143	147	166	168	173	186
IslH	44	48	43	45	61	58
NH	20	19	20	22	21	21
BC Total	284	297	317	328	344	365

Figure 8 provides the annual physician prescriber count by health authority since 2008/2009. The number of BC physicians able to prescribe OST has been increasing in recent years, with 365 physicians prescribing this treatment in 2013/2014. As in 2012/2013, about half of OST prescribers were in Vancouver Coastal Health.

In 2013/2014, there were 81 more OST prescribers than in 2008/2009. This number also includes hospitalist and temporary exemptions, so the actual number of physicians providing regular ongoing medical care for OST patients is estimated to be fewer

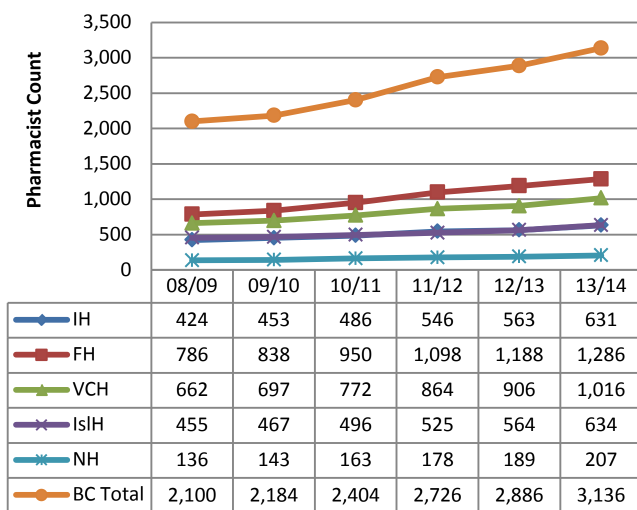
than 300. Prescribing capacity for OST in some parts of the province, especially rural and remote regions, remains a challenge for the provincial health system.

2.3 Opioid Substitution Pharmacists and Pharmacies

Pharmacists in BC must undergo training and certification in order to dispense opioids for maintenance purposes.[8] Pharmacists dispense doses of liquid methadone for patients to drink while in the pharmacy, or provide methadone in carry-out packaging as determined by the prescribing physician. In March 2014, PharmaCare switched from covering compounded methadone to covering only Methadose, a more concentrated proprietary formulation of methadone that does not require refrigeration. Pharmacists dispense suboxone as a sublingual tablet.

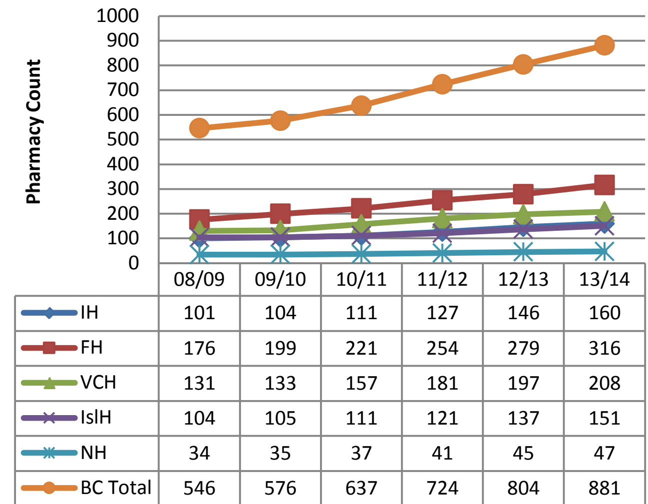
The number of pharmacies and pharmacists dispensing methadone or suboxone for maintenance purposes has been increasing since 2008/2009. Figure 9 shows the number of pharmacists dispensing methadone or suboxone. Figure 10 is the number of pharmacies (locations) where patients can get their methadone and/or suboxone prescriptions filled. For more information about methadone provision and remuneration in BC, see *Methadone Maintenance Payment Program Review*.[9]

