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Deaths Caused by Alcohol, Stimulant, Opioid, and Benzodiazepine Toxicity in Ontario

PHO Rounds

September 15, 2023

We wish to first acknowledge all families, friends and loved ones of individuals who were lost to a substance toxicity death in Ontario.

We recognize that embedded within the data of this report are stories of loss for countless Ontarians who are grieving these losses.

This report cannot adequately reflect the burden borne by loved ones across the province.

Disclosures

- None of the presenters at this session have received financial support or in-kind support from a commercial sponsor.
- The presenters have potential conflicts of interest to declare.

Presenter Disclosures

Nature of relationship(s)	Name of for-profit or not-for-profit organization(s)	Description of relationship(s)
Tara Gomes		
Direct Financial Payments	1. Indigenous Services Canada 2. CADTH	1. Stipend for membership on DTAC Committee 2. Funds for consulting and grant review panels
Funded grants	Ontario Ministry of Health & CIHR	Funding to support research program and Canada Research Chair to support salary.
Tasha-Dawn Doucette		
Direct Financial Payments	Ontario Drug Policy Research Network	Stipends for involvement on Lived Experience Advisory Group
Ashley Smoke		
Direct Financial Payments	Ontario Drug Policy Research Network	Stipends for involvement on Lived Experience Advisory Group

Mitigating Potential Bias

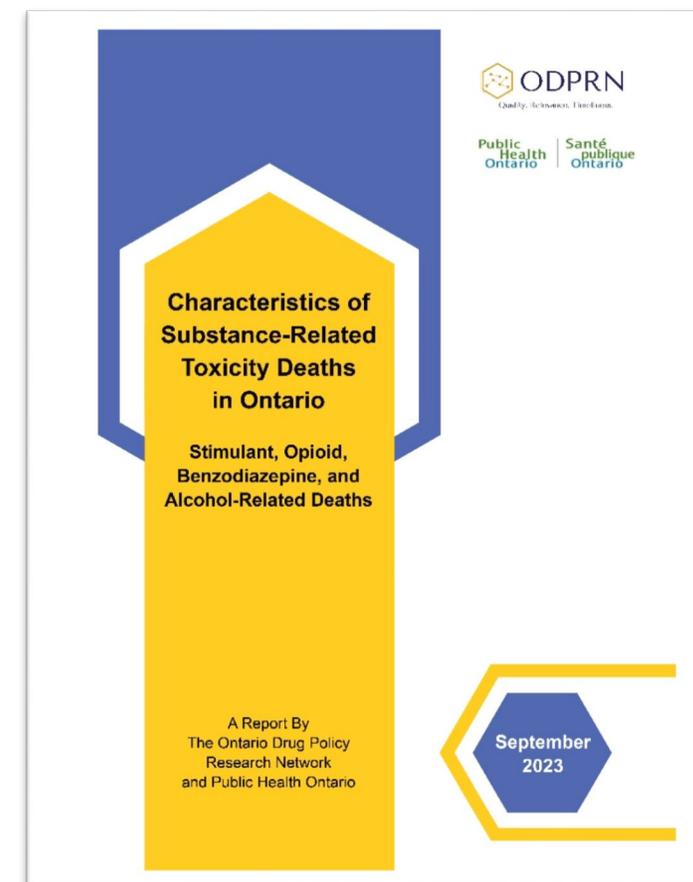
This presentation was peer-reviewed to ensure that principles of scientific integrity, objectivity and balance have been respected.

Background

- Alcohol and drug toxicities continue to be a significant public health concern leading to enormous loss of life both in Canada and globally.

Analyses specific to substance-related toxicities are needed to understand:

- Frequency of toxicity deaths attributable to alcohol, benzodiazepines, opioids, and stimulants.
- The changing role of polysubstance use.
- Trends and characteristics surrounding death that can inform responses.



Methods

Study Population

People who died from an alcohol, stimulant, benzodiazepine, or opioid toxicity in Ontario, Canada from January 1, 2018 to December 31, 2021.*



*We defined a substance-related death as an acute toxicity death that was accidental and resulted from the direct contribution of the consumed substance, regardless of how the substance was obtained.

