CHAPTER 2

SUBSTANCE USE TRENDS

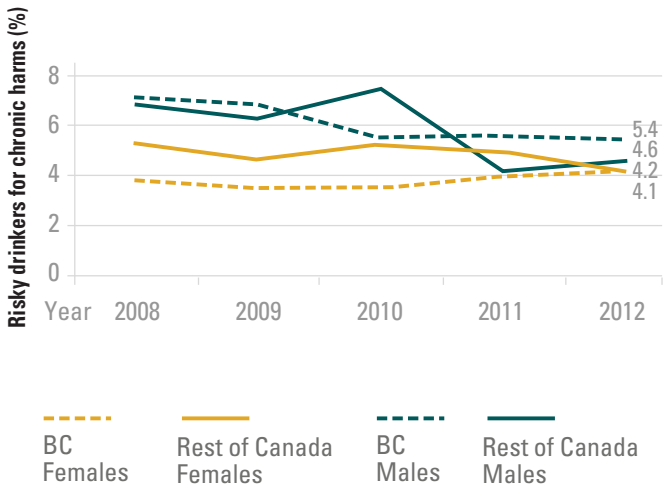
General Population and Substance Use

The Canadian Alcohol and Drug Use Monitoring Survey (CADUMS) is a general population telephone survey, thus participants must have a landline phone and are willing to answer the survey. In 2011, CADUMS found 89.7% of Canadians reported consuming alcohol at some point in their life (78.0% in the past 12 months), and 39.4% have ever used cannabis (9.1% in the past 12 months).[19] The Canadian Centre on Substance Abuse identifies the threshold for low-risk drinking for chronic harms as exceeding 15 drinks per week/3 drinks per day for males and 10 drinks per week/2 drinks per day for females; and for acute harms 5+/4+ drinks on one occasion for males/females respectively.

Figure 2.1a and 2.1b show CADUMS risky alcohol use by male and female participants from 2008 to 2012. From 2008 to 2010 males were significantly ($p < 0.05$) more likely to report drinking in excess of the low risk drinking guidelines for chronic harms than females in BC and Canada (Figure 2.1a). The proportion of males and females reporting risky alcohol use for acute harms are higher in BC than the rest of Canada (Figure 2.1b).[20]

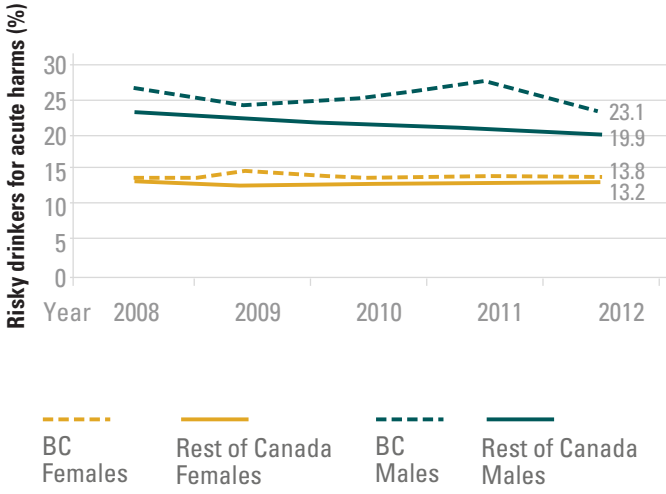
Figure 2.1 **CADUMS substance use trends in BC and Canada based on gender, 2008-2012; a) Prevalence of risky drinking in past year for chronic harms, b) Prevalence of risky drinking in past year for acute harms[18]**

a) Prevalence of risky drinking in past year for chronic* harms among Canadians aged 15+ by gender, 2008-12



* Having 16+ drinks in men and 11+ in women weekly

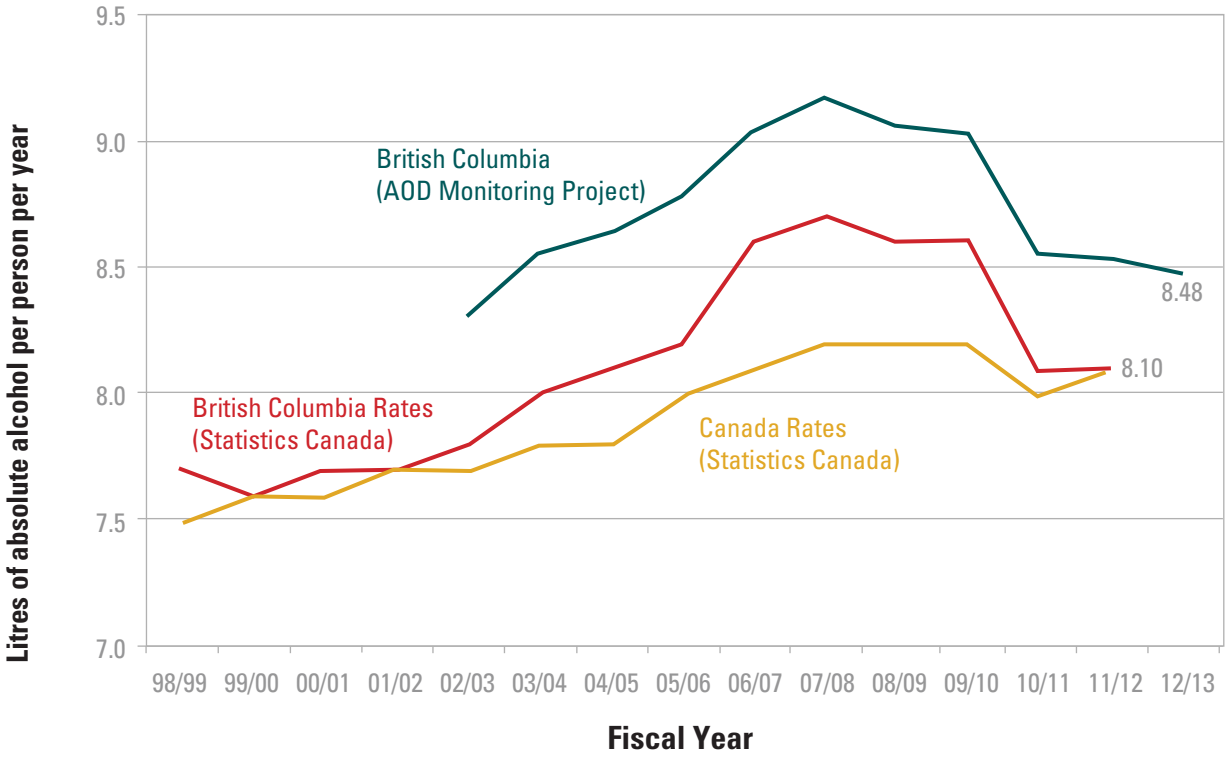
b) Prevalence of risky drinking in past year for acute* harms among Canadians aged 15+ by gender, 2008-12



* Having 5+ drinks in men and 4+ in women weekly on one occassion atleast once in past 30 days

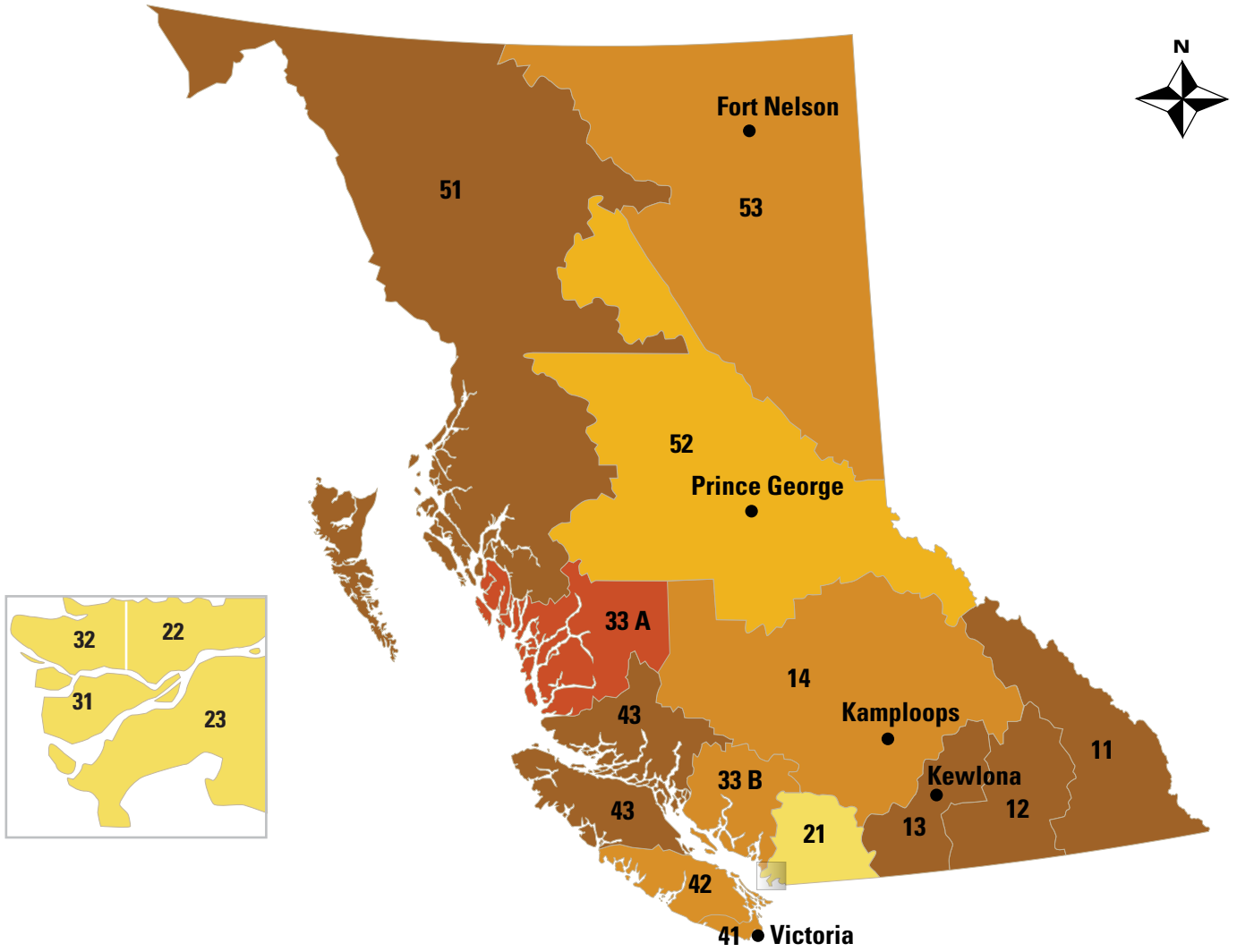
Figure 2.2 presents per capita alcohol consumption for individuals 15 and older in BC and Canada between 1998/99 and 2012/13. Alcohol consumption in Canada and BC steadily increased until 2007/08. Alcohol consumption in BC consistently exceeds the Canadian average. Please note that the Alcohol and Other Drug (AOD) monitoring project estimates of alcohol consumption are higher because they include UBrew and UVin sales.[20] UBrews and UVins are businesses that sell ingredients and equipment used to produce beer, wine, ciders, or coolers.[20]

