



Topic: *Post-mortem detection of hydromorphone among persons identified as having an illicit drug toxicity death since the introduction of Risk Mitigation Guidance prescribing*

Date: September 15, 2021 **Data Source:** BC Coroners Service, BC COVID-19 Cohort

Key Findings:

1. From March 27, 2020 – May 31, 2021, 4,537 people were dispensed Risk Mitigation Guidance hydromorphone.
2. Hydromorphone without fentanyl or fentanyl analogues was identified in less than 2% (N= 41) of illicit drug toxicity deaths between March 1, 2020 and May 31, 2021.
3. Risk Mitigation Guidance hydromorphone prescribing is not a direct contributor to the rising rates of illicit drug toxicity death in BC.
4. Fentanyl and fentanyl analogues remain the major contributors to illicit drug toxicity deaths in BC.

Background:

- Coinciding with declaration of the COVID-19 pandemic, the monthly number of illicit drug toxicity deaths exceeded 100 persons in March 2020 for the first time in twelve months.
- The Province of BC and the BC Centre on Substance Use introduced Risk Mitigation Guidance (RMG) for the prescribing of pharmaceutical alternatives to the toxic drug supply on March 26, 2020.
 - The RMG provided clinical guidance to physicians on how prescribing pharmaceutical alternatives could support physical distancing, reduce COVID-19 transmission, risk of overdose and withdrawal symptoms related to opioid, stimulant, benzodiazepine and alcohol consumption.
- Hydromorphone (8mg tablets) is one of the two opioid medications covered in the RMG.



Risk Mitigation Dispensations

Source: BC Covid-19 Cohort

- An estimated 8,397 persons received 256,980 dispensations of RMG medications from March 27, 2020 to May 31, 2021 according to PharmaNet² and other Ministry of Health³⁻⁵ data available through the BC COVID-19 Cohort⁶.
- There were a total of 202,359 opioid RMG dispensations during this period to 4,821 persons (57%). Of these persons, 4,537 (89%) received a hydromorphone dispensation (Table 1).
- Dispensations from community pharmacies could include medication for one day or several days or weeks.
- 96% of RMG opioid medications were dispensed daily from a community pharmacy (Table 2).