Figure 9. Opioid Substitution Treatment Pharmacists, by Health Authority, BC, 2008/2009 to 2013/2014



	08/09	09/10	10/11	11/12	12/13	13/14
IH	424	453	486	546	563	631
FH	786	838	950	1,098	1,188	1,286
VCH	662	697	772	864	906	1,016
IslH	455	467	496	525	564	634
NH	136	143	163	178	189	207
BC Total	2,100	2,184	2,404	2,726	2,886	3,136

Figure 10. Opioid Substitution Treatment Pharmacies, by Health Authority, BC, 2008/2009 to 2013/2014



	08/09	09/10	10/11	11/12	12/13	13/14
IH	101	104	111	127	146	160
FH	176	199	221	254	279	316
VCH	131	133	157	181	197	208
IslH	104	105	111	121	137	151
NH	34	35	37	41	45	47
BC Total	546	576	637	724	804	881

2.4 Opioid Substitution Treatment Expenditures

In BC, pharmacy costs for OST are paid from three sources: the province (PharmaCare), patients and private insurers. PharmaCare is a provincial program that helps British Columbians with the cost of eligible prescription drugs and designated medical supplies. PharmaCare reimburses opioid substitution ingredient costs and dispensing fees, as well as interaction fees for pharmacists who witness methadone ingestion on-site. The level of reimbursement patients receive for the costs of opioid substitution medication depends on their individual PharmaCare plan and private insurance coverage.[b] If patients have private insurance that covers prescription drugs, this insurance may cover OST pharmacy costs. The patient pays out-of-pocket for any amounts not eligible for reimbursement from either PharmaCare or a private insurer.

It is important to note that the federal Non-Insured Health Benefits program lists methadone and suboxone on their drug benefit list, but no data from that program are presented in this report. In BC, this program is administered as the First Nations Health Authority Health Benefits Program. Any BC patients accessing OST through that program only would not be represented in this report, and any associated pharmacy costs are not included in this analysis.

[b] For more information about PharmaCare coverage, see www2.gov.bc.ca/gov/content/health/health-drug-coverage/pharmacare-for-bc-residents.

Pharmacy costs for BC's OST system totaled nearly $53 million in 2013/2014, $46 million of which was paid by PharmaCare. The balance (approximately $7 million) was paid by patients or private insurers. Figure 11a summarizes the trends in provincial costs over time. The increase in overall costs may be due to patient population growth and the addition of suboxone as a limited coverage benefit in November 2010.

Figure 11a. Total Pharmacy Opioid Substitution Costs, BC, 2008/2009 to 2013/2014

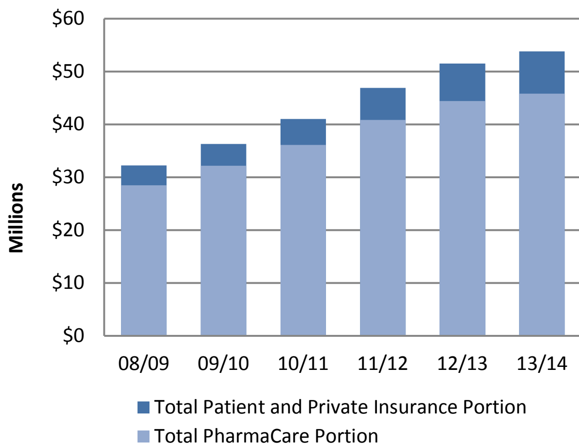
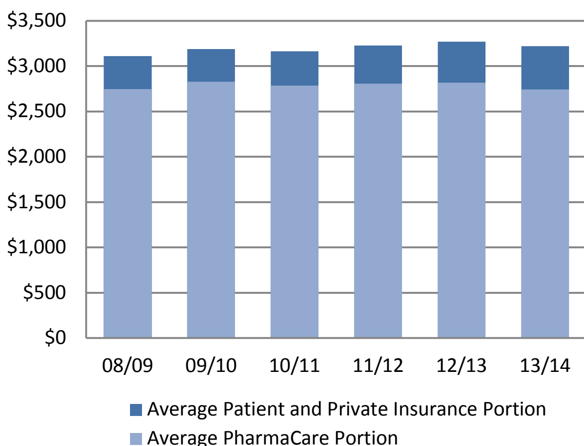