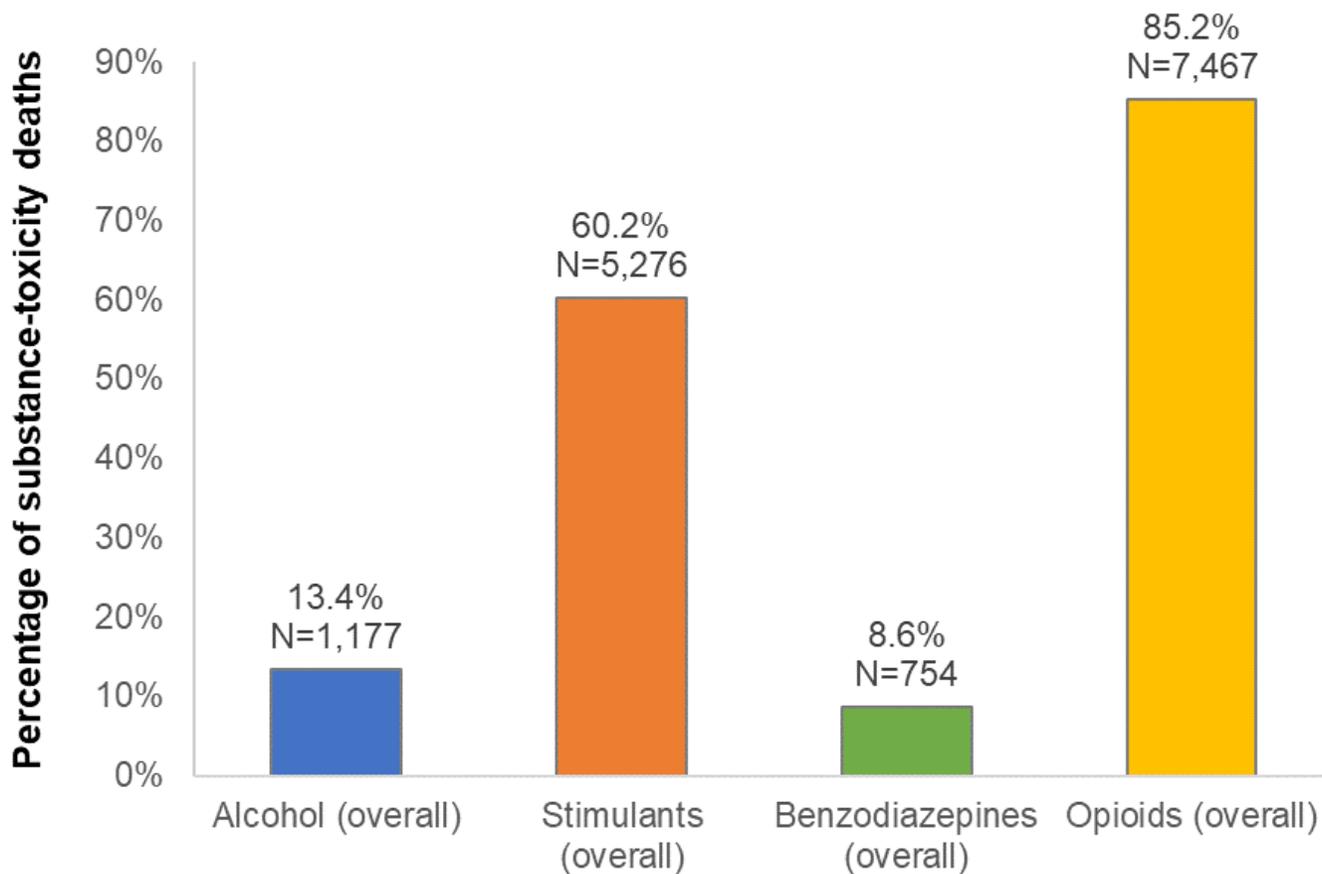
Data Sources

Linked health data, including:

- Sociodemographic information
- Death data for confirmed opioid toxicity deaths
- Death data for confirmed deaths from stimulant, benzodiazepine or alcohol toxicity



All substance-related deaths (2018-2021)