Illicit Drug Toxicity Deaths

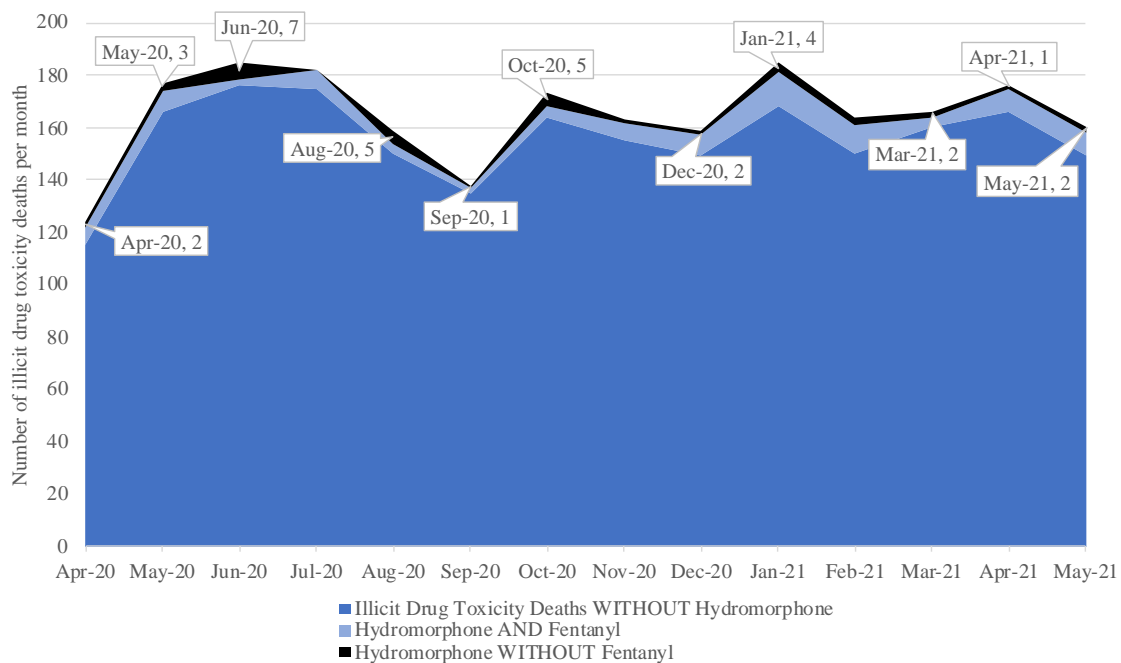
Source: BC Coroners Service

- BC has experienced an extremely high number of non-fatal overdose events and fatal illicit drug toxicity deaths since March 2020.
- Post-mortem toxicology data is collected by the BC Coroners Service for illicit drug toxicity death cases. Substances detected by postmortem toxicology may or may not have contributed to the cause of death.
- Approximately 2,423 people had an illicit drug toxicity death in BC from March 1, 2020 to May 31 2021.
- Hydromorphone was detected in 5.9% (N=142) of illicit drug toxicity deaths that occurred from March 1, 2020 to May 31, 2021.
- From March 1, 2020 to May 31, 2021, fentanyl or fentanyl analogues were detected in 86% of illicit drug toxicity deaths. During this period, extreme concentrations of fentanyl (over 50ug/L) were detected in approximately 14% of illicit drug toxicity deaths compared to 8% of illicit drug toxicity deaths prior to the pandemic (January 2019 – February 2020).
- Hydromorphone *and* fentanyl or fentanyl analogues were detected in post-mortem toxicology in 4.2% (N=101) of all illicit drug toxicity deaths from March 1, 2020 to May 31, 2021.



- In 1.7% (N=41) of illicit drug toxicity deaths (Figures 1 and 2) hydromorphone was detected with *no* fentanyl or fentanyl analogues. In the vast majority of cases, hydromorphone was detected in combination with other substances including cocaine, alcohol, morphine, etizolam and flualprazolam.
- The monthly proportion of persons with hydromorphone detected in post-mortem toxicology has remained relatively stable, ranging from 0 to 8.2% between January 1, 2019 and February 28, 2020 and ranging from 2.7% to 9.3% between March 1, 2020 and May 31, 2021 (Figure 3).

Figure 1: Monthly number of illicit drug toxicity deaths where no hydromorphone, hydromorphone with fentanyl or fentanyl analogues, and hydromorphone without fentanyl or fentanyl analogues was detected (March 1, 2020-May 31, 2021)



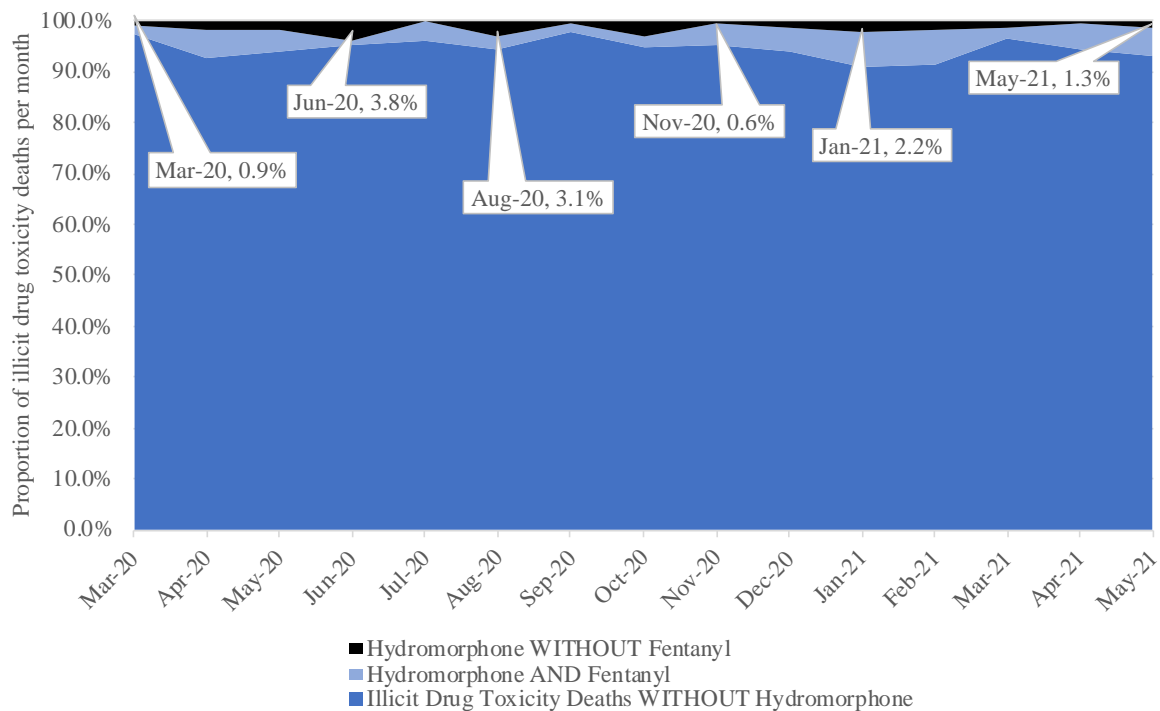
Footnote: Note, data in bubbles reflect month, and number of deaths within each month for selected months. From March 1, 2020- May 31, 2021 there were 41 deaths where hydromorphone was detected without fentanyl or fentanyl analogues.



