



Topic: Illicit drug toxicity deaths and the COVID-19 pandemic in British Columbia

Date: December 15th 2021 **Data Source:** BC Coroners Service

Key Findings:

- Following the declaration of the COVID-19 public health emergency in 2020, the number of illicit drug toxicity (overdose) deaths observed in BC (N=1516, March 17th – December 31st) more than doubled those observed in the same period in 2019 (N=744).
- There was a significantly higher proportion of males among post vs. pre-COVID-19 overdose deaths (81.7% vs. 74.9%).
- There were fewer overdose deaths among people aged 30-39 (23.4% vs. 29.4%) post-COVID-19, and more among people aged 40-49 (23.0% vs. 21.5%), 50-59 (23.6% vs. 20.8%), and 60+ (11.9% vs. 9.3%).
- There were a higher proportion of overdose deaths occurring outside in the post-COVID-19 period (15.4% vs. 12.8%) and a lower proportion occurring in public buildings (0.9% vs. 2.2%)
- The proportion of deaths with fentanyl detected were nearly identical in both periods (83.5% vs. 84.4%).

Background

- British Columbia (BC) declared a public health emergency of illicit drug toxicity (i.e. overdose) deaths in 2016. Since then, BC has consistently reported the highest overdose death rate of any Canadian province.
- Overdose deaths have increased and surpassed historic highs since the declaration of the COVID-19 public health emergency. In 2020, BC had the highest number of overdose deaths ever recorded in the province - higher than homicide, suicide, and car crash deaths combined for the same period.
- This significant increase has been attributed in part to pandemic restrictions including international border closures and physical distancing protocols which have affected the toxicity of the illicit drug supply and posed challenges to providing direct care services to people who use drugs.
- Using BC's Coroners Service data on all illicit drug toxicity (overdose) deaths, we conducted a comparison of demographic and geographic characteristics of people who died of overdose before and after COVID-19 was declared a public health emergency in BC on March 17th 2020.



- The original analysis used data from March 17, 2019 to December 31, 2020 which was published in *Drug and Alcohol Review* on December 15th 2021.
- Due to the increase in overdose deaths in 2021, this analysis was repeated using BC Coroner data up to Sep 30 2021. This analysis revealed near identical results to those originally reported with no changes in trends.

Findings

Illicit Drug Toxicity Deaths in the pre (March 17th- December 31st 2019) and post-COVID-19 periods (March 17th- December 31st 2020)

Source: BC Coroners Service

- The number of overdose deaths in BC have more than doubled since the declaration of the COVID-19 public health emergency on March 17th 2020 (N=1516) compared to the same period in 2019 (N=744).
- Descriptive analyses found significantly higher proportion of males among post vs. pre-COVID-19 overdose deaths (81.7% vs. 74.9%).
- There were significantly fewer overdose deaths among people aged 30-39 (23.4% vs. 29.4%) post-COVID-19, and more among people aged 40-49 (23.0% vs. 21.5%), 50-59 (23.6% vs. 20.8%), and 60+ (11.9% vs. 9.3%).
- The distribution of place of injury was significantly different between overdose deaths occurring in the pre and post-COVID-19 periods, with a higher proportion of overdose deaths occurring outside in the post-COVID-19 period (15.4% vs. 12.8%) and a lower proportion occurring in public buildings (0.9% vs. 2.2%).
- There were no significant differences in location of overdose in pre vs. post-COVID-19 periods when considering health authority region or urbanicity score.
- The proportion of deaths with fentanyl detected were nearly identical in both periods (83.5% vs. 84.4%) (Table 1).



Table 1: Demographic and geographic characteristics of overdose deaths Pre (March 17– December 31, 2019) and Post (March 17 - December 31, 2020) COVID-19

	Deaths in pre- and post-COVID-19 periods		Pre-COVID-19 overdose deaths March 17, 2019 - December 31, 2019		Post-COVID-19 overdose deaths March 17, 2020 - December 31, 2020		P value
	N	%	N	%	N	%	
	2260	100	744	32.9	1516	67.1	
Place of overdose^(a)							
Private Residence	1265	56	422	56.7	843	55.6	
Other Residence	586	25.9	191	25.7	395	26.1	
Public building	30	1.3	16	2.2	14	0.9	
Outside	325	14.4	95	12.8	230	15.2	
Other	29	1.3	16	2.2	13	0.9	
Missing	25	1.1	4	0.5	21	1.4	0.006
Overdose location urbanicity score^(b)							
Large	1464	64.8	480	64.5	984	64.9	
Medium	346	15.3	123	16.5	223	14.7	
Small	234	10.3	75	10.1	159	10.5	
Rural	216	9.6	66	8.9	150	9.9	0.632
Overdose location Regional Health Authority^(c)							
Fraser Health	739	32.7	238	32	501	33	
Interior Health	352	15.6	104	14	248	16.4	
Island Health	368	16.3	134	18	234	15.4	
Northern Health	171	7.6	56	7.5	115	7.6	
Vancouver Coastal Health	630	27.9	212	28.5	418	27.6	0.383
Age category^(d)							
<19	23	1	9	1.2	14	0.9	
19-29	393	17.4	132	17.7	261	17.2	
30-39	574	25.4	219	29.4	355	23.4	
40-49	508	22.5	160	21.5	348	23	
50-59	512	22.6	155	20.8	357	23.6	
60+	250	11.1	69	9.3	181	11.9	0.024
Sex^(e)							
Female	464	20.5	187	25.1	277	18.3	
Male	1796	79.5	557	74.9	1239	81.7	<0.001
Fentanyl Detected^(f)							
No	360	15.9	123	16.5	237	15.6	
Yes	1900	84.1	621	83.5	1279	84.4	0.583

