

# Backgrounder for media

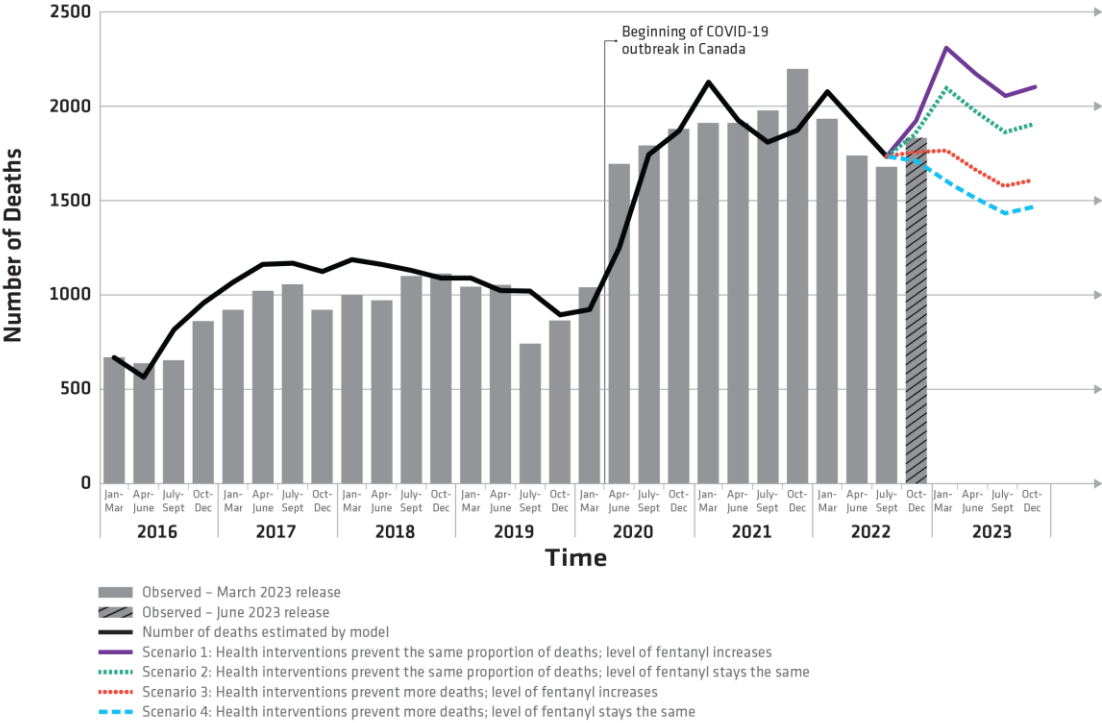
## Modelling projections for opioid-related deaths to December 2023

June 26, 2023





The Public Health Agency of Canada (PHAC) released new modelling projections of the number of opioid-related deaths that may occur in the coming months. The results of the model suggest that, under some scenarios, the number of opioid-related deaths through to December 2023 may remain high or may decrease, but not to levels seen before the onset of the COVID-19 pandemic.

### Observed and projected opioid-related deaths, Canada, January 2016 to December 2023





## What would be the projected number of deaths under each scenarios?



### Scenario 1

	<p>Health interventions continue to prevent the same proportion of opioid-related deaths.</p>	<p>Projections suggest that opioid-related deaths may increase through to December 2023, between approximately 1,920 and 2,320 deaths quarterly.</p>
	<p>The level of fentanyl and its analogues in the illegal drug supply is higher than in September 2022.</p>	



### Scenario 2

	<p>Health interventions continue to prevent the same proportion of opioid-related deaths.</p>	<p>Projections suggest that opioid-related deaths through to December 2023 may be similar to levels observed in 2021 and early 2022, between approximately 1,850 and 2,100 deaths quarterly.</p>
	<p>The level of fentanyl and its analogues in the illegal drug supply remains the same as in September 2022.</p>	

### Scenario 3

	<p>Health interventions prevent an increased proportion of opioid-related deaths.</p>	<p>Projections suggest a decrease in opioid-related deaths through to December 2023, between approximately 1,570 and 1,770 deaths quarterly.</p>
	<p>The level of fentanyl and its analogues in the illegal drug supply is higher than in September 2022.</p>	

#### Scenario 4

	Health interventions prevent an increased proportion of opioid-related deaths.	Projections suggest a further decrease in opioid-related deaths through to December 2023 but not to below levels seen before the onset of the COVID-19 pandemic, between approximately 1,430 and 1,720 deaths quarterly.
	The level of fentanyl and its analogues in the illegal drug supply remains the same as in September 2022.	

### Which scenario are we currently trending towards in Canada?

Based on the [most recent national data](#) released in June 2023, we are trending between Scenario 2 and Scenario 3, with opioid-related deaths potentially increasing or slightly decreasing. In these scenarios, opioid-related deaths range from approximately 1,570 to 2,100 per quarter.