Interpretation

1. Since the introduction of the RMG, over 4,500 people have received more than 179,000 dispensations of RMG hydromorphone tablets.
2. Hydromorphone without fentanyl or fentanyl analogues was detected in fewer than 2% of illicit drug toxicity deaths from March 1, 2020 to May 31, 2021.
3. RMG hydromorphone prescribing is not a direct contributor to the rising rates of illicit drug toxicity death in BC.
4. Fentanyl and fentanyl analogues remain the major contributors to illicit drug toxicity deaths in BC.

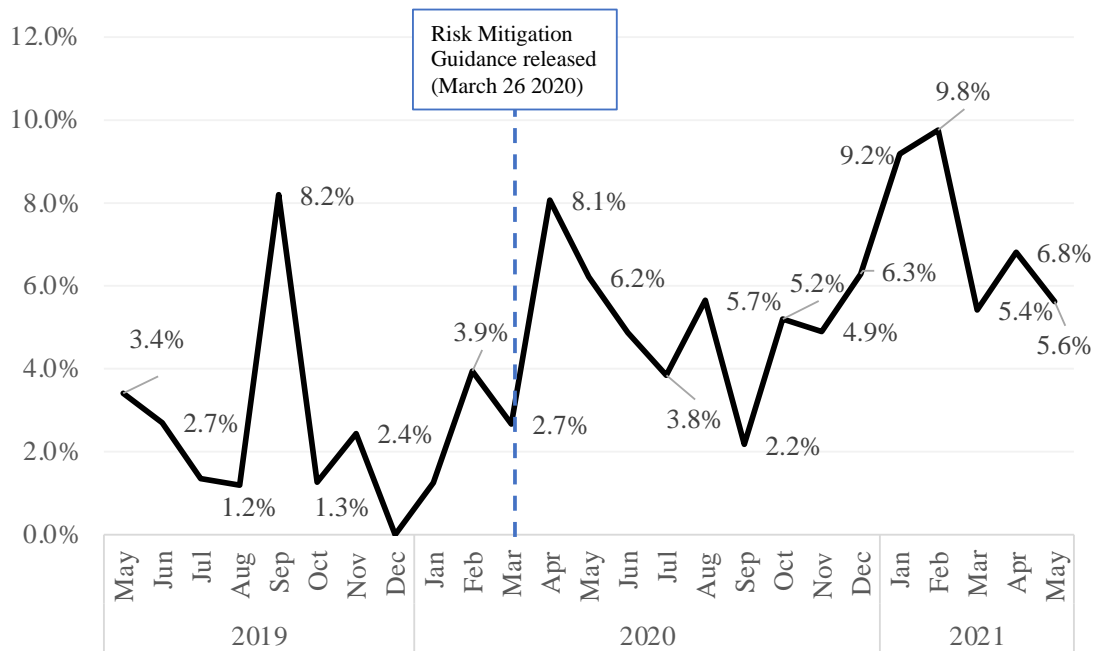
Figure 2: Monthly proportion of illicit drug toxicity deaths where no hydromorphone, hydromorphone with fentanyl or fentanyl analogues, and hydromorphone without fentanyl or fentanyl analogues was detected (March 1, 2020-May 31, 2021)



Footnote: Note, data in bubbles reflect month, and proportion of all illicit drug toxicity deaths within each month where hydromorphone was detected without fentanyl or fentanyl analogues, for selected months. From March 1, 2020-May 31, 2021 there were 41 deaths where hydromorphone was detected without fentanyl or fentanyl analogues.



Figure 3: Monthly proportion of illicit drug toxicity deaths where hydromorphone was detected (March 1, 2020-May 31, 2021)



Footnote: This figure reflects cases where hydromorphone was detected in illicit drug toxicity deaths. Substances detected by postmortem toxicology may or may not have contributed to the cause of death.

