Knowledge Update

BC Centre for Disease Control
Provincial Health Services Authority

Topic	Drug Checking in British Columbia: Findings from the 2021 Harm Reduction Client Survey
Date	May 13, 2024
Data source	Harm Reduction Client Survey
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Key messages

- Drug checking services have become increasingly available in BC. However, people who use harm reduction services identified a desire for expanded drug checking services in their communities.
- 68% (354/519) of participants reported they would make at least one harm reducing behavioural change if their drugs tested positive for fentanyl.
- The previous use of drug checking was positively associated with participation in other harm reducing behaviours such as the use of overdose prevention sites, having a naloxone kit, or having an opioid agonist prescription.
- Given the findings that participants would make harm reducing behavioural changes if their drugs tested positive for fentanyl or benzodiazepines, test strips are still an important tool for people who use drugs.

Introduction

Research Question: What are the motivating factors for people to use drug checking services, and what keeps people from using available services?

- Drug checking is a harm reduction approach where people who use drugs can have their drugs chemically analyzed to determine what is in them. The use of fentanyl test strips as a harm reduction tool began in BC in 2016. Drug checking services started to expand across the province in 2017 with the introduction of the Fourier-transform infrared (FTIR) spectrometer.

- Research from around the world has shown that people who have their drugs checked are able to make informed decisions about their substance use and will make harm reducing behavioural changes based on the results.

- Little is still known about peoples' motivation to use drug checking services in BC and what is keeping people from using services available in their communities.

Study Design and Methods

- The 2021 Harm Reduction Client Survey (HRCS) was administered at 17 harm reduction sites across BC. Participants were 19 years old and above and reported using unregulated substances in the previous six months. Participants received a $15 honorarium for participating. In total, 537 people completed the survey.

- Of the 537 individuals who completed the survey, 519 (97%) responded to the question about previously using (or not using) drug checking services.[1] We asked people what has kept them from using drug checking services.[2] We also asked about what someone would do if their drugs tested positive for fentanyl or benzodiazepines.[3]

- We calculated descriptive statistics and conducted chi-square and Fisher's exact tests of association among sociodemographic and drug consumption characteristics, stratified by previous use of drug checking services. We then constructed a multivariable logistic regression model to determine associations with the use of drug checking. Finally, we looked at behaviours based on hypothetical drug checking results and what barriers people faced to using available drug checking services.

Findings

- In total, 28% of participants reported using drug checking services in the previous six months. Figure 1 shows what technology or method people reported using in different health authorities across BC. Table 1 describes participant demographics and drug use characteristics.

- The multivariable model showed that while no demographic variables were associated with the use of drug checking services, other harm reduction behaviours were positively associated with drug checking (Table 2). The use of overdose prevention sites (adjusted odds ratio [AOR]: 2.75, 95% confidence

[1] Have you used any of these drugs checking services or tools in the past 6 months (options provided)?
[2] What has prevented you from using any drug checking services and/or tools?
[3] If your drugs tested positive for fentanyl/benzodiazepines (before using), what would you do?

interval [CI]: 1.65, 4.59) and having a naloxone kit (AOR: 2.67, 95%CI: 1.14, 6.28) were both positively associated with drug checking. Receipt of opioid agonist prescription in the previous six months was also positively associated with drug checking (AOR: 1.72, 95%CI: 1.05, 2.83).

- 68% of participants reported they would make at least one harm reducing behavioural change if their drugs tested positive for fentanyl (Table 3). 33% of participants reported they would not use their drugs if they tested positive for benzodiazepines. Among people who did not report recent intentional use of fentanyl, 50% stated they would not use their drugs if they tested positive for fentanyl.

- Participants highlighted existing barriers such as not knowing where to access drug checking (21%), or not having services in their area (10%) (Table 4).

Interpretation

- Drug checking uptake remains low in BC, however this study identified unmet desire for services among participants, suggesting there would be benefit in expanded drug checking services.

- Barriers to drug checking services were more commonly reported by participants who had not previously accessed drug checking services, but even participants who had used drug checking still reported ongoing barriers. Certain reported barriers, such as wish to not part with any amount of drug, could be mitigated with specific and tailored educational materials for potential service users. Harm reduction sites should promote if they offer on-site or take-home test strips, and advertise the locations and hours of FTIR availability in their vicinity to address the reported barrier of not knowing where services are.