### Can we use these projections for specific regions or provinces/territories?

This model was developed at a national level only and cannot be used for simulations at a provincial or territorial level.

### How does this compare to the [last modelling projections](#) that were released in December 2022?

These trends are similar to those released in December 2022, suggesting that opioid-related deaths may increase or slightly decrease, but not to levels observed before the COVID-19 pandemic. The measure of toxicity in the illegal drug supply has been updated in the model results released in June 2023 to represent the proportion of fentanyl and its analogues in the opioid drug supply. Other parameter values have also been updated as more peer-reviewed literature and data have become available.

## What do you mean by “health interventions to reduce opioid-related deaths”?

As models are simplifications of real-life systems, this model does not include specific health interventions to prevent opioid overdose deaths. Rather, we include a value representing the combination of a wide range of efforts to reduce opioid-related deaths, such as:

- **Prevention**, e.g., public education, initiatives aimed at reducing stigma around drug use and its impact on people who are using drugs.
- **Harm reduction**, e.g., supervised consumption sites, overdose prevention sites, naloxone access, distribution, and training.
- **Treatment**, e.g., opioid agonist therapy.

There is evidence that health interventions such as supervised consumption sites [1,2], access to naloxone [3,4], and treatment such as opioid agonist therapy [5] may reduce opioid-related mortality [6].

## How are fentanyl levels measured? What data do you use in relation to these levels?

PHAC uses data from Health Canada’s [Drug Analysis Service](#) to estimate fentanyl levels. The Drug Analysis Service analyzes samples of suspected illegal drugs seized by Canadian law enforcement agencies. In the model, fentanyl levels are estimated as the proportion of samples containing fentanyl or its analogues among all samples that included opioids.

## Why are you doing modelling projections for the opioid overdose crisis? Why is it important?

While models have recently been widely used in Canada in relation to infectious diseases, they can also be applied to other public health issues, such as the opioid overdose crisis.

While models cannot predict what **will** happen, they can help us understand what **might** happen in certain scenarios. The results of these models can help us plan and take action.

## What kind of model is used in this case and how does it work?

PHAC developed a simulation model of opioid-related deaths. Simulation models use math equations to estimate how many cases of a disease or health event may occur in the future. They help us understand real-world possibilities under certain scenarios.

This model simulates how opioid-related deaths across Canada may unfold over the coming months, based on time of year, the level of fentanyl in the opioid drug supply and the proportion of opioid-related deaths that are prevented by health interventions. PHAC uses information from many sources in the simulation model, including data from Statistics Canada, the Canadian Institute for Health Information, PHAC, Health Canada, the provinces and territories, and peer-reviewed literature.

## How often are these projections updated?

As opioid-related harms have changed significantly over the past years, this model will be updated twice a year.

## How do I learn more about the methodology behind this model or fact check my news story?

[Contact us](#) and we will connect you with experts to answer your questions.

### Related Links

- [Modelling opioid-related deaths during the overdose crisis](#)

### References

1. Levensgood TW, Yoon GH, Davoust MJ, Ogden SN, Marshall BD, Cahill SR, Bazzi AR. Supervised injection facilities as harm reduction: a systematic review. *American Journal of Preventive Medicine*. 2021 Nov 1;61(5):738-49.
2. Pardo B, Caulkins J, Kilmer B. Assessing the evidence on supervised drug consumption sites. Santa Monica, CA: Rand Corporation, 2018. [https://www.rand.org/pubs/working\\_papers/WR1261.html](https://www.rand.org/pubs/working_papers/WR1261.html)
3. Smart R, Pardo B, Davis CS. Systematic review of the emerging literature on the effectiveness of naloxone access laws in the United States. *Addiction*. 2021 Jan 1;116(1):6-17.
4. Razaghizad A, Windle SB, Filion KB, Gore G, Kudrina I, Paraskevopoulos E, Kimmelman J, Martel MO, Eisenberg MJ. The effect of overdose education and naloxone distribution: An umbrella review of systematic reviews. *American Journal of Public Health*. 2021 Aug; 111(8):e1-e12.
5. Santo T, Clark B, Hickman M, Grebely J, Campbell G, Sordo L, Chen A, Tran LT, Bharat C, Padmanathan P, Cousins G. Association of opioid agonist treatment with all-cause mortality and specific causes of death among people with opioid dependence: a systematic review and meta-analysis. *JAMA psychiatry*. 2021 Sep 1;78(9):979-93.

- Irvine MA, Kuo M, Buxton JA, Balshaw R, Otterstatter M, Macdougall L, Milloy MJ, Bharmal A, Henry B, Tyndall M, Coombs D. Modelling the combined impact of interventions in averting deaths during a synthetic-opioid overdose epidemic. *Addiction*. 2019 Sep;114(9):1602-13.