Figure 2.2 **Annual per capita age 15+ alcohol consumption for BC and Canada in litres of absolute alcohol, 1998/99 to 2012/13[20]**



Per capita alcohol consumption based on 2011 alcohol sales data (reported in litres of absolute alcohol) among resident adults (15 years and older) for the 16 HSDA in BC is shown in figure 2.3. The rate was calculated by the sales per resident population, the highest rate at 13.31 litres per adult was in the northern geographic region of North Shore/Coast Garibaldi HSDA (which includes Bella Coola Valley). The lowest rate, 4.51 litre per adult, was in Richmond. As seen in Figure 2.3, alcohol use is higher in the northern and eastern interior regions of BC compared to the rest of the province.[20]

Figure 2.3 **Per capita alcohol consumption by HSDA in BC in 2012[20]**



Per Capita[1] Litres (L) of Absolute Alcohol Consumption

[1] *15 years and older*

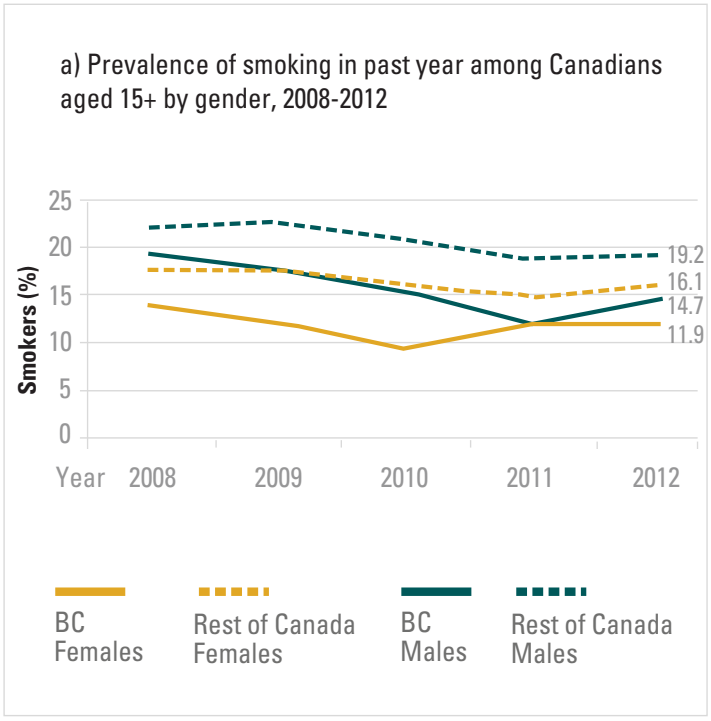
- > 14.00 L
- 12.50 L - 14.00 L
- 11.00 L - 12.49 L
- 9.50 L - 10.99 L
- 8.00 L - 9.49 L
- < 8.00 L

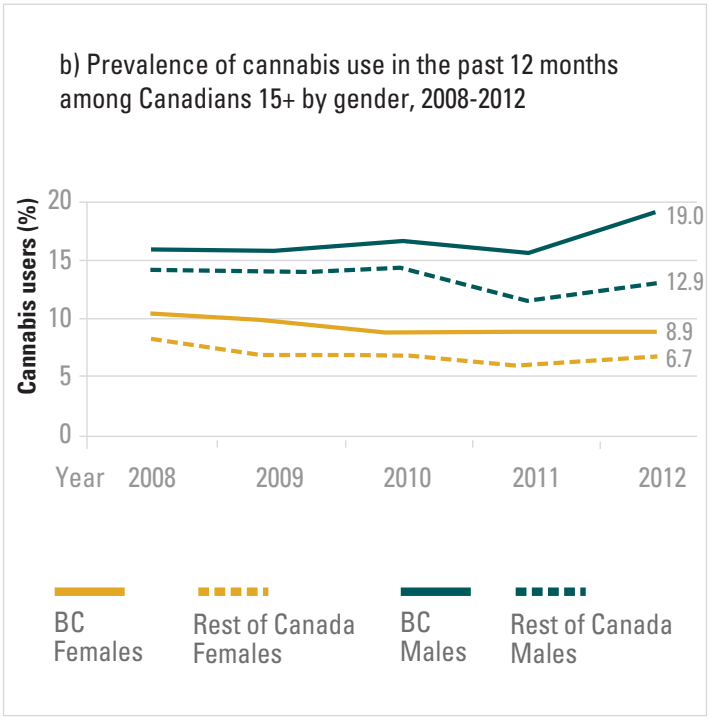
11 East Kootenay (11.69 L)
12 Kootenay Boundary (11.13 L)
13 Okanagan (11.45 L)
14 Thompson Cariboo Shuswap (10.78L)
21 Fraser East (7.20 L)
22 Fraser North (5.83 L)
23 Fraser South (6.48 L)
31 Richmond (4.51 L)
32 Vancouver (7.72 L)

33 A North Shore/Coast Garibaldi North (13.31 L)
33 B North Shore/Coast Garibaldi South (10.49 L)
41 South Vancouver Island (9.96 L)
42 Central Vancouver Island (10.14 L)
43 North Vancouver Island (11.47 L)
51 Northwest (11.37 L)
52 Northern Interior (9.36 L)
53 Northeast (10.64 L)

Self-reported tobacco use among males and females in BC is consistently lower than the rest of Canada. However, cannabis use in both sexes was higher in BC and an increase was reported among BC males in 2012 (Figure 2.4a). Males in BC and the rest of Canada were significantly ($p < 0.05$) more likely than females to report cannabis use (Figure 2.4b).

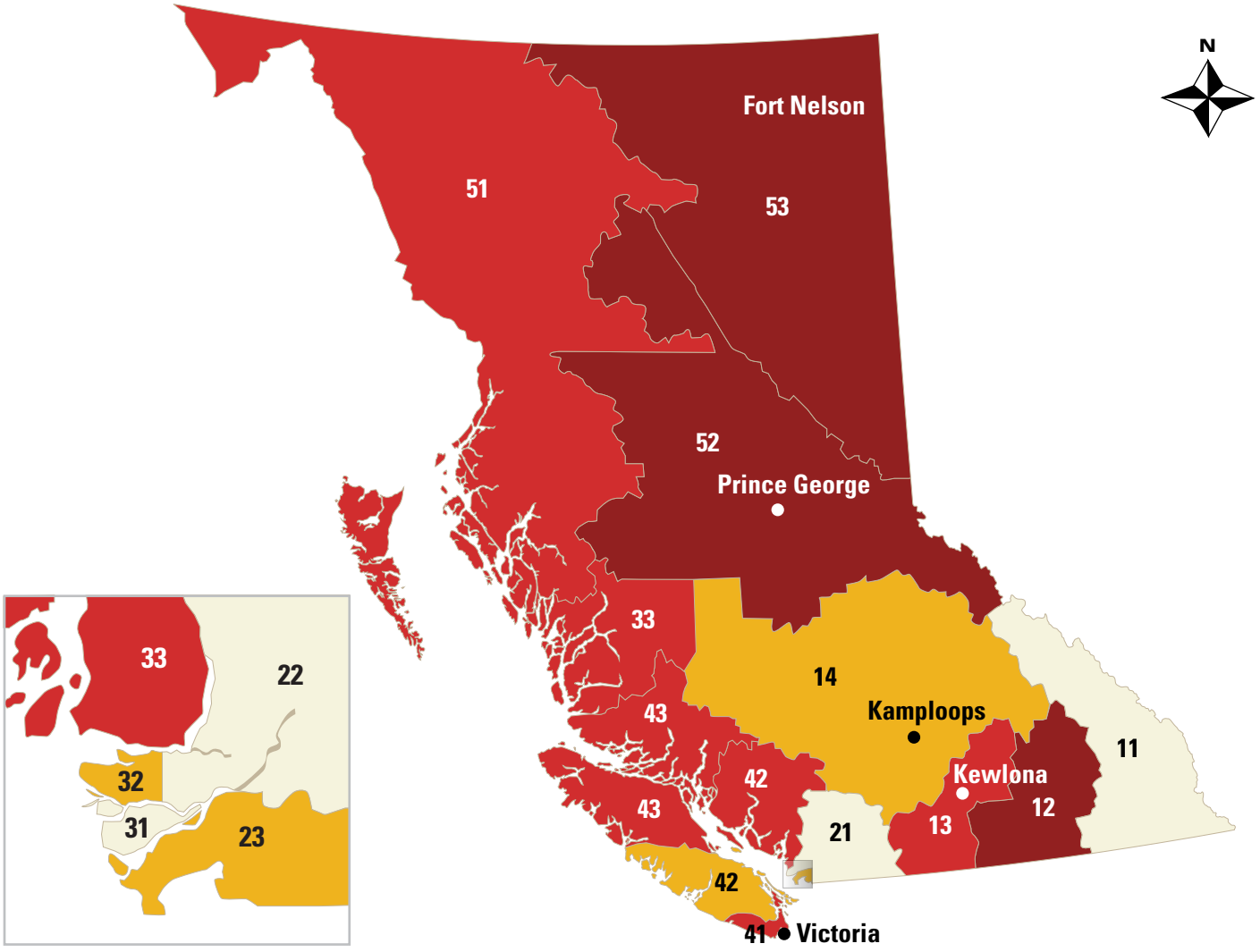
Figure 2.4 **CADUMS substance use trends in BC and Canada by gender, 2008-2012;**
a) Prevalence of tobacco smoking in the past year;
b) Prevalence of cannabis use in the past 12 months[20]