Footnotes: See footnotes under Table 2.



Table 2: Multivariable logistic regression models for the relationship of demographic and geographic characteristics with post-COVID-19 overdose death (March 17–December 31, 2020)

	Unadjusted OR (95% CI)	Adjusted OR (95% CI)
Reference: Pre-COVID-19 overdose death (March 17-December 31, 2019)		
Place of overdose		
Private Residence	Reference	Reference
Other Residence	1.04(0.84-1.28)	1.00(0.81-1.25)
Public building	0.44(0.21-0.91)	0.46(0.22-0.97)
Outside	1.21(0.93-1.58)	1.20(0.91-1.56)
Other	0.40(0.19-0.85)	0.40(0.19-0.85)
Overdose location urbanicity score		
Large	Reference	Reference
Medium	0.88(0.69-1.13)	0.92(0.71-1.18)
Small	1.03(0.77-1.39)	1.10(0.81-1.49)
Rural	1.10(0.81-1.51)	1.08(0.79-1.48)
Overdose location Regional Health Authority		
Fraser Health	1.07(0.85-1.34)	-
Interior Health	1.21(0.91-1.60)	-
Island Health	0.89(0.68-1.16)	-
Northern Health	1.04(0.73-1.49)	-
Vancouver Coastal Health	Reference	-
Age category		
< 19	0.96(0.41-2.26)	1.10(0.46-2.61)
20-29	1.22(0.93-1.60)	1.22(0.93-1.61)
30-39	Reference	Reference
40-49	1.34(1.04-1.77)	1.33(1.03-1.72)
50-59	1.42(1.10-1.83)	1.43(1.10-1.85)
60+	1.62(1.17-2.24)	1.65(1.18-2.30)
Sex		
Female	Reference	Reference
Male	1.50(1.22-1.85)	1.47(1.18-1.82)
Fentanyl detected		
No	Reference	Reference
Yes	1.07(0.84-1.36)	1.11(0.87-1.42)

Footnotes: CI= Confidence Interval; OR= Odds Ratio; Place of overdose was missing for n=25 (1.1%) cases and the model was run on N=2235; **Bolding reflects statistical significance p<0.05**

a) Place of overdose: coded according to BC Coroners Service categories. Private residence= driveways, garages, trailer homes, the decedent's or another's residence; Other residence= hotels, motels, rooming houses, SROs, shelters, supportive housing, safe houses; Public building= community centres, businesses; Outside= includes vehicles, streets, sidewalks, parking lots, public parks, wooded areas, campgrounds.; Other= medical facility, occupational site, correctional centre, police custody, other institutions.

b) Overdose location urbanicity score: derived from Statistics Canada population centre (popctr) census variable. Population centres have no fewer than 400 people per square kilometer and are classified by population sizes: small (1000-29,999), medium (30,000-99,999), large (100,000 or more). Areas outside population centres are labelled as rural.; **(c) Overdose location regional health authority:** BC has five regional health authorities that are responsible for delivering health services to meet the needs of populations within their respective geographic regions.;

(d) Age category: coded according to BC Coroners Service age group categories.; **(e) Sex:** biological sex retrieved from the Client Roster File.; **(f) Fentanyl detected:** variable retrieved from BC Coroners Service post-mortem toxicology results.



Limitations

- Full toxicology results (beyond the presence or absence of fentanyl) for each death in 2020 remain under investigation and are not presently available for reporting.
- In future analyses, comprehensive indicators of contamination of the drug supply (e.g. concentration) will be critical to understand the rapidly changing illicit drug supply and subsequent impacts on overdose mortality in BC.
- One data source was used for this analysis - BC Coroners Service data. Future studies could link to other health and criminal justice data sources to investigate the impact of other factors that are known to influence overdose risk such as discontinuation from OAT or release from correctional centres.

Interpretation

- In addition to a significant increase in overdose deaths since the declaration of the COVID-19 public health emergency, the demographic profile of people who have died of overdose has changed.
- Ongoing overdose prevention efforts in BC must seek to reach people who remain disengaged from harm reduction and treatment services, including older adults, who are facing compounded risk of preventable mortality during dual public health emergencies.

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