Figure 11b shows average annual per patient pharmacy costs. The average cost per patient has not increased significantly from 2008/2009 levels. In 2013/2014, the average annual cost of OST per patient was $3,219 (approximately the same as 2008/2009). On average, PharmaCare paid $2,742 or 85 per cent of this cost, and patients or private insurers paid the remaining $477, or 15 per cent.

Figure 11b. Average Pharmacy Opioid Substitution Costs per Patient, BC, 2008/2009 to 2013/2014



The Medical Services Plan pays physicians on a fee-for-service basis for providing OST. These costs began to rise in 2007/2008 (see Figure 12). Island Health, Fraser Health and Interior Health have seen the sharpest rise in costs (see Figure 13). Costs in Vancouver Coastal Health have been stable in the last few years. In total, the Medical Services Plan spent $13.75 million for physician fees related to OST in 2013/2014.

Figure 12. Medical Services Plan Expenditures for Opioid Substitution Treatment (Fee Item "Methadone or Buprenorphine/Naloxone Treatment Only"),[c] BC, 2002/2003 to 2013/2014

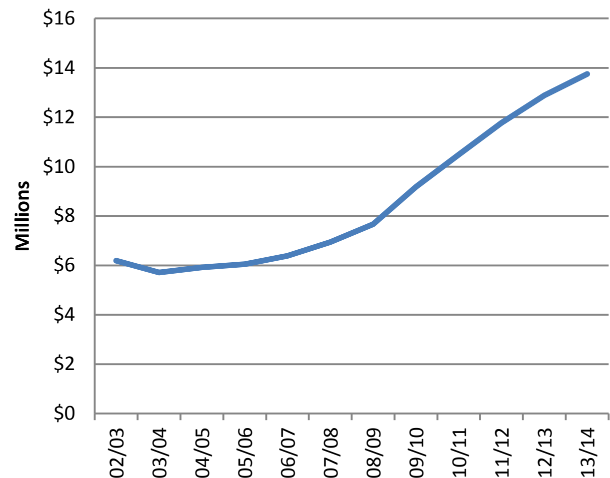
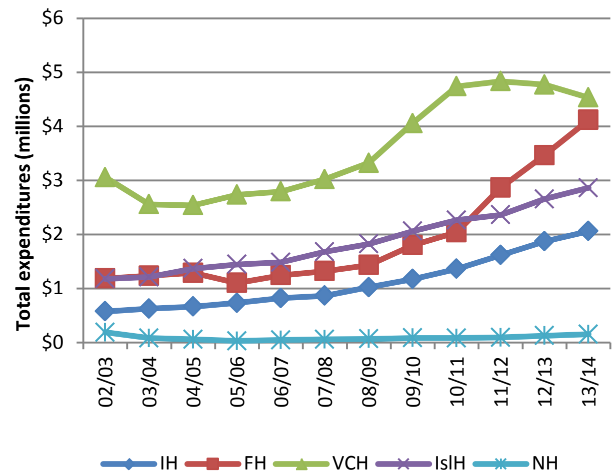


Figure 13. Medical Services Plan Expenditures for Opioid Substitution Treatment (Fee Item "Methadone or Buprenorphine/Naloxone Treatment Only"), by Health Authority, BC, 2002/2003 to 2013/2014



[c] Please note that this fee item was previously called Methadone Maintenance Treatment Only.