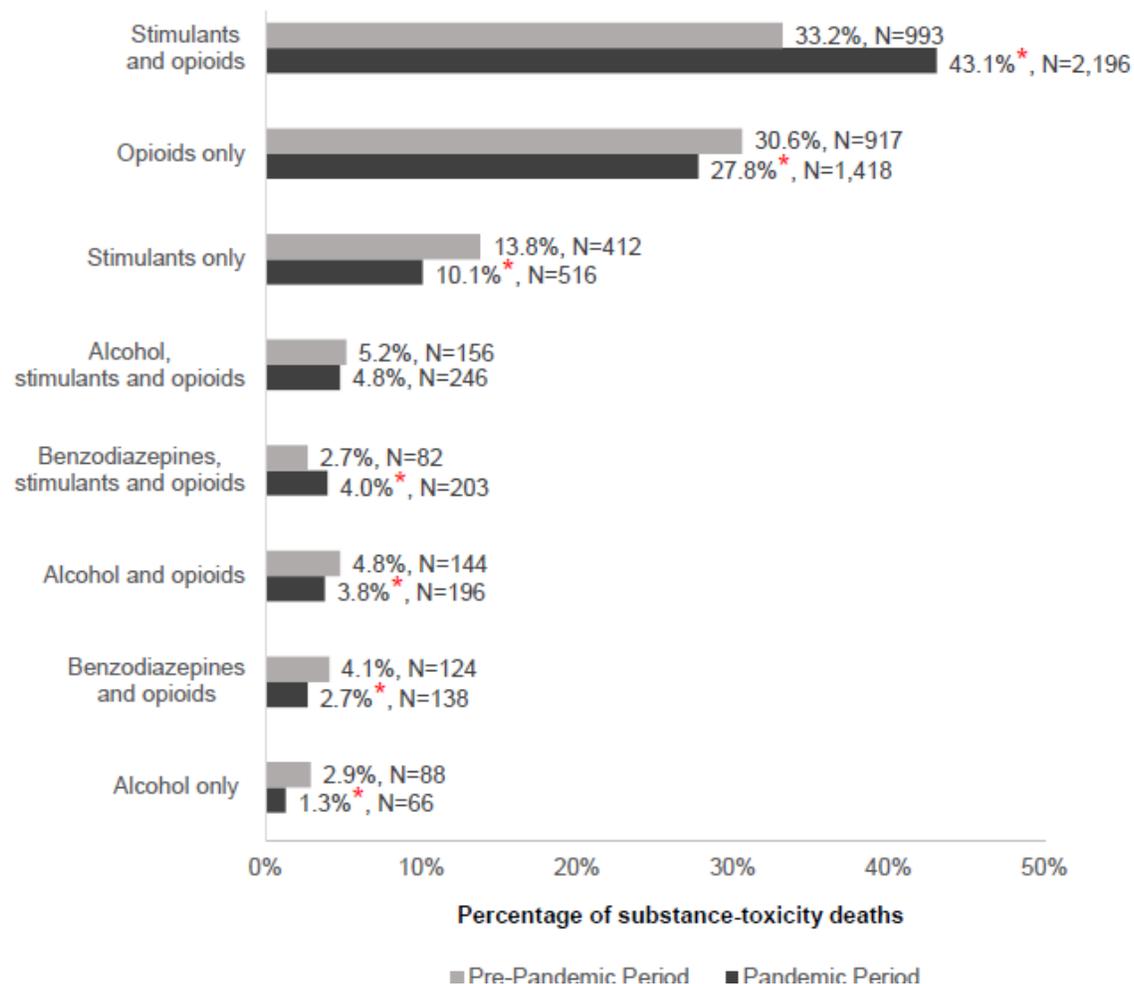
 **8,767** 
Accidental substance toxicity
deaths between **2018** and **2021**

Poll Question:

What is the most common type of substance toxicity death in Ontario during the COVID-19 pandemic?