CADUMS reported the prevalence of lifetime cannabis use in BC in 2011 as 44.3%.[6] As shown in Figure 2.5, the Kootenay Boundary HSDA has the highest prevalence of lifetime cannabis use (62%); closely followed by Northern Interior (61%), Northeast (60%) and South Vancouver Island (57%). Richmond has the lowest prevalence of lifetime cannabis use (35%).[20]

Figure 2.5 **Percentage of lifetime cannabis use by HSDA in BC, 2008-2009[20]**



Percent Lifetime Cannabis Use Among Adults[1]

[1] age15 years or older

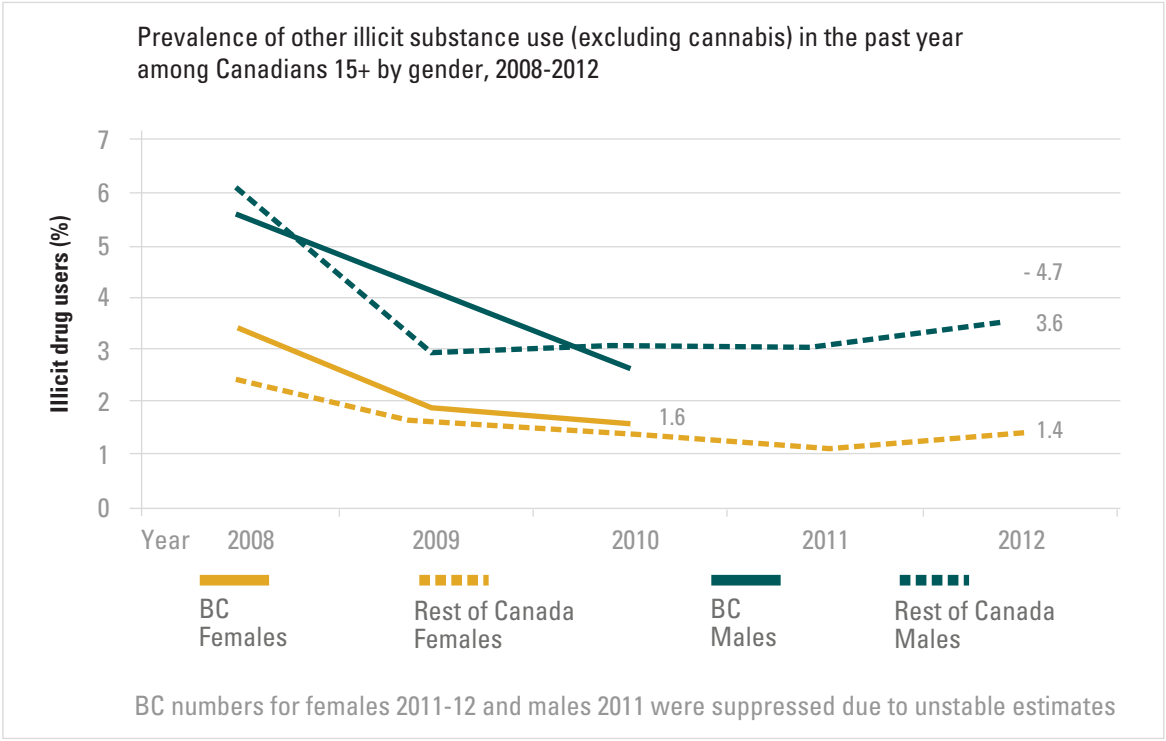
- 53.7 – 62.0
- 51.2 – 53.6
- 44.7 – 51.1
- 34.4 – 44.6

Classified using quartiles

11 East Kootenay (43.0%)
12 Kootenay Boundary (62.00%)
13 Okanagan (51.6%)
14 Thompson Cariboo Shuswap (49.2%)
21 Fraser East (41.4%)
22 Fraser North (44.6%)
23 Fraser South (45.6%)
31 Richmond (34.4%)
32 Vancouver (46.5%)
33 North Shore/Coast Garibaldi (52.4%)
41 South Vancouver Island (57.3%)
42 Central Vancouver Island (51.1%)
43 North Vancouver Island (52.8%)
51 Northwest (53.6%)
52 Northern Interior (61.1%)
53 Northeast (60.3%)

Figure 2.6 illustrates the prevalence of illicit substance use (other than cannabis) in the past 12 months among adults aged 15 and older reported by CADUMS. Prevalence was estimated using the number of the people who reported using any illicit drugs including cocaine, speed, methamphetamine, ecstasy, hallucinogens, inhalants, heroin, pain relievers, stimulants, and sedatives divided by the sample population. In BC and the rest of Canada, males were more likely than females to use illicit substances and the prevalence of illicit drug use between 2008 and 2012 is significantly higher ($p < 0.05$) in BC compared to the rest of Canada.[20]

Figure 2.6 **CADUMS substance use trends in BC and Canada by gender, 2008-2012; Prevalence of other illicit substance use (excluding cannabis) in the past 12 months[20]**

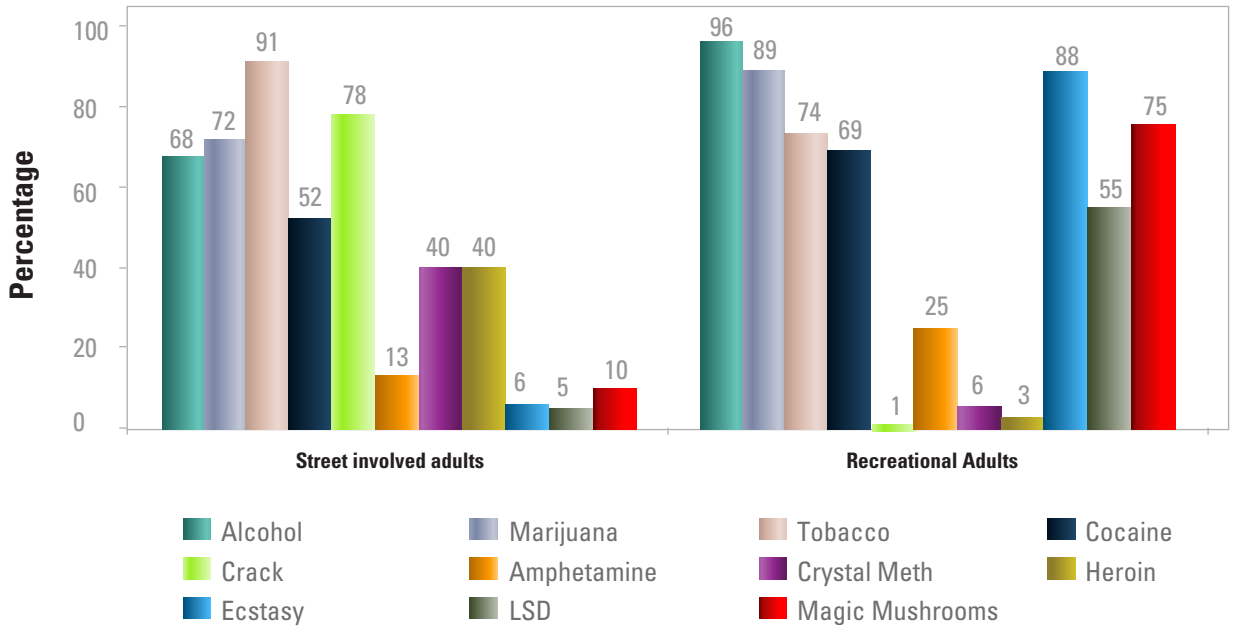


High Risk Populations and Substance Use

CARBC's High Risk Populations survey is a convenience sample of 50 street-involved adults and 50 adults using drugs recreationally, in Vancouver and Victoria every six months. These high risk populations report higher alcohol, cannabis, and other illicit substances use compared to the general population. However, substance use patterns vary between these two high-risk populations. Figure 2.7 shows that in 2012, 1% of recreational drug using adults compared to 78% of street-involved adults reported crack cocaine use in the previous month, while 88% versus 6% in the same groups used ecstasy. There are also statistically significant differences in crystal methamphetamine, heroin, LSD, and mushroom use.[20]