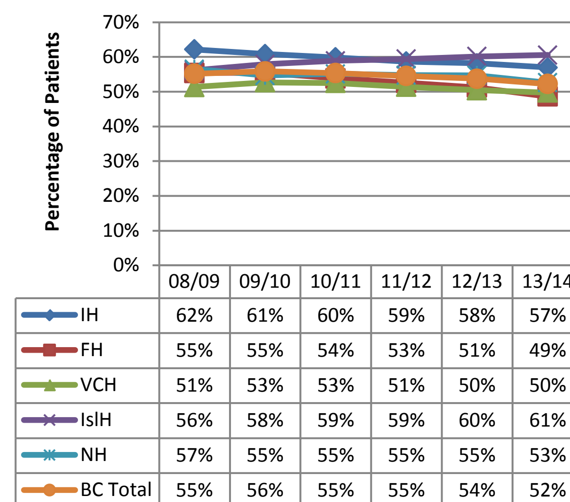
A Ministry of Social Development and Social Innovation supplement provides up to $500 per calendar year ($41.67 per month, on average) to income assistance clients to assist with the cost of substance use counselling or related services where these kinds of resources are not available. Clients can use the supplement to pay fees charged by some methadone clinics, which are generally not billable to Medical Services Plan. In total, the Ministry of Social Development and Social Innovation expended $2.6 million for this supplement in 2013/2014, most of which went to ancillary costs related to treatment for OST patients.

3. OPIOID SUBSTITUTION TREATMENT – OUTCOME MEASURES

This section summarizes outcome measures that are indirectly associated with BC's opioid substitution treatment (OST) system: retention in opioid substitution treatment, use of health services and mortality rate. The outcome measures presented are for episodes of methadone or suboxone maintenance treatment, including additional doses supplied as take-away carries. A gap of more than 30 consecutive days determines the end of an episode of treatment.

It is important to note that the outcome measures in this section were obtained without an attempt to determine whether or to what degree opioid substitution treatment affected outcomes like mortality and use of health services. Therefore, the material presented here is intended to be hypothesis-generating and may initiate further analysis, but is not meant to demonstrate a cause and effect relationship between opioid substation treatment and health outcomes.

Figure 14. Percentage of Patients Receiving a Stabilization Dose of Methadone >60 mg, by Health Authority, BC, 2008/2009 to 2013/2014



	08/09	09/10	10/11	11/12	12/13	13/14
IH	62%	61%	60%	59%	58%	57%
FH	55%	55%	54%	53%	51%	49%
VCH	51%	53%	53%	51%	50%	50%
IslH	56%	58%	59%	59%	60%	61%
NH	57%	55%	55%	55%	55%	53%
BC Total	55%	56%	55%	55%	54%	52%

Figure 14 shows the percentage of BC's methadone patients receiving a stabilization dose of more than 60 mg of methadone daily. This percentage has been stable at slightly over 50 per cent, with a small reduction over the last few years from 55 to 52 per cent.

People who stay longer in OST generally have better long-term health outcomes. A little more than one-third (36 per cent) of new patients are still in treatment after 12 months (see Figure 15). By comparison, Ontario's 12-month retention rate is approximately 55 per cent.[11] Possible reasons for these low retention rates in BC include the following:

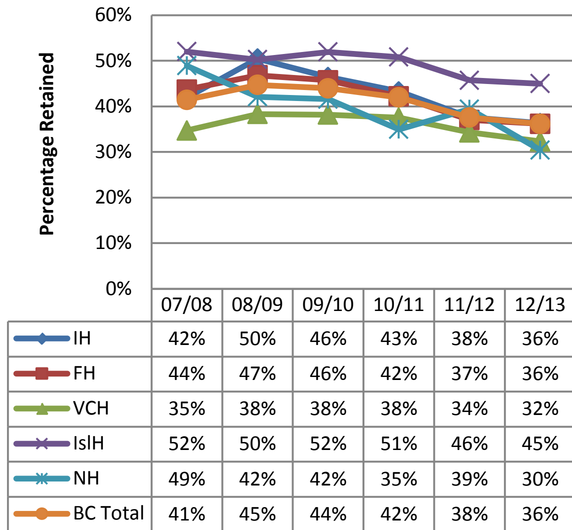
a) People registered in methadone maintenance treatment care in hospitals or jails may re-register in the community upon release.
b) At clinics, multiple doctors might submit multiple registrations.
c) Transitioning between methadone and suboxone might result in re-registration.

