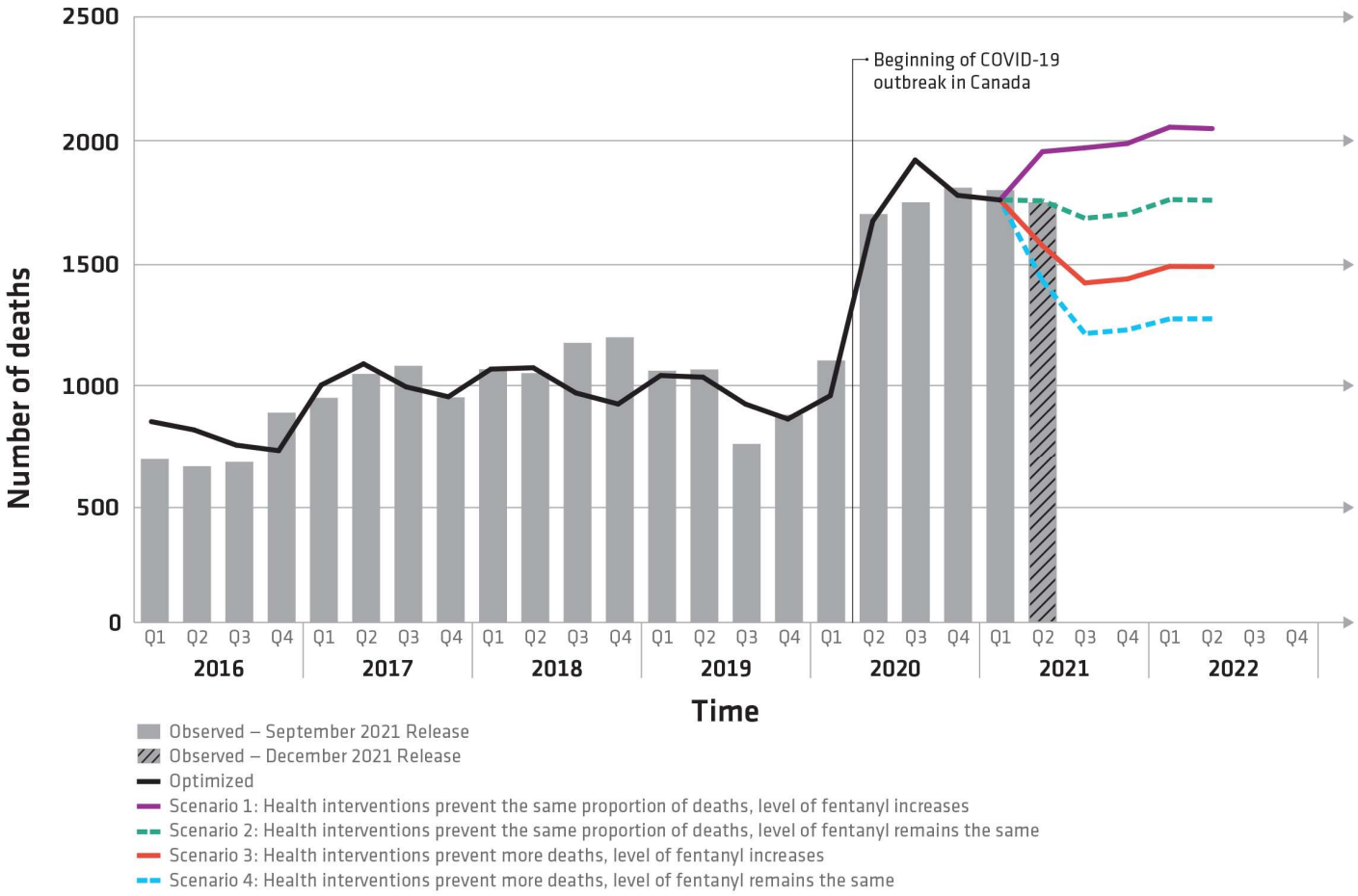
Backgrounder for media

Modelling projections for opioid-related deaths during the COVID-19 outbreak

December 15, 2021

The Public Health Agency of Canada (PHAC) released new modelling projections of the number of opioid-related deaths that may occur over the course of the coming months. The results of the model suggest that, under some scenarios, the **number of opioid-related deaths may remain high and may even increase through to June 2022.**

Observed and projected opioid-related deaths, Canada, January 2016 to June 2022



Questions and answers

What would be the projected number of deaths under each scenario?

Scenario 1

 Health interventions continue to prevent the same proportion of opioid-related deaths.  The level of fentanyl in the drug supply is higher than in 2020.	Projections show the highest levels of opioid-related deaths since 2016 • between approximately 1,900 and 2,000 deaths quarterly

Scenario 2

 Health interventions continue to prevent the same proportion of opioid-related deaths.  The level of fentanyl in the drug supply remains the same as in 2020.	Projections continue to show slightly higher levels of opioid-related deaths than what we have seen in the last year • between approximately 1,600 and 1,700 deaths quarterly

Scenario 3

 Health interventions prevent an increased proportion of opioid-related deaths.  The level of fentanyl in the drug supply is higher than in 2020.	Projections suggest that deaths may be lower than previous levels of opioid-related deaths seen during the COVID-19 period from April 2020 through March 2021 • between approximately 1,300 and 1,400 deaths quarterly

Scenario 4

 Health interventions prevent an increased proportion of opioid-related deaths.  The level of fentanyl in the drug supply remains the same as in 2020.	Projections show a decrease in opioid-related deaths, to levels lower since the onset of COVID-19 • between approximately 1,100 and 1,200 deaths quarterly

Which scenario are we currently trending towards to in Canada?

Based on the most recent national data from April to June 2021, projections suggest that we are trending at scenario 2, opioid-related deaths remaining high, through to June 2022.

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 June 2021?

The most recent trends are similar to those released in June 2021. To better align the modelled results with observed data (to March 2021), the December 2021 simulations use a higher value for the level of deaths prevented by health interventions, lowering the level of people dying of overdose in comparison to the June 2021 simulations.

What do you mean by "health interventions to reduce opioid-related deaths"?

Given that 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, reduction of stigma around drug use and impacting people who are using drugs);
- **harm reduction** (e.g. supervised consumptions sites, overdose prevention sites, safer supply, naloxone access/distribution and training); and
- **treatment** (e.g. opioid agonist treatments).

In the model, the impact of these efforts is represented as the proportion of opioid-related deaths they may be preventing together.

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

Similar to how we represent health interventions in the model, we include a value representing the level of fentanyl in the drug supply rather than the direct measurement of this. To create this "proxy" value, PHAC used data from Health Canada's Drug Analysis Service.

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. This can help us plan and take action.

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

PHAC developed a dynamic simulation model of opioid-related deaths. Models use mathematical equations to estimate how many cases of a disease may occur in the coming days, weeks, months or years. They help researchers simulate real-world possibilities in a virtual environment.

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

Are the impacts of COVID-19 public health measures, such as physical distancing or reducing gathering sizes, reflected in these projections?

The impact of these COVID-19 public health measures are not accounted for in the model directly.

Rather, the model accounts for the COVID-19 context by changing the value of the proportion of opioid-related deaths that are prevented by health interventions within the context of the pandemic.

This value can be influenced by factors related to the pandemic such as isolation, causing people to use drugs alone, or the limited availability or accessibility of health and social services for people who use drugs, including life-saving harm reduction initiatives and treatment.

How often are these projections published?

As opioid use and related harms have changed significantly over the past years, this model will be published 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 COVID-19 outbreak