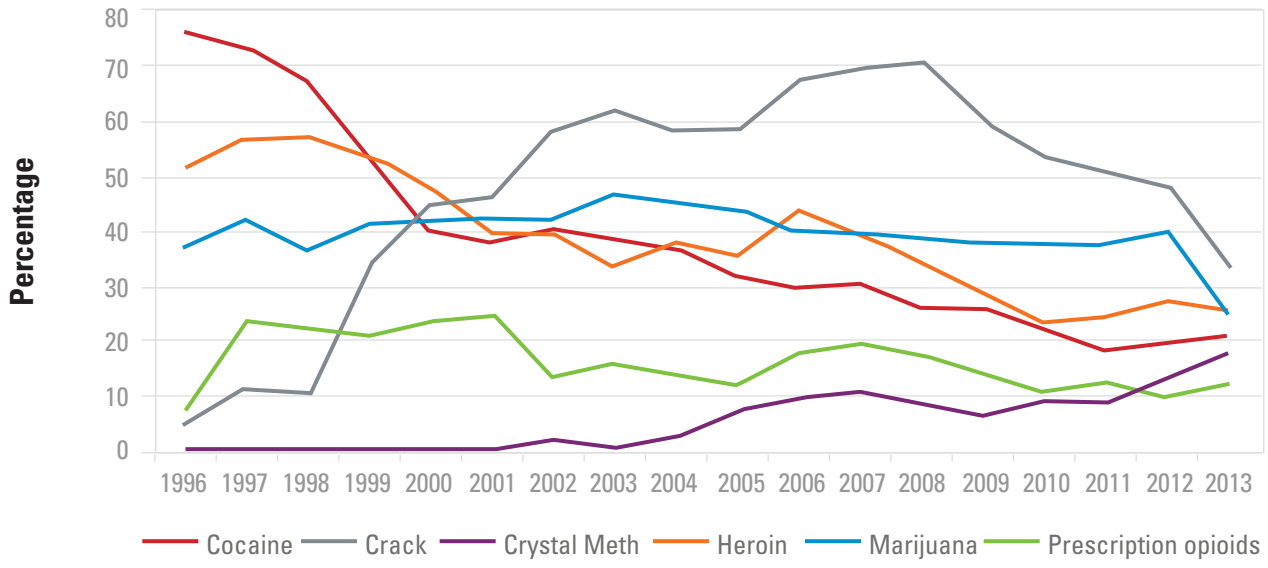
The survey also found 36% of the recreational-use adult cohorts in Vancouver and Victoria reported simultaneous alcohol and marijuana use over the previous weekend, and 11% reported simultaneous use of alcohol and cocaine. Using more than one substance at a time (poly-substance use) was lower among street-involved adults, the most frequently mixed substances being alcohol and marijuana (10%) followed by crystal meth and heroin (7.5%).[20]

Figure 2.7 **Past month substance use in high risk populations in Victoria and Vancouver, 2012 (Wave 2)[20]**



Drugs used at least weekly reported by the VIDUS and ACCESS cohorts are shown in Figure 2.8 and 2.9. Figure 2.8 indicates considerable changes in weekly drug use (by any route) over time. Cocaine use declined since 1996, while crack cocaine use increased from 5.1% in 1996 to 70.6% in 2008 but declined to 34% in 2013. Crystal methamphetamine use reached its highest recorded level in 2013 (17.8 %).

Figure 2.8 **Weekly drug use* patterns among people who use illicit drugs in Vancouver, Canada, 1996-2013**

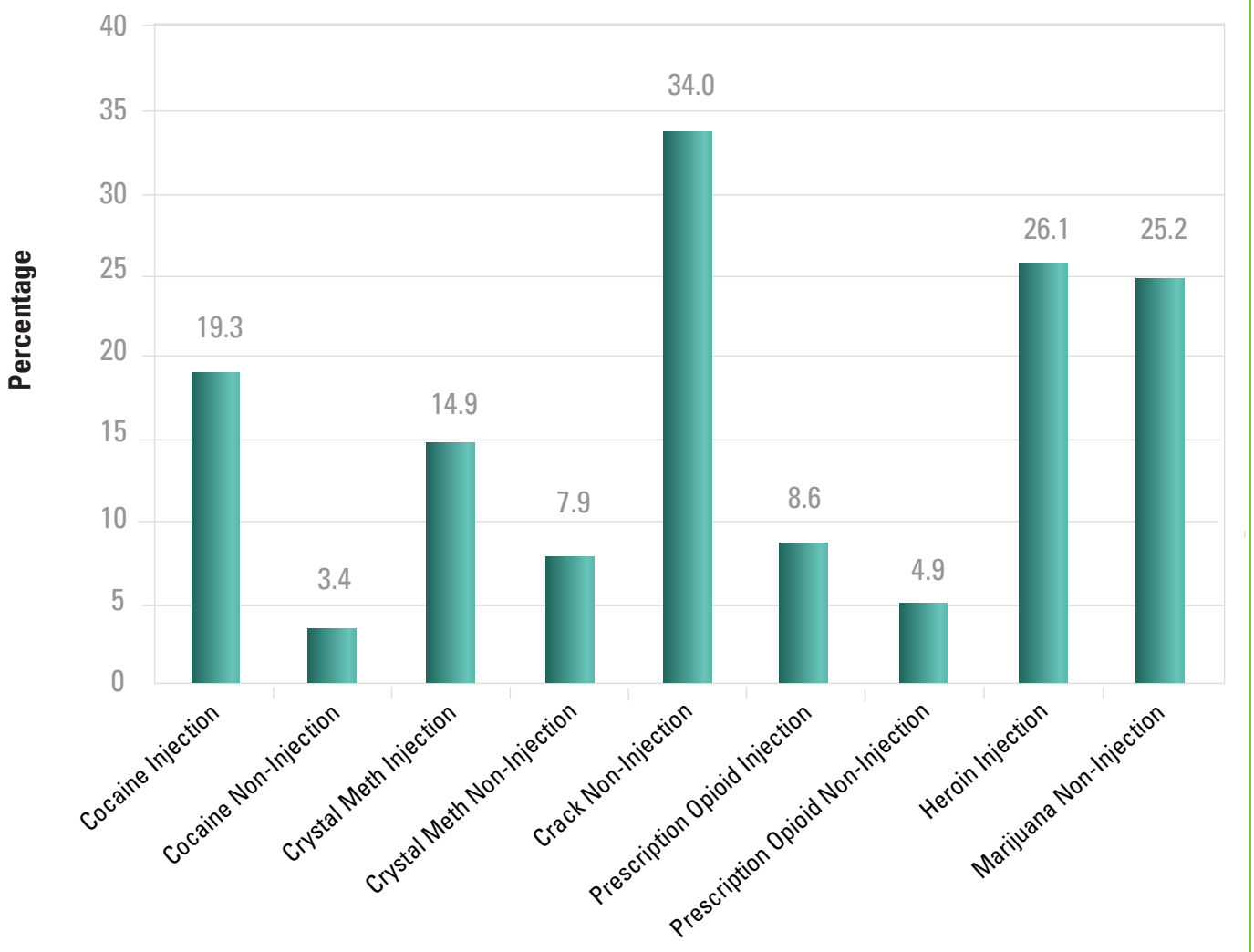


(BC Centre for Excellence in HIV/AIDS, personal communication, June 10, 2014)*
Note: each category in the graph captures both injection and non-injection use of the specified drug

Figure 2.9 shows weekly drug use by route of administration; illicit prescription opioid use (i.e. use of prescription opioids without a valid prescription) includes OxyContin (oxycodone), Percocet (oxycodone/tylenol), Tylenol 3 (codeine/tylenol), morphine, Dilaudid (hydromorphone), Demerol (meperidine or pethadine), methadone, fentanyl, hydrocodone, and Talwin (pentazocine).