- Planned behavioural change was reported among a high proportion of people who said they would not use their drugs if they tested positive for fentanyl or benzodiazepines. Therefore, even though test strips provide only positive/negative results, they still have utility in the context of a toxic drug supply. Particular attention going forward should be paid to people who use stimulants, who may not have a high opioid tolerance, and thus face unique risks associated with their drugs being contaminated with fentanyl. While rates of drug checking service use are low among people who use stimulants, this demographic may have the most to gain from using these services.

Limitations

- The HRCS comprises a convenience sample of people who access harm reduction services in BC and therefore may not represent all people who use drugs in the province. Individuals who did not access harm reduction sites, and therefore are not captured by this study, are probably less likely to access

drug checking services. This uncaptured key demographic of people may face the highest barriers to accessing harm reduction services is therefore underreported.

- The survey is cross-sectional in nature and therefore we cannot determine temporality and participants may be subject to recall bias (difficulty remembering previous use of drug checking).
- These survey data were collected from March 2021 through January 2022. Since that time, drug checking services have expanded in BC and the prevalence of benzodiazepine adulteration of opioids has increased. These factors may change how people who access harm reduction services experience barriers to drug checking and perceive the importance of benzodiazepine test strips.

Supporting Information

Document citation

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Data steward(s) disclaimer

All inferences, opinions, and conclusions drawn in this Knowledge Update are those of the authors, and do not reflect the opinions or policies of the Data Steward(s).

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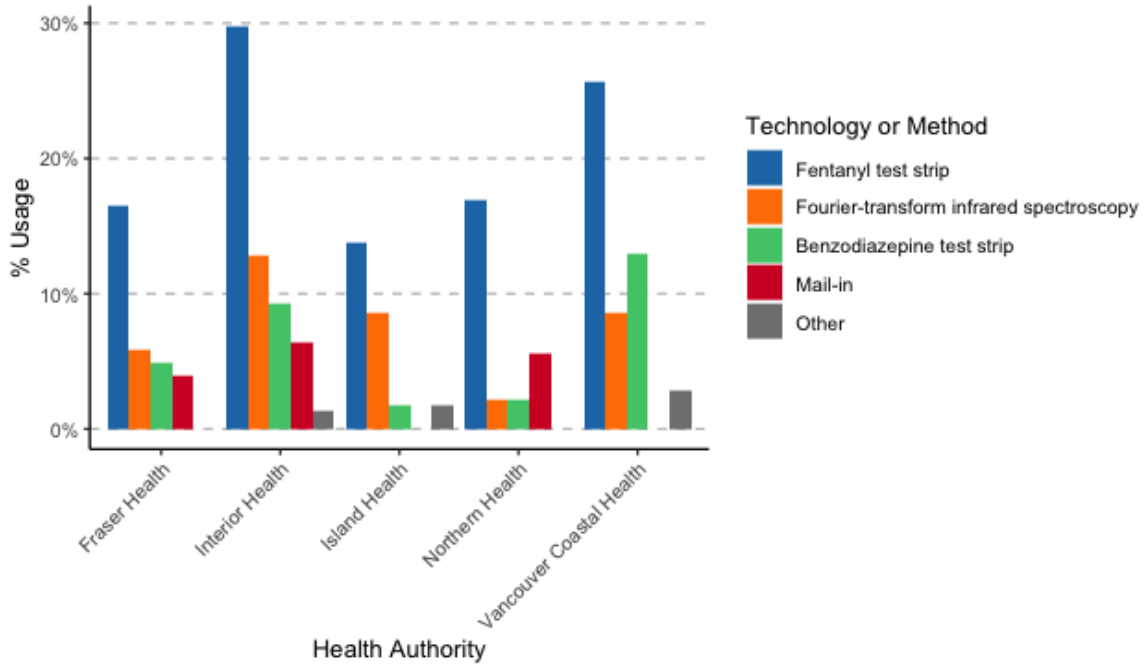
Tables and Figures

Figure 1. The percentage of participants in each health authority of BC that reported previous use of a drug checking technology or method. Data sourced from the 2021 BC Harm Reduction Client Survey.



Notes: Participants may have reported using multiple technologies. At the time this survey was conducted (March 2021 to January 2022), mail-in drug checking services included both Fourier-transform infrared spectroscopy and paper-spray mass spectrometry.

Table 1. Self-reported participant demographics stratified by use of drug checking services or tools in the past six months. Data sourced from the 2021 BC Harm Reduction Client Survey.