3.1 Duration and Retention on Opioid Substitution Treatment

The length of time a patient spends in opioid substitution treatment (number of days per episode of treatment) is an important indicator of treatment effectiveness. More time in treatment is associated with better outcomes.[1] For the purposes of this report, treatment retention is defined as a continuous period of treatment without a gap of more than 30 consecutive days.

Dosing level seems to be an important factor in retaining patients in treatment. The probability of a patient staying in treatment is highest for patients taking at least 100 mg of methadone per day.[1] The College of Physicians and Surgeons of British Columbia's 2014 *Methadone Maintenance Program's Clinical Practice Guideline*[10] states that most patients will achieve stability on maintenance doses of between 60 and 120 mg of methadone daily.

Figure 15. Percentage of People Started on Methadone Maintenance Treatment Retained at 12 Months, by Health Authority, BC, 2007/2008 to 2012/2013



3.2 General Practitioner Visits and Hospitalization Costs for People on Opioid Substitution Treatment

On average, people on OST visited their general practitioners 23.7 times per year in 2013/14 (see Figure 16). This includes visits not related to OST. Many OST patients have complex health needs so they require more care from physicians than the general population.

Figure 16. Number of General Practitioner Visits per Person-Year in Treatment, by Health Authority, BC, 2008/2009 to 2013/2014

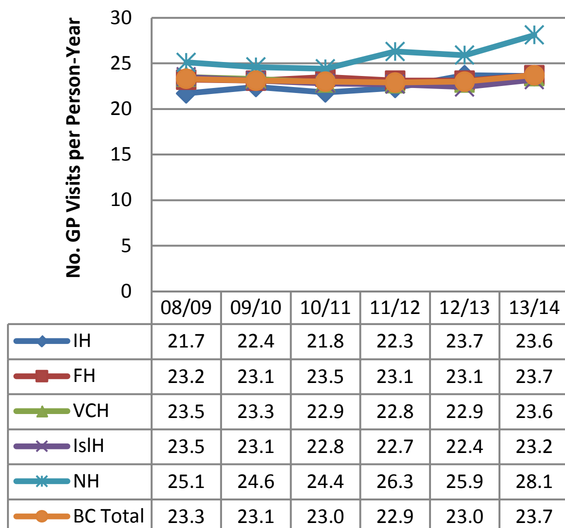


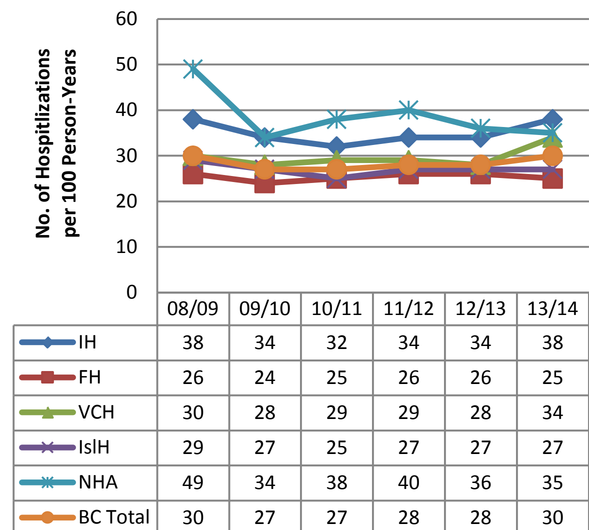
Table 1 summarizes the number and cost of hospitalizations while patients are engaged in OST. As the number of people on OST grows, the total hospital costs increase. However, the average cost of hospitalization per patient has mostly been declining since 2008/2009.