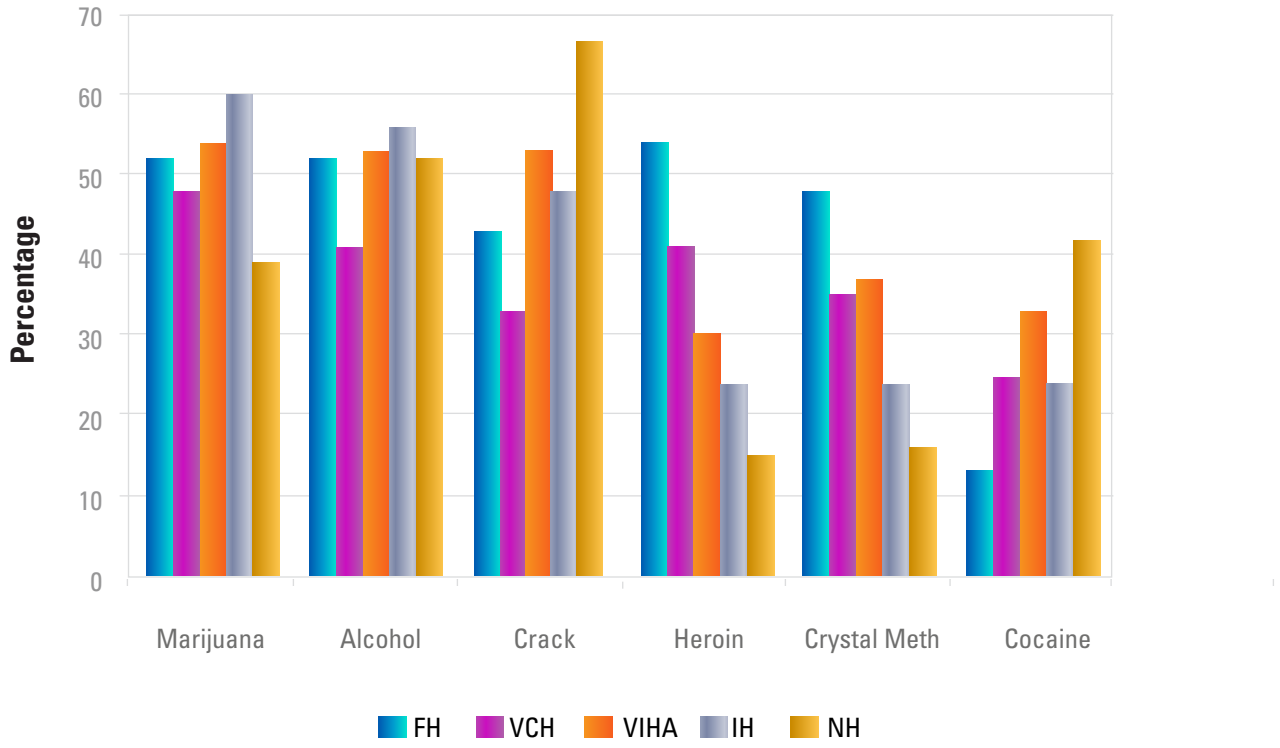
Most high-risk drug use research in BC is conducted in Vancouver and Victoria. To gain a better understanding of drug use outside these two cities, over 700 clients using harm reduction distribution sites throughout BC were surveyed in 2012 and 2013 (HR client survey).[22,23] In 2013, drug use was weighted by HSDA population; the three most commonly used substances were marijuana (51%), alcohol (48%), and crack (35%). Substance use patterns vary between regions as seen in Figure 2.10. Crack use was highest in NH (67%) and lowest in VCH (33%). Powdered cocaine use was also highest in the NH region. By contrast, reported use of heroin and crystal meth was lower in NH compared to other regions of BC and highest in FH (54% and 48% respectively).[23]

Figure 2.9 **Weekly substance use prevalence among people who use illicit drugs in Vancouver, Canada, 2013**



(BC Centre for Excellence in HIV/AIDS, personal communication, June 10, 2014)

Figure 2.10 **Percent of HR clients reporting substance use in the past week by HA, weighted by HSDA population, 2013[23]**



Substance Availability and Cost

The availability of illicit drugs in Vancouver is reported by UHRI as the percentage of PWUD who can obtain the drug within 10 minutes. PWUD in Vancouver were more likely able to obtain crack cocaine (80%), cocaine (70%) and heroin (70%) than cannabis (65%) or crystal methamphetamine within 10 minutes in 2011.

URHI cohort participants identified the cost of drugs has been stable over the past 10 years:

- Heroin $20 per 0.1 gram since 2001,
- Powder cocaine and crack cocaine $10 per 0.1 gram
- Crystal methamphetamine $10 per 0.1 gram.

The availability and consistent price of drugs in the Vancouver area does not support the claim that law enforcement efforts have reduced the available drug supply and increased the cost of illicit substances.[18]

The Centre for Addiction Research of BC (CARBC)'s High Risk Population survey in Vancouver and Victoria shows similar trends in drug prices and availability. Since 2008, cocaine, crack, heroin, and crystal meth have been reported by street-involved adults in both cities as being either "easy" or "very easy" to obtain. Furthermore, the reported street prices of these substances are very similar to those reported in UHRI's research and have fluctuated little over the years.[20] More information on drug trafficking can be found in the *enforcement chapter* of this report.

The 2014 UNODC World Drug Report identifies Canada as the country with the highest consumption of prescription opioids, with 812.2 mg per capita of morphine equivalence (see Table 2.1); the next highest is United States at 749.79 mg per capita.[24] Canada's high rate of pain medication prescribing and availability has serious implications for drug-related harms and diversion.

Table 2.1 **Morphine equivalence consumption per capita Canada, 2011**

Drug	mg/capita	ME mg/capita
Fentanyl	2.4366	203.0396
Hydromorphone	25.0938	125.4691
Methadone	20.0946	200.3782
Morphine	87.4741	87.4741
Oxycodone	145.8966	194.0425
Pethidine	7.1278	1.7820
Total Morphine Equivalence		812.1855

http://www.painpolicy.wisc.edu/country/profile/canada

Oxycontin

OxyContin, a patented prescription version of oxycodone used to treat moderate to intense pain, was discontinued in Canada in March 2012.[25] OxyContin was a slow-release narcotic when taken orally as intended; however, users could release high levels of the drug instantaneously by crushing and snorting the tablet. OxyNEO was introduced by the same manufacturer, Purdue Pharma, as a replacement drug that was designed to be harder to crush and dissolve, limiting abuse through snorting and injecting.[25,26] Since its introduction, several provincial health plans altered their drug coverage to restrict coverage of OxyNEO. In BC, only exceptional case-by-base coverage requests for OxyNEO are considered and it is only covered through the palliative care plan.[27,28] There are concerns that the recent lack of OxyContin is leading some opioid dependant users to seek out more accessible and potentially more dangerous opioids. A US-based study found that after the formulation changed, misuse of OxyContin among patients undergoing opioid dependence treatment decreased from 35.6% to 12.8%.[29] However, fentanyl and hydromorphone use increased among these patients, and heroin use doubled.[29]

Although the replacement of OxyContin with OxyNEO was intended to address concerns over misuse of the drug, Health Canada's subsequent decision in November 2012 to approve generic production of extended release oxycodone allowed off-brand versions to enter the Canadian pharmaceutical market.[30] These generic versions are not currently covered under BC's provincial formulary.[28]

Medical Marijuana

There have been recent developments regarding medical marijuana licensing. Health Canada's 2014 proposed Marijuana for Medical Purposes Regulations (MMPR) required patients to end home production of medical marijuana on April 1, 2014.[31] However, following a constitutional challenge to the MMPR, a Federal Court granted an injunction on March 21, 2014.[32] This allows those with personal and designated production licenses (for persons responsible for the patient) to continue home production of medical marijuana until the case goes to trial in spring 2015.[32] The injunction does not affect Health Canada's new medical marijuana licensing system for dispensing prescribed marijuana, and there are concerns that new patients will have difficulty affording the higher marijuana prices projected to result from the federal legislation.[32] On a related note, licensed sales of recreational marijuana began in Washington State on July 8, 2014.[33] This may have implications on illicit cannabis trade with BC, given the U.S. state's close proximity.

Fentanyl

BC has experienced a recent increase in fentanyl availability and fentanyl-detected deaths. Fentanyl is a synthetic narcotic that is used to relieve intense pain. In BC, fentanyl can be prescribed for pain management as a transdermal patch, which provides sustained release of the drug.[34] However, this formulation is susceptible to abuse through the extraction of patch contents and subsequent intravenous injection.[35] Fentanyl is 50-100 times more potent than morphine, which greatly increases the risk of accidental overdose.[36] Early signs of fentanyl overdose include severe sleepiness, slow heartbeat, difficulty breathing, cold/clammy skin, and trouble with walking or talking.[36]

The RCMP and municipal police forces in BC have identified illegally manufactured fentanyl as a white powder resembling heroin and in tablet form as counterfeit oxycodone (fake oxy) tablets.[37,38] Illegally-produced fentanyl can be significantly more toxic than the pharmaceutical-grade.[39] Tablets containing fentanyl are green and are stamped with "CDN" and the number 80 on the opposite sides (Figure 2.11). These pills are nicknamed "green jellies" and "street oxy" in Western Canada.[37] White tablets with "CDN" and "10" stamped on them have also appeared in British Columbia (Figure 2.11). Seized quantities of these two versions tested positive for fentanyl 89% of the time and contain variable, sometimes very high, dose of fentanyl.[37] Individuals using these drugs may be under the assumption that they contain oxycodone only and are therefore at high risk of accidental overdose.