	Total (n=519) (Column %)	**Used drug checking** (n=144) (row %)	**Did not use drug checking** (n=375) (row %)	**p-value**
Gender				0.936
Woman	180 (34.7)	50 (27.8)	130 (72.2)	
Man	322 (62.0)	90 (28.0)	232 (72.0)	
Transgender and gender expansive	14 (2.7)	4 (28.6)	10 (71.4)	
Prefer not to say/Missing	4 (0.8)	0 (0.0)	4 (100.0)	
Age				0.027
29 and under	71 (13.7)	16 (22.5)	55 (77.5)	
30–39	133 (25.6)	46 (34.6)	87 (65.4)	
40–49	132 (25.3)	41 (31.1)	91 (68.9)	
50 and over	166 (32.0)	34 (20.5)	132 (79.5)	
Prefer not to say	17 (3.3)	7 (41.2)	10 (58.8)	
Health authority				0.009
Fraser Health	103 (19.8)	26 (25.2)	77 (74.8)	
Interior Health	141 (27.2)	53 (37.6)	88 (62.4)	
Island Health	116 (22.4)	23 (19.8)	93 (80.2)	
Northern Health	89 (17.1)	19 (21.3)	90 (78.7)	
Vancouver Coastal Health	70 (13.5)	23 (32.9)	47 (67.1)	
Employment				0.028
Employed	110 (21.2)	37 (33.6)	73 (66.4)	
Unemployed	379 (73)	94 (24.8)	285 (75.2)	
Prefer not to say/Missing	30 (5.8)	13 (43.3)	17 (56.6)	
Urbanicity (harm reduction site)				0.495
Large urban population centre	179 (34.5)	50 (27.9)	129 (72.1)	
Medium urban population centre	184 (35.5)	46 (25.0)	138 (75.0)	
Small population centre	156 (30.1)	48 (30.8)	108 (69.2)	

	Total (n=519) (Column %)	**Used drug checking** (n=144) (row %)	**Did not use drug checking** (n=375) (row %)	**p-value**
Living situation				0.501
Private residence, alone	44 (8.5)	12 (27.3)	32 (72.7)	
Private residence, not alone	79 (15.2)	16 (20.3)	63 (79.7)	
Another residence	170 (32.8)	48 (28.2)	122 (71.8)	
Shelter	96 (18.5)	26 (27.1)	70 (72.9)	
No fixed address	117 (22.5)	38 (32.5)	79 (67.5)	
Other	2 (0.4)	0 (0.0)	2 (1.0)	
Prefer not to say/Missing	11 (2.2)	4 (36.4)	7 (63.6)	
Used overdose prevention site in last six months				<0.001
Yes	139 (26.9)	65 (46.8)	74 (53.2)	
No	337 (64.9)	65 (19.3)	272 (80.7)	
Prefer not to say/Missing	43 (8.3)	14 (32.6)	29 (67.4)	
Prescribed opioid agonist treatment in last six months				<0.001
Yes	201 (38.7)	74 (36.8)	127 (63.2)	
No	251 (48.4)	61 (24.3)	190 (75.8)	
Unknown	67 (12.9)	9 (13.4)	58 (86.6)	
Witnessed an opioid overdose in last six months				<0.001
Yes	323 (62.2)	105 (32.5)	218 (67.5)	
No	149 (28.7)	25 (16.8)	124 (83.2)	
Don’t know/Prefer not to say/Missing	47 (9.1)	14 (30.0)	33 (70.0)	
Feel at risk of opioid overdose				0.004
Yes	145 (27.9)	54 (37.2)	91 (62.8)	
No	297 (57.2)	70 (23.6)	227 (76.4)	
Don’t know/Prefer not to say/Missing	77 (14.8)	20 (26.0)	57 (74.0)	