- A. Opioids alone
- B. Alcohol and opioids
- C. Stimulants and opioids
- D. Stimulants alone

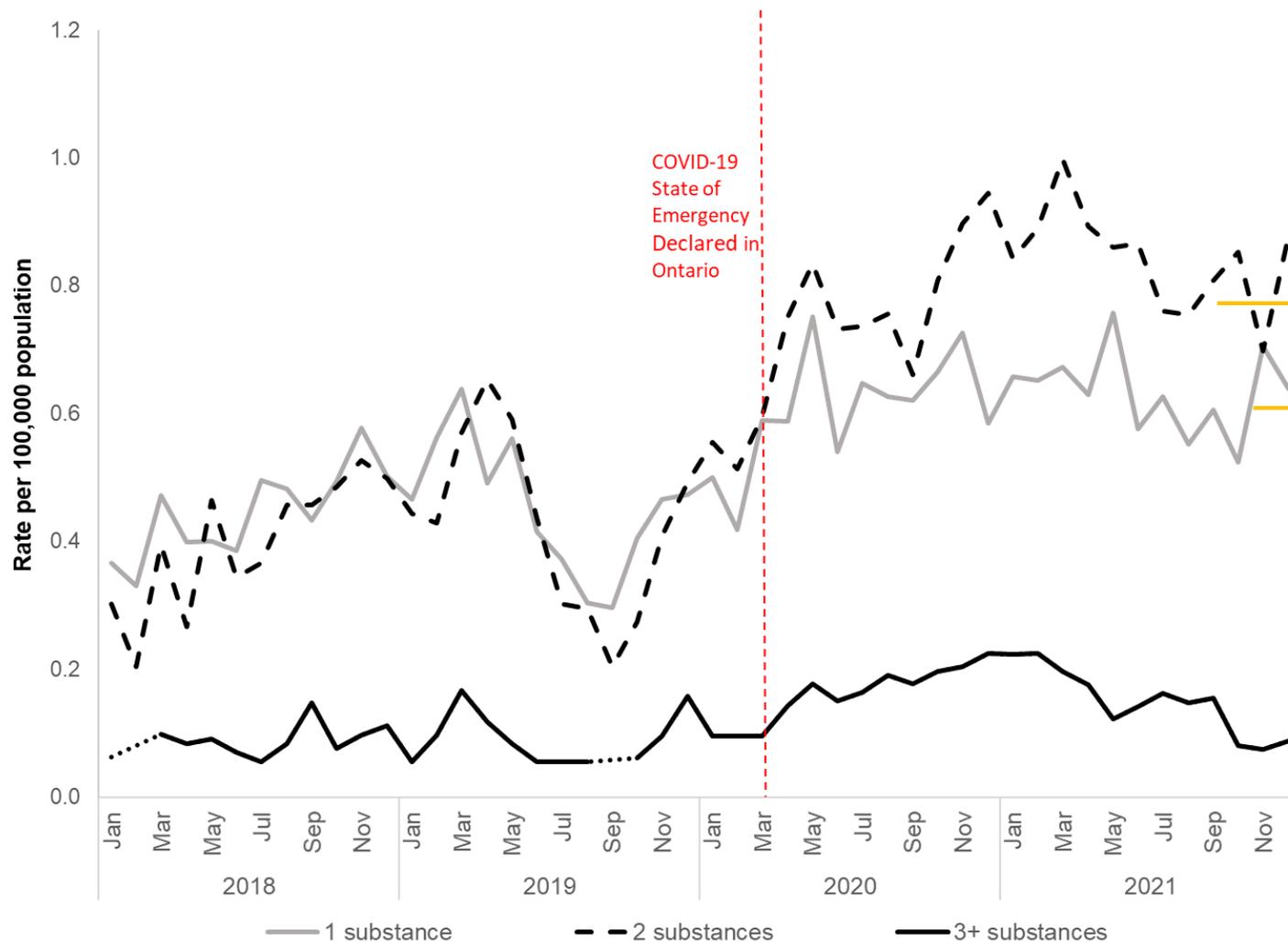
Most Common Substance Combinations



Poll Question:

43% of deaths involved **opioids and stimulants** together during the COVID-19 pandemic and represented the **largest increase** in deaths from the **pre-pandemic to pandemic period**

Shifts towards more substances involved in death



COVID-19
State of
Emergency
Declared in
Ontario

From 2018 to 2021:

↑ Nearly **2-fold** increase in
overall **substance toxicities**

Deaths involving

two substances tripled >>

one substance doubled



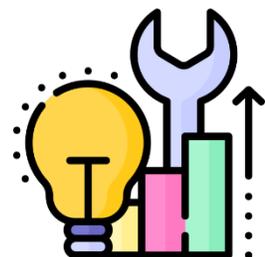
Evidence to inform a response



In which populations are most substance-toxicity deaths concentrated?