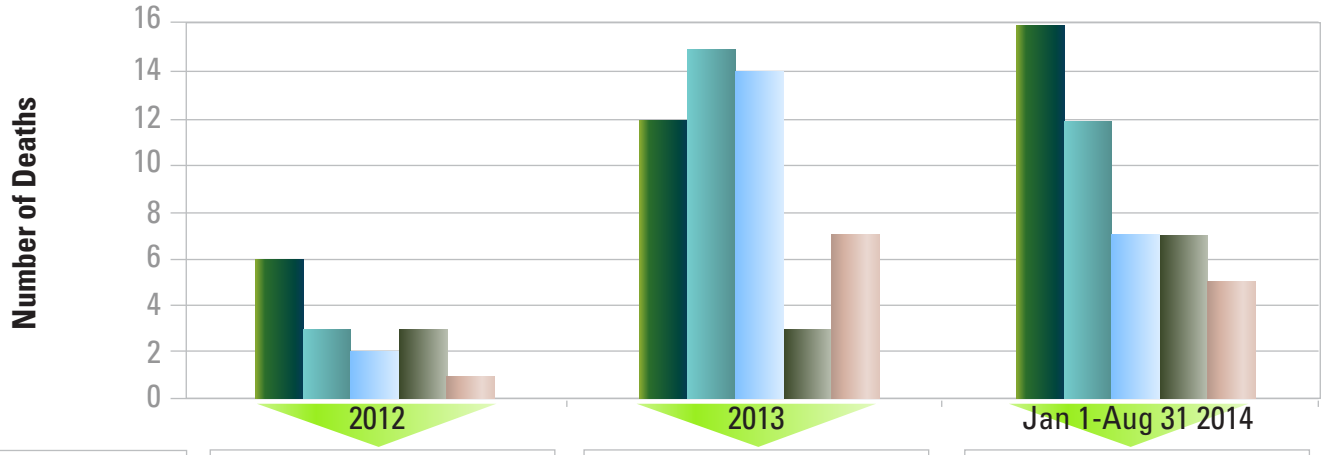
On May 30th, 2013 in response to an increase in fentayl-detected deaths in BC, a joint alert was issued by the Provincial Health Officer, BC Coroners Service (BCCS), healthcare and enforcement partners, warning the public of the increase in deaths and availability of fentanyl within the street drug market. After the alert fentanyl-detected deaths declined in June and July 2013, but have since increased. In 2012 there were 15 fentanyl-detected deaths; a total of 51 fentanyl-detected deaths were identified in BC in 2013; most 2013 fentanyl-detected deaths occurred in Metro Vancouver region (15), Island (14), and Fraser (12) (Figure 2.12).

Preliminary data from the BCCS indicates 49 fentanyl-detected deaths occurred in the first eight months of 2014 (January 1st to August 31st) of these 10 occurred in the City of Vancouver and 18 in the Fraser region, about a third (16) were female. Please note that 2013 and 2014 data are preliminary and subject to change and these deaths only include fentanyl found in illicit drug-related circumstances, and exclude overdose deaths in persons prescribed fentanyl.[40]

In June 2014, the BCCS issued another public warning urging all PWUD to exercise extreme caution when consuming substances that may contain fentanyl. More information regarding fentanyl can be found in the *Mortality* section.[37]

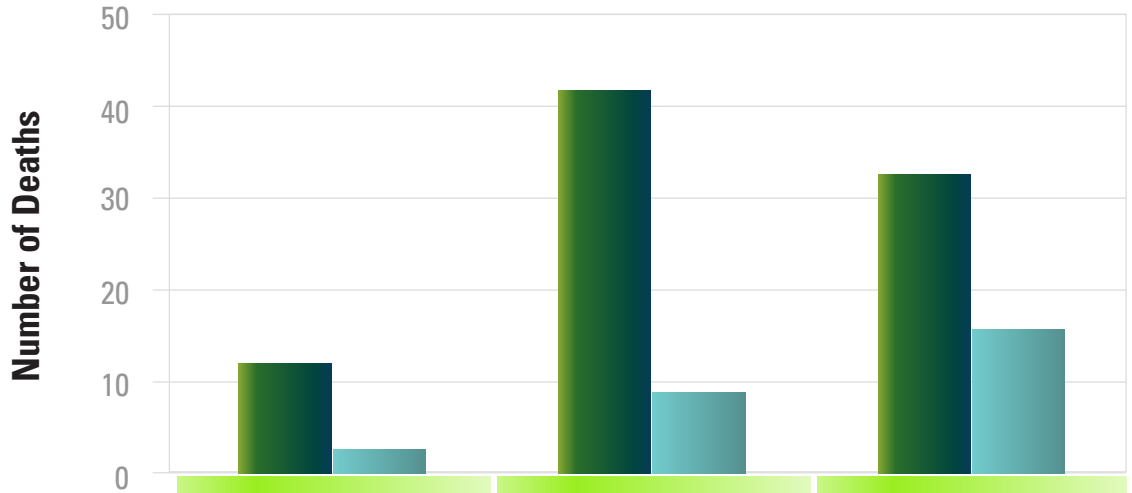
Figure 2.11 Samples of seized counterfeit oxycodone tablets[39]

Figure 2.12 **Fentanyl-detected deaths by BCCS region, 2012-2014[40]**



	2012	2013	Jan 1-Aug 31 2014
Fraser	6	12	18
Metro	3	15	12
Island	2	14	7
Interior	3	3	7
Northern	1	7	5
Total	15	51	49

Figure 2.13 **Fentanyl-detected deaths by sex, 2012-2014[40]**



	2012	2013	Jan 1-Aug 31 2014
Male	12	42	33
Female	3	9	16

Youth

YOUTH IN SCHOOL

The McCreary Centre Society recruits grade 7-12 students in public schools throughout BC to participate in the *Adolescent Health Survey* (AHS) every five years. Since these participants are in school, they are unlikely to have major substance use problems. The 2013 survey had 259,138 participants and found that self-reported substance use among BC adolescents has declined since 2003 (Figures 2.14 and 2.15). Alcohol was the most commonly used substance in 2013, with 45% of BC youth reporting that they had tried it.[41]

Self-reported use of steroids, heroin, inhalants, amphetamines, or cocaine has remained stable or declined since 2003. Adolescent use of prescription pills peaked in 2008.

Figure 2.14 **Percentage of BC youth who have ever used alcohol, cannabis, tobacco; 2003-2013[41]**

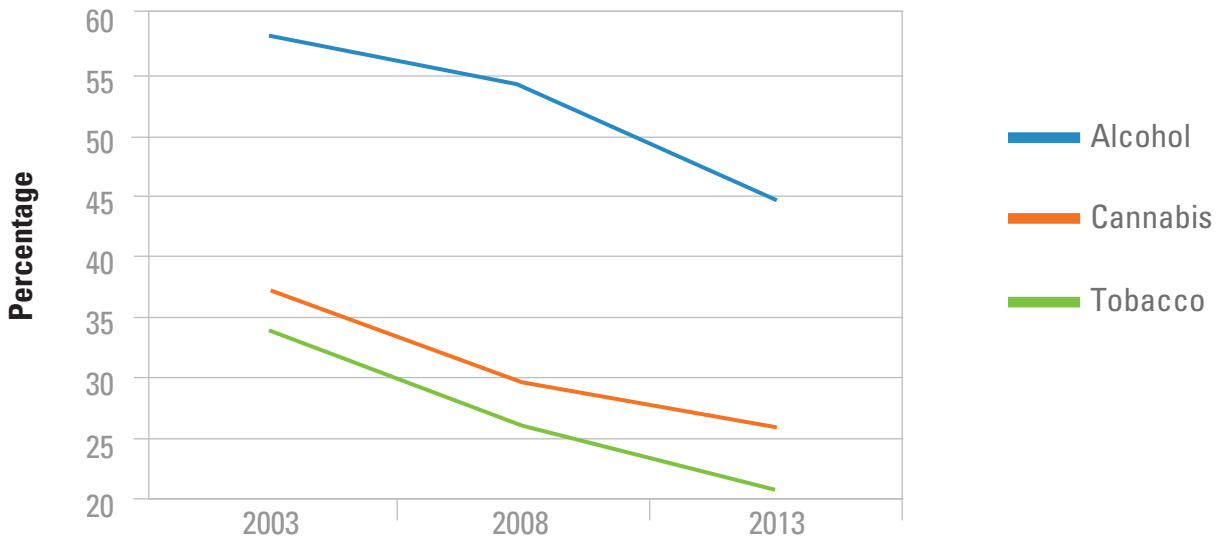
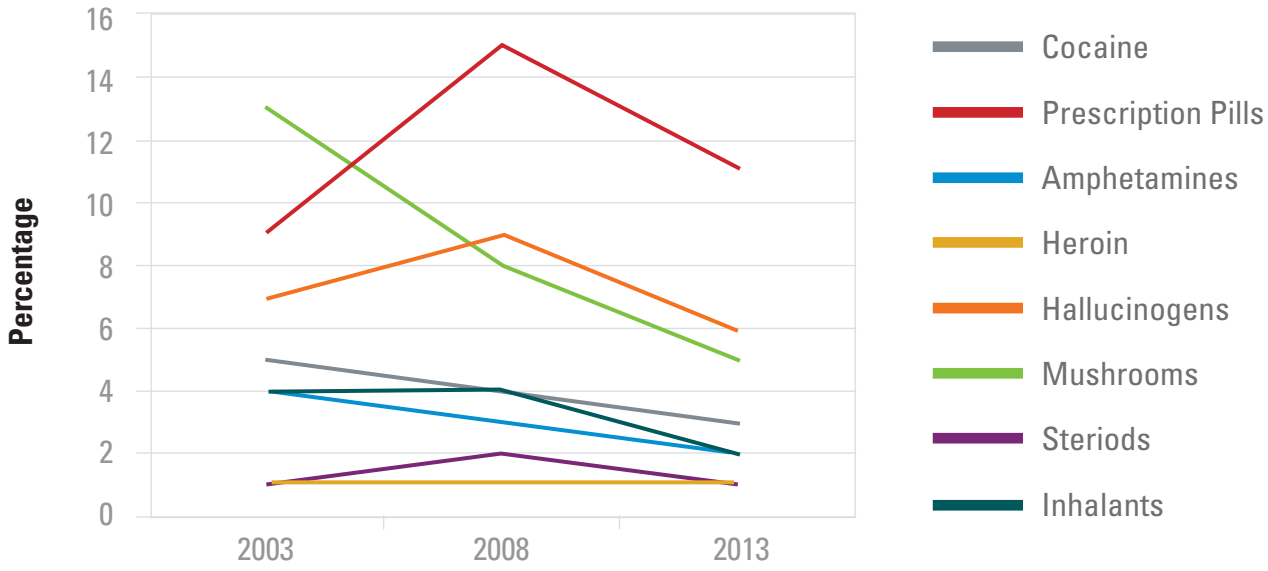