Limitations

- Risk Mitigation Guidance hydromorphone dispensations were identified in PharmaNet using an algorithm which may underestimate the number of persons receiving this medication.
- Hydromorphone toxicology data from the BC Coroners Service was not linked to PharmaNet, thus, we cannot confirm whether the hydromorphone detected in post-mortem toxicology was prescribed to the decedent.
- Hydromorphone is also prescribed in BC outside of the context of RMG (e.g. pain, palliative care, injectable opioid agonist treatment, etc.). Hydromorphone toxicology data cannot be confirmed to reflect hydromorphone that was prescribed as part of RMG and not for other reasons.



- BC Coroners Service toxicology data is derived through post-mortem testing of blood, urine or tissue samples. It is possible that detected hydromorphone originated from heroin and morphine, rather than the consumption of hydromorphone directly, due to similar metabolization of these substances.

**For more information please contact Dr. Amanda Slaunwhite
(Amanda.slaunwhite@bccdc.ca)**

Analysis Team:

- Amanda Slaunwhite, BCCDC
- Heather Palis, UBC and BCCDC
- Tej Sidhu, BC Coroners Service
- Andrew Tu, BC Coroners Service
- Aaron Shapiro, Provincial Toxicology Centre, BCCDC
- Jane Buxton, BCCDC

References

¹ British Columbia Ministry of Health, British Columbia Centre on Substance Use: Risk Mitigation in the context of dual public health Emergencies. In. <https://www.bccsu.ca/wp-content/uploads/2020/04/Risk-Mitigation-in-the-Context-of-Dual-Public-Health-Emergencies-v1.5.pdf>; 2020.

² BC Ministry of Health, Data Stewardship Committee: PharmaNet Data Extract. In. <http://www2.gov.bc.ca/gov/content/health/conducting-health-research-evaluation/dataaccess-health-data-central>; 2020.

³ BC Ministry of Health: Consolidation File (MSP Registration & Premium Billing) Data Extract. In. <http://www2.gov.bc.ca/gov/content/health/conducting-health-research-evaluation/dataaccess-health-data-central>; 2020.

⁴ British Columbia Ministry of Health: Vital Statistics Death Events. (Vital Statistics BC). Data Extract. In. <http://www2.gov.bc.ca/gov/content/health/conducting-health-research-evaluation/data-access-health-data-central>; 2020.

⁵ British Columbia Ministry of Health: Medical Services Plan (MSP) Payment Information File. Data Extract In. <http://www2.gov.bc.ca/gov/content/health/conducting-health-research-evaluation/data-access-health-data-central>; 2020.

⁶ The BCC19C was established at the Provincial Health Service Authority (PHSA) as a surveillance platform to integrate various datasets including data on BC-wide laboratory tests, COVID-19 surveillance case data, HealthLink 811 calls, prescription drug dispensations, medical visits, ambulance dispatches, Intensive Care Unit (ICU) admissions, and mortality - all integrated with existing administrative data sources such as the Chronic Disease Registry, hospital admissions and the Provincial Client Roster.



Table 1: Demographic characteristics of persons dispensed Risk Mitigation Guidance Hydromorphone between March 27, 2020- May 31, 2021

	Persons dispensed RMG HDM
	N=4,537 N (%)
Demographic characteristics	
Age	
15-19	31 (0.71)
20-29	788 (18.09)
30-39	1,484 (34.06)
40-49	1,135 (26.05)
50-59	706 (16.2)
60+	213 (4.89)
Sex	
Female	1,536 (35.25)
Male	2,821 (64.75)
Health Authority Region[^]	
Fraser Health	854 (19.6)
Interior Health	380 (8.72)
Island Health	952 (21.85)
Northern Health	400 (9.18)
Vancouver Coastal Health	1,770 (40.62)

NR=Not reportable due to small sample size

HDM= Hydromorphone tablets

[^]Cases of unknown Health Authority Region suppressed due to small sample size (n=<5)

Table 2: Dispensations of Risk Mitigation Guidance Hydromorphone Tablets between March 27, 2020- May 31, 2021

	Dispensations of RMG HDM
Dispensation Cadence	N=179,539 N (%)
Daily Dispensations	172,956 (96.33)
2-6 days	4,989 (2.78)
7- 22 days	1,551 (0.86)
23 days or more	43 (0.02)