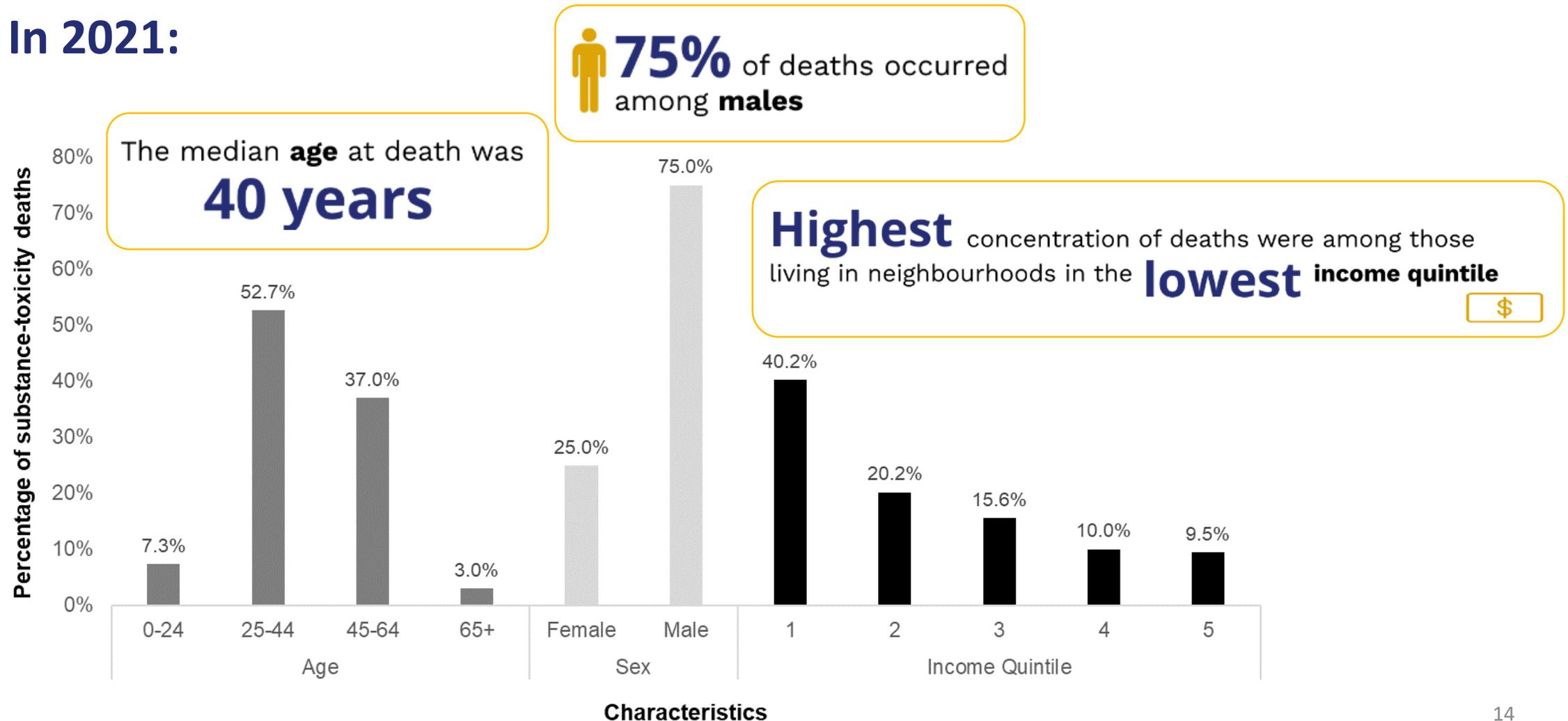
What are the circumstances and contributing factors to different substance toxicity deaths?



What are the opportunities to improve and tailor responses to toxicity events?