Figure 2.15 **Percentage of BC youth who have ever used prescription pills, illicit substances; 2003-2013[41]**



Although some students experiment with alcohol and cannabis before the age of 13, the majority (65%) who tried alcohol and cannabis did so between the ages of 13 and 15 (Figure 2.16).[41]

Table 2.2 summarizes the self-reported reasons among adolescents for their most recent substance use event. The most cited reason was "I wanted to have fun" followed by "my friends were doing it" and "I wanted to try it/experiment".

Mental health factors were also reported as reasons for drug use: 'because of stress' or feeling "down or sad". Youth who reported self-harm in the past year were more likely to use substances compared to those who had not self-harmed (43% vs. 14% respectively).[41]

Figure 2.16 **Age when BC youth used alcohol or cannabis for the first time[41]**

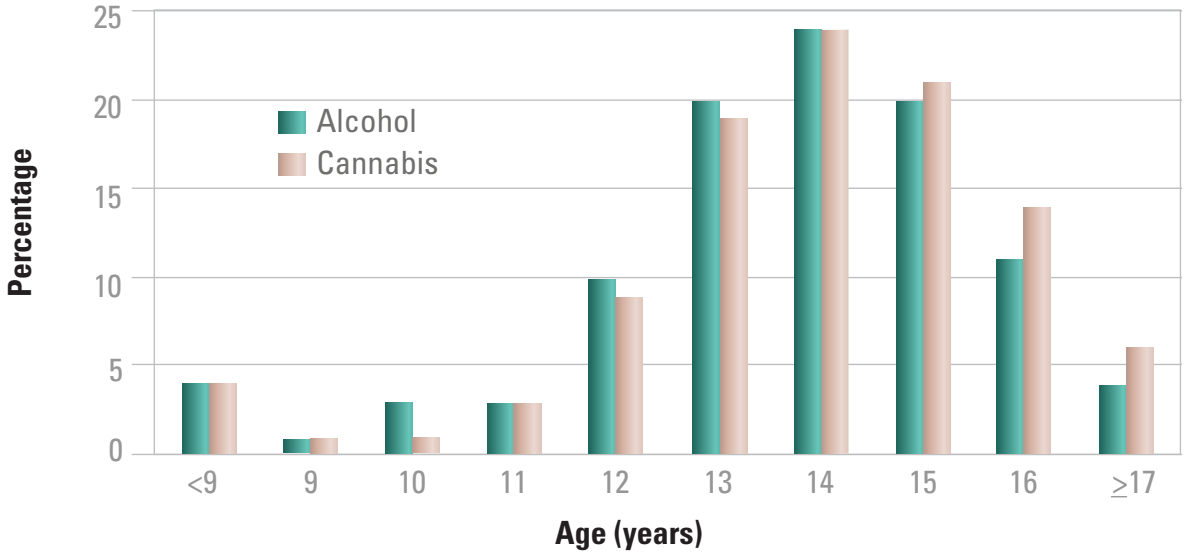


Table 2.2 **Reasons for last time substance uses for BC youth[41]**

	Males	Females
I wanted to have fun	60%	69%
My friends were doing it	29%	37%
I wanted to try it/experiment	27%	29%
Because of stress	16%	25%
I felt down or sad	11%	21%
I felt like there was nothing else to do	9%	10%
To manage physical pain	5%	7%
I was pressured into doing it	3%	4%
I thought it would help me focus	3%	3%
Because of an addiction	2%	2%
I didn't mean to do it	1%	1%
To change the effects of some other drug(s)	1%	1%
Other	21%	16%

About half of youth who used substances in the past year reported negative consequences. The most frequent responses were "doing something they could not remember", "passing out", and "getting injured" (Table 2.3).[41]

Substance use trends from the 2013 East Kootenay Addiction Service Society (EKASS) survey are similar to the AHS data. Since 2005, the proportion of East Kootenay area in-school youth experimenting with substances has declined. In 2013, females reported using fewer substances than males. This is in contrast to prior years; for example, alcohol use was 72.0% for girls and 70.3% for boys in 2007, but was 58.5% and 62.0% in 2013; similarly, cannabis use for girls and boys was 36.2% and 35.4% in 2007, but 27.3% and 33.6% respectively in 2013.[42]

The EKASS reports the proportion of students admitting to being in a car with an alcohol-impaired driver reached a high of 60.1% in 2009, but was 46.4% in 2013; a considerable decrease but still unacceptably high. Youth who reported driving after drinking alcohol also dropped from 20.1% in 2005 to 12.0% in 2013. Rate of self-reports of being a passenger in a car with a cannabis-impaired driver was 29.5% in 2011. These declines may also reflect the overall decrease in substance use among youth.[42]

HIGH RISK YOUTH

The proportion of lifetime drug use among a convenience sample of Vancouver and Victoria area street-involved youth aged 15-24 in the CARBC high risk survey is considerably higher than the in-school youth surveys (Figure 2.17). Although 2013 data is available for Victoria, the most recent data available for Vancouver is 2012. In 2012, marijuana use was more common than alcohol or tobacco, and over 90% of youth reported ever using cocaine at both sites. Reported lifetime use of amphetamines and ecstasy is more prevalent in street-involved youth from Victoria (53% and 95%) than Vancouver (38% and 83%).[20]

Table 2.3 **Consequences of substance use by BC youth in the past year[41]**

	Males	Females
Was told I did something I couldn't remember	31%	42%
Passed out	26%	29%
Got injured	12%	17%
Argued with family members	10%	15%
Damaged property	10%	5%
Got in trouble with police	9%	5%
Schoolwork or grades changed	8%	10%
Got into a physical fight	8%	5%
Lost friends or broke up with a girlfriend or boyfriend	5%	10%
Had sex when I didn't want to	4%	7%
Overdosed	2%	2%
Had to get treatment for alcohol or drug abuse	1%	1%
Used alcohol or drugs but none of this things happened	52%	46%

Figure 2.17 Percentage of Vancouver and Victoria street-involved youth who have ever used substances, 2012[20]

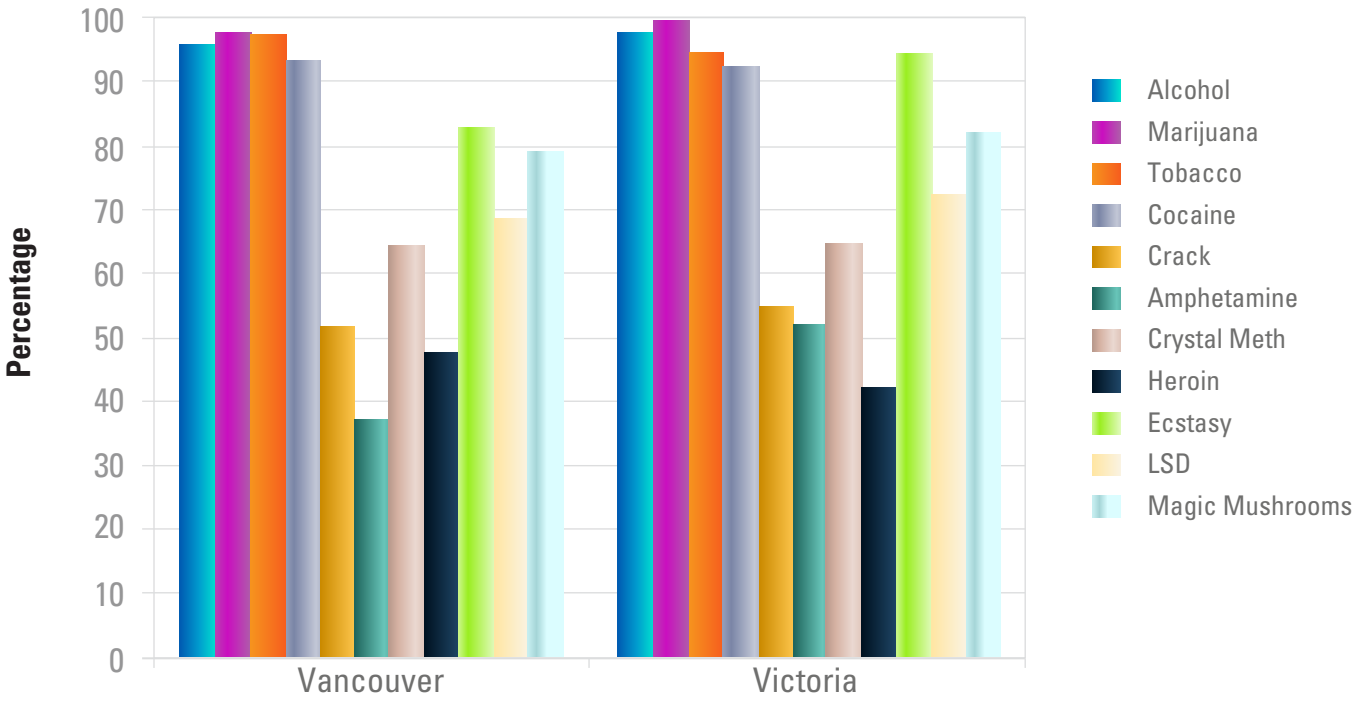


Figure 2.18 shows past 30 day substance use in Vancouver in 2012. More recent data (2013) for Victoria (Figure 2.19) shows alcohol use in the past 30 days reached its lowest reported prevalence (59.5%), while crystal meth use (81.1%) shows a steep increase since the second 2011 wave (28%). Crack, LSD, and heroin use declined between the two 2013 waves, however this is a small convenience sample (n=50 per wave per city) so rates may be unstable.[20]