	Total (n=519) (Column %)	**Used drug checking** (n=144) (row %)	**Did not use drug checking** (n=375) (row %)	**p-value**
Previous opioid overdose in last six months				0.0132
Yes	126 (24.3)	46 (36.5)	80 (63.5)	
No	344 (66.3)	84 (24.4)	260 (75.6)	
Don't know/Prefer not to say/Missing	49 (9.4)	14 (28.6)	35 (71.4)	
Previous stimulant overdose in last six months				0.0137
Yes	53 (10.2)	22 (41.5)	31 (58.5)	
No	419 (80.7)	103 (24.6)	316 (75.4)	
Don't know	12 (2.3)	6 (50.0)	6 (50.0)	
Prefer not to say/Missing	35 (6.7)	13 (37.1)	22 (62.9)	
Seen a toxic drug alert				0.002
Yes	294 (56.6)	96 (32.7)	198 (67.3)	
No	176 (33.9)	33 (18.8)	143 (81.2)	
Prefer not to say/Missing	49 (18.7)	15 (30.1)	34 (69.9)	
Preferred method of consumption				0.071
Smoking/inhalation	331 (63.8)	83 (25.1)	248 (74.9)	
Snorting	20 (3.9)	6 (30.0)	14 (70.0)	
Injecting	73 (14.1)	30 (41.1)	43 (58.9)	
Swallowing	15 (2.9)	2 (13.3)	13 (86.7)	
It depends	42 (8.1)	13 (31.0)	29 (69.0)	
No preference	3 (0.6)	0 (0.0)	3 (100.0)	
Other	4 (0.8)	1 (25.0)	3 (75.0)	
Prefer not to say/Missing	31 (6.0)	9 (50.0)	22 (50.0)	
Smoked opioids past month				0.007
Yes	299 (57.1)	97 (32.4)	202 (67.6)	
No	167 (32.2)	34 (20.4)	133 (79.6)	
Prefer not to say/Missing	53 (10.2)	13 (29.0)	40 (71.0)	

	Total (n=519) (Column %)	**Used drug checking** (n=144) (row %)	**Did not use drug checking** (n=375) (row %)	**p-value**
Have a naloxone kit				<0.001
Yes	387 (74.6)	119 (30.7)	268 (69.3)	
No, but want	41 (7.9)	3 (7.3)	38 (92.7)	
No, don't want	56 (10.8)	8 (14.3)	48 (85.7)	
Prefer not to say/Missing	35 (6.8)	14 (40.0)	21 (60.0)	
Polysubstance drug use				0.002
Yes	321 (61.8)	105 (32.7)	216 (67.3)	
No	198 (38.2)	39 (19.7)	159 (80.3)	
Illicit opioid use in past three days				<0.001
Yes				
Reported heroin alone	39 (7.5)	9 (23.1)	30 (76.9)	
Reported fentanyl alone	102 (19.7)	31 (30.4)	71 (69.6)	
Reported both	179 (34.5)	68 (38.0)	111 (62.0)	
No	199 (38.3)	36 (18.1)	163 (81.9)	
Crystal meth use in past three days				0.050
Yes	373 (71.9)	113 (30.3)	260 (69.7)	
No	146 (28.1)	31 (21.2)	115 (78.8)	
Cocaine (powder) use past in three days				0.083
Yes	96 (18.5)	34 (35.4)	62 (64.6)	
No	423 (81.5)	110 (26.0)	313 (74.0)	
Crack cocaine use in past three days				0.288
Yes	136 (26.2)	43 (31.6)	93 (68.4)	
No	383 (73.8)	101 (26.4)	282 (73.6)	

Notes:

- p-values were calculated using chi-square test of independence or Fisher's exact test where appropriate.
- Don't know, prefer not to say, and missing categories were collapsed for brevity. For the full table, please see the open access article in the *International Journal of Drug Policy.*

Table 2. Multivariable model results for factors associated with previous use of drug checking (in last six months) in BC. Data sourced from the 2021 BC Harm Reduction Client Survey. Missing data were imputed with m=10.

	Adjusted odds ratio (95% confidence interval)	p-value
Gender		
Man	*ref*	
Woman	0.73 (0.45, 1.19)	0.202
Transgender and gender expansive	0.33 (0.05, 2.12)	0.245
Prefer not to say	0.18 (0.02, 2.07)	0.168
Age		
29 and under	*ref*	
30–39	1.70 (0.79, 3.66)	0.173
40–49	1.06 (0.49, 2.29)	0.891
50 and above	0.94 (0.43, 2.07)	0.882
Prefer not to say	1.94 (0.44, 8.60)	0.382
Health Authority		
Vancouver Coastal Health	*ref*	
Fraser Health	1.04 (0.45, 2.39)	0.931
Interior Health	2.01 (0.92, 4.38)	0.082
Island Health	0.50 (0.21, 1.16)	0.106
Northern Health	0.73 (0.30, 1.78)	0.487
Employment		
Unemployed	*ref*	
Employed	1.65 (0.91, 2.98)	0.100
Prefer not to say	1.62 (0.61, 4.30)	0.335
Prescribed opioid agonist therapy in last six months		
No	*ref*	
Yes	1.72 (1.05, 2.83)	0.032
Prefer not to say / Not applicable	0.22 (0.09, 0.55)	0.001