Deaths are predominantly among men with a high clustering among those aged 25-44

In 2021:



Contributions of different substances

Alcohol

Benzodiazepine

Opioid

Stimulant

Alcohol toxicity deaths

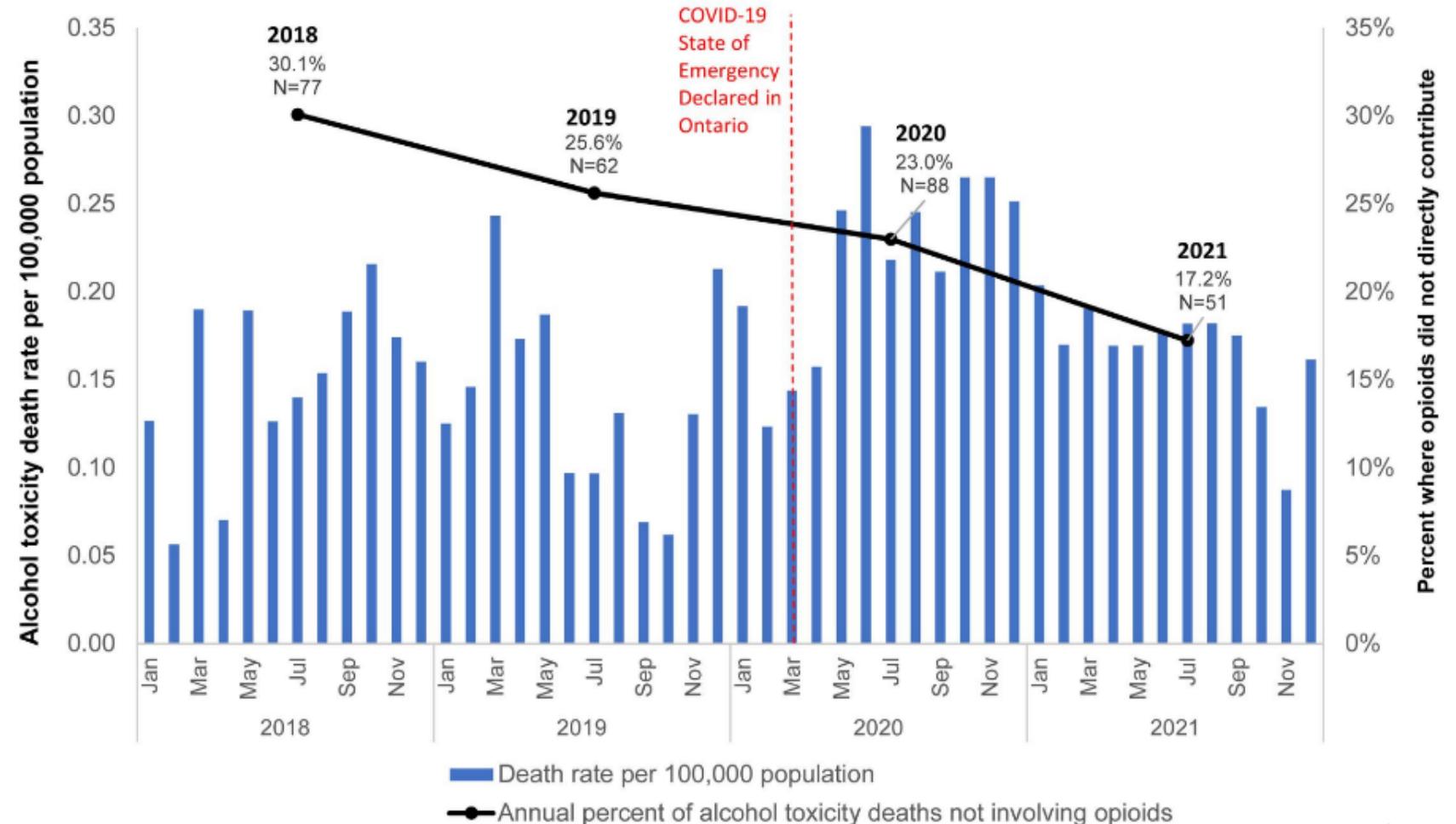
Trends & characteristics

SUMMARY

16% Increase in the number of alcohol toxicities from 2018 to 2021

13% of all substance-related deaths from 2018 to 2021 **involved alcohol** as a direct contributor to death

 **296** Alcohol toxicity deaths in 2021