Table 1. Hospitalizations and Costs during Opioid Substitution Treatment, by Fiscal Year, 2008/2009 to 2013/2014

	No. of Admissions		Hospital Cost	
	Total	Rate per 100 Person-Years	Total	Average per Patient
08/09	2,416	30	$13,136,321	$1,226
09/10	2,465	27	$12,114,282	$1,013
10/11	2,728	27	$13,220,841	$981
11/12	3,111	28	$14,320,783	$950
12/13	3,322	28	$15,165,367	$932
13/14	3,731	30	$16,760,643	$973

One of the goals of OST is to improve a patient's overall health. Increasing rates of hospitalization could indicate poorer overall health among OST patients. Figure 17 shows the number of hospitalizations per 100 person-years for OST patients. The rate has been stable for the last six years, although Vancouver Coastal Health had a slight increase in 2013/2014.

Figure 17. Hospitalizations per 100 Person-Years during Opioid Substitution Treatment, by Health Authority, BC, 2008/2009 to 2013/2014

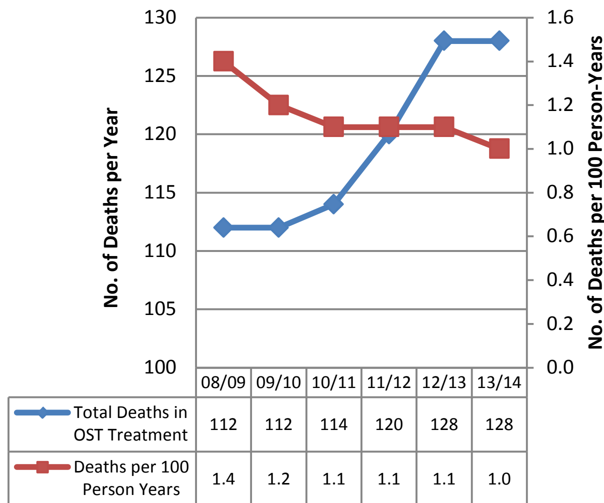


3.3 Mortality

This section includes information about mortality during OST. Mortality is measured in terms of deaths from any cause recorded within 30 days of the end of an episode of OST.

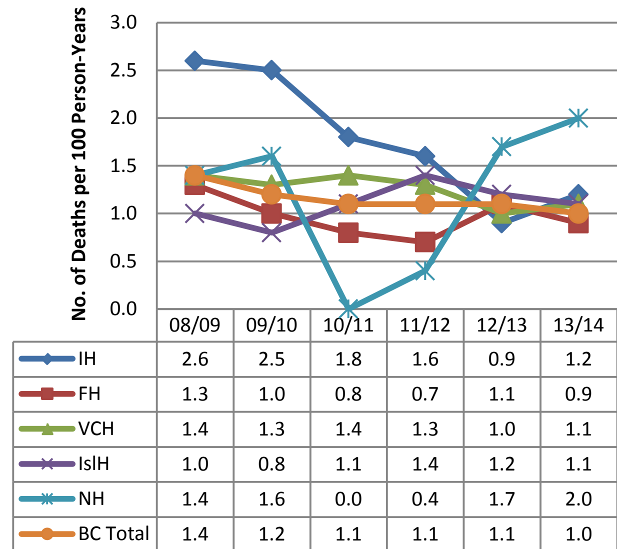
The number of patients in OST continues to increase, and over the last few years the number of deaths has also increased. This is not the case for the most recent year. The number of deaths in 2013/2014 is the same as in 2012/2013 (see Figure 18). The mortality rate, measured in deaths per 100 person-years, fell slightly in 2013/2014 compared with 2012/2013. We cannot draw conclusions about the risks or effectiveness of OST from these unadjusted rates. It is reassuring, however, that the number of patients in OST is increasing without a proportional increase in mortality among OST patients. Mortality rates among OST patients are substantially lower than mortality rates among regular or dependent users of street heroin, which are estimated to be 2.09 per 100 person-years.[2] Figure 19 shows each health authority's OST patient all-cause mortality rate (deaths per 100 person-years).