	Adjusted odds ratio (95% confidence interval)	p-value
Used overdose prevention site in last six months		
No	*ref*	
Yes	2.75 (1.65, 4.59)	<0.001
Prefer not to say	1.46 (0.18, 11.75)	0.725
Previous stimulant overdose in last six months		
No	*ref*	
Yes	2.12 (1.04, 4.31)	0.039
Do not remember	3.81 (0.93, 15.59)	0.064
Prefer not to say	2.11 (0.38, 11.61)	0.391
Seen a toxic drug alert		
No	*ref*	
Yes	1.83 (1.09, 3.07)	0.024
Prefer not to say	1.89 (0.21, 17.04)	0.570
Have a naloxone kit		
No, don't want	*ref*	
No, but want	0.38 (0.09, 1.65)	0.197
Yes	2.67 (1.14, 6.28)	0.025
Prefer not to say	9.70 (0.87, 108.68)	0.067
Frequency of harm reduction supply pick-up		
Never	*ref*	
Every day	2.78 (0.79, 9.85)	0.113
A few times a week	2.58 (0.75, 8.80)	0.132
A few times a month	1.33 (0.36, 4.92)	0.668
Once a month or less	0.66 (0.13, 3.37)	0.620
Prefer not to say	0.40 (0.02, 8.09)	0.554

Table 3. Hypothetical actions reported after receiving drug checking results that were either positive for fentanyl or benzodiazepines. Data sourced from the 2021 BC Harm Reduction Client Survey.

Potential action after drug tested positive for…	**Fentanyl** (n=519) (%)	**Benzodiazepines** (n=519) (%)
Continue as usual	161 (31.0)	115 (22.2)
Would not use the drugs	127 (24.5)	170 (32.8)
Use less	78 (15)	73 (14.1)
Use more slowly	59 (11.4)	57 (11)
Have someone check on me	65 (12.5)	45 (8.7)
Use with a buddy	76 (14.6)	70 (13.5)
Use at an SCS/OPS	16 (3.1)	9 (1.7)
Spread the word [a]	3 (0.6)	2 (0.4)
Seek a different batch/supplier [a]	2 (0.4)	7 (1.3)
Change route of administration/combine drugs [a]	2 (0.4)	1 (0.2)
Other	3 (0.6)	3 (0.6)
Prefer not to say	22 (4.2)	34 (6.6)

Notes:

a. Actions not already in the survey options were created from similar reported “other” actions.

- Specified “other” barriers that were thematically consistent with existing options were grouped with their corresponding response and confirmed to not be duplicates.
- Participants may have reported more than one potential action.
- Note that all participants were asked this question, whether or not they indicated previous use of drug checking and regardless of their personal drug consumption preferences.

Table 4. Barriers or reasons for not accessing drug checking services reported by survey participants. Data sourced from the 2021 BC Harm Reduction Client Survey.

	Total (n=519) (%)	**Used drug checking services** (n=144; 27.7%) (%)	**Did not use drug checking services** (n=375; 72.3%) (%)	p-value
I don't feel the need/want to use them	118 (22.7)	27 (18.8)	91 (24.3)	0.220
Don't find them helpful	23 (4.4)	4 (2.8)	19 (5.1)	0.370
I trust my source/dealer	67 (12.9)	20 (13.9)	47 (12.5)	0.790
Don't want to give up drugs for drug checking	17 (3.3)	4 (2.8)	13 (3.5)	0.791
Don't know where to find them	109 (21.0)	13 (9.0)	96 (25.6)	<0.001
No site in my area	52 (10.0)	12 (8.3)	40 (10.7)	0.529
Site was too far away	35 (6.7)	10 (6.9)	25 (6.7)	1.00
Site not open when I needed it	30 (5.8)	16 (11.1)	14 (3.7)	0.003
Site closed due to COVID-19 pandemic	10 (1.9)	4 (2.8)	6 (1.6)	0.475
Concerned about confidentiality	18 (3.5)	5 (3.5)	13 (3.5)	1.00
Worried about being exposed to COVID-19	8 (1.5)	3 (2.1)	5 (1.3)	0.691
Other, specify	13 (2.5)	6 (4.2)	7 (1.9)	0.235
Prefer not to say	30 (5.8)	12 (8.3)	18 (4.8)	0.182

Notes:

- Reported barriers were collected with "check all that apply."
- Specified "other" barriers that were thematically consistent were grouped with their corresponding response and confirmed to not be duplicates.
- p-values were calculated with chi-square test of independence or Fisher's exact where appropriate.