Figure 2.18 Substance use trends in the past 30 days among street-involved youth in Vancouver, 2008-2012[20]

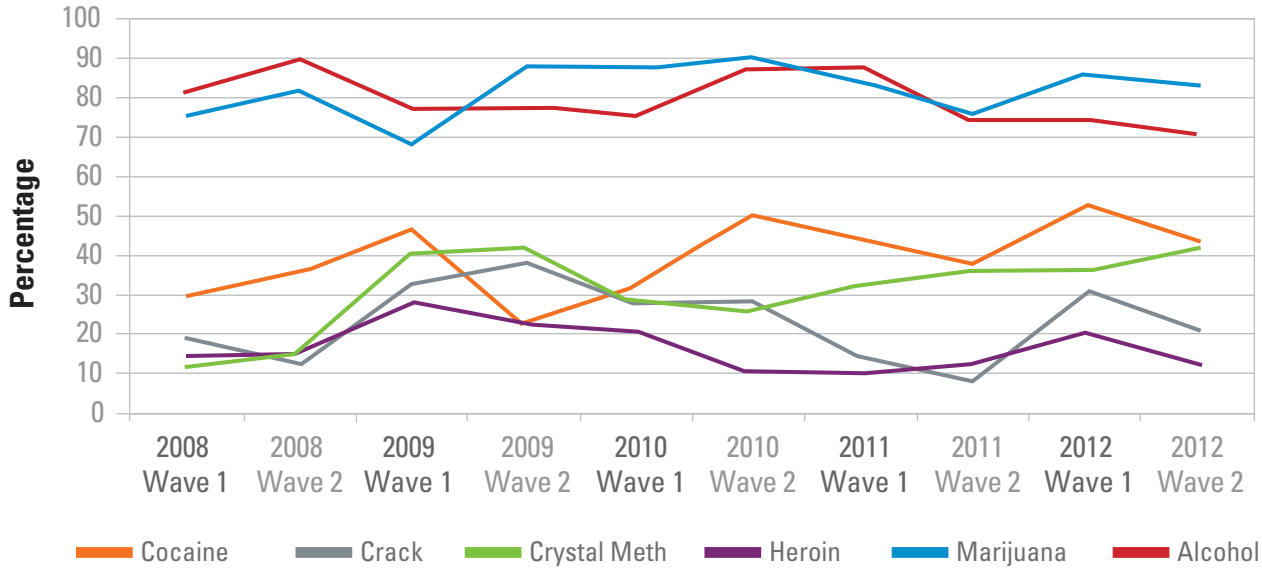
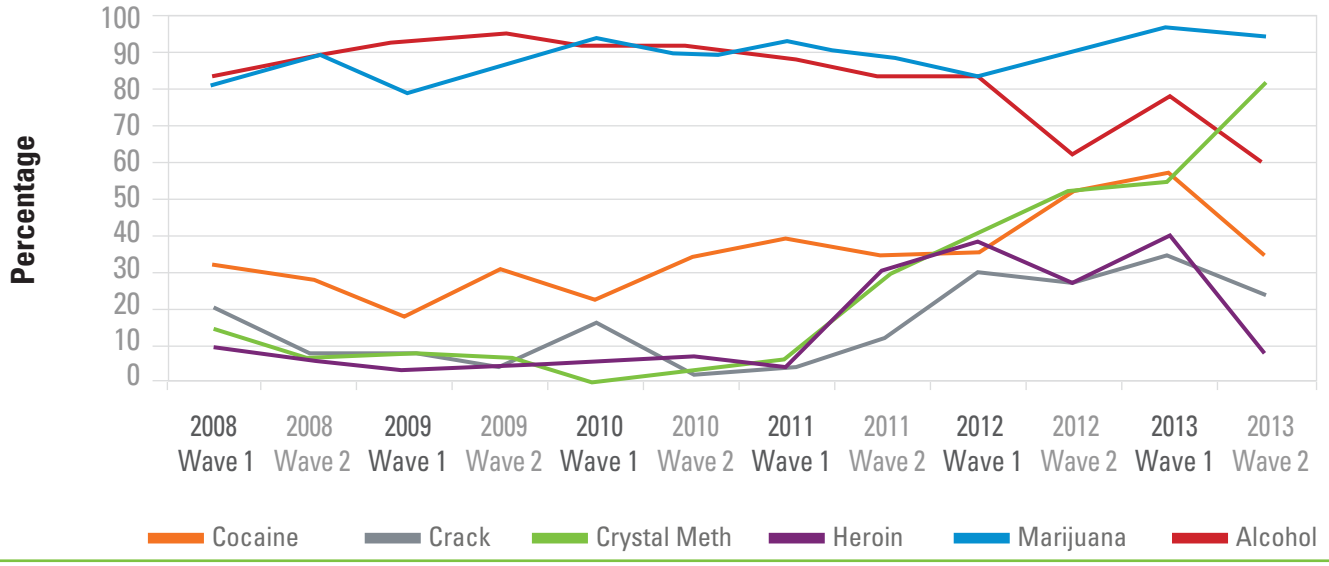


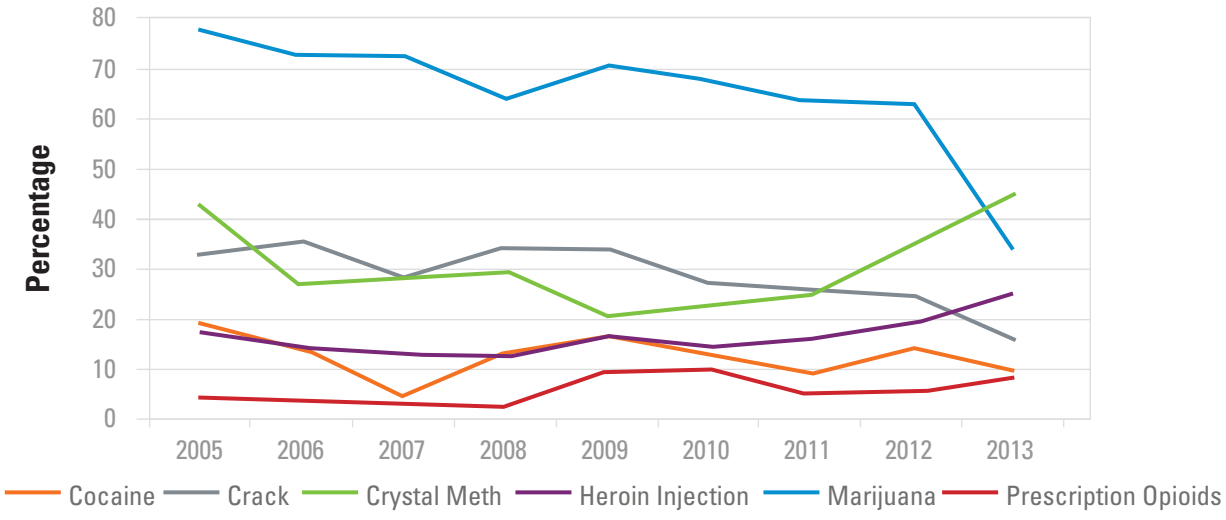
Figure 2.19 **Substance use trends in the past 30 days among street-involved youth in Victoria, 2008-2013[20]**



When asked about the perceived benefits of drug use in 2013 reasons most cited were: helping with social connections, alleviating symptoms of mental and physical illness, and making respondents feel happy, calm, and in some cases, more productive.[20]

The At-Risk Youth Survey (ARYS) led by UHRI studies risk factors for 14-26 year old street-involved youth in Vancouver. Figure 2.20 represents drugs used by any route at least weekly among ARYS participants. Reported marijuana use declined considerably between 2012 and 2013. However, crystal methamphetamine use has increased over the past 3 years, similar to that seen in the high-risk youth in Victoria (Figure 2.19). The proportion of ARYS participants reporting weekly crack use in 2013 (16.4%) is considerably lower than the older Vancouver-based VIDUS and ACCESS cohorts (Figure 2.8), for which crack was the most widely used substance that year.

Figure 2.20 **Weekly drug use patterns* among street-involved youth who use illicit drugs in Vancouver, Canada, 2005-2013**



(BC Centre for Excellence in HIV/AIDS, personal communication, June 10, 2014)

Note: each category in the graph captures both injection and non-injection use of the specified drug.