Figure 18. All-cause Mortality during Opioid Substitution Treatment, by Fiscal Year, BC, 2008/2009 to 2013/2014



	08/09	09/10	10/11	11/12	12/13	13/14
Total Deaths in OST Treatment	112	112	114	120	128	128
Deaths per 100 Person Years	1.4	1.2	1.1	1.1	1.1	1.0

Figure 19. Deaths by Any Cause per 100 Person-Years during Opioid Substitution Treatment, by Health Authority, BC, 2008/2009 to 2013/2014



	08/09	09/10	10/11	11/12	12/13	13/14
IH	2.6	2.5	1.8	1.6	0.9	1.2
FH	1.3	1.0	0.8	0.7	1.1	0.9
VCH	1.4	1.3	1.4	1.3	1.0	1.1
IslH	1.0	0.8	1.1	1.4	1.2	1.1
NH	1.4	1.6	0.0	0.4	1.7	2.0
BC Total	1.4	1.2	1.1	1.1	1.1	1.0

Northern Health has a small number of OST patients, which contributes to the large variation in the annual all-cause mortality rate.

4. CONCLUSION

British Columbia's methadone and suboxone maintenance treatment program for opioid dependence continues to expand. Most of the 2013/2014 increase in number of patients is attributable to new suboxone patients rather than new methadone patients. While informative about the overall state of OST in BC, the data presented in this report do not allow us to draw strong conclusions about all aspects of OST. Further hypotheses and possible interpretations have been identified through consultation with the College of Physicians and Surgeons of British Columbia. These hypotheses will inform future versions of the report. They include suggestions that

- The retention rate for methadone may be artificially low because a patient who switched from methadone to suboxone (or vice versa) may be counted as discontinuing opioid substitution treatment.
- It is unclear the degree to which lower than recommended average maintenance dose levels for methadone are the result of low-threshold or periodic OST prescribing.
- It is unclear how the Study to Assess Long-Term Opioid Medication Effectiveness (SALOME) may have influenced OST data in Vancouver Coastal Health. Patients participating in the SALOME study may appear to have discontinued OST, when in fact they have switched to an experimental treatment as part of the study.
- It is unclear how much the OST retention data may be affected by patients becoming hospitalized or incarcerated. In either case, patients may appear as having discontinued treatment, when in fact they may have continued treatment in those institutions. Hospital and correctional institution prescription medication data are not included in the PharmaNet datasets used for the report.
- Future analyses on treatment retention should link to Vital Statistics data, which would ensure retention estimates do not conflate people who die while receiving OST with people who simply discontinue treatment.
- Information is not available on the contribution of addictions to prescribed opioid medication to the demand for OST. We do not know how many new OST patients are transitioning into maintenance treatment from prescription pain medication.

Over the last decade, greater access to opioid substitution treatment, in addition to other harm reduction initiatives, has contributed to reduced HIV infection incidence among people who inject drugs.[12] Access to OST in rural and remote areas remains a challenge for the health system. The measures in this report are important indicators of the status of BC's OST system. Further work is needed on aspects of the OST system not included in this report (such as psychosocial supports). The information in this report is important for maintaining and improving service delivery and patient outcomes in BC.

5. RESOURCES

British Columbia Methadone Program Websites

The websites listed below provide relevant information about BC's opioid substitution treatment system.

BC Ministry of Health
www2.gov.bc.ca/gov/content/health/managing-your-health/mental-health-substance-use/mental-health-and-substance-use-information-and-publications

College of Physicians & Surgeons of BC
www.cpsbc.ca/programs/bc-methadone-program

College of Pharmacists of BC
www.bcpharmacists.org/methadone-maintenance-treatment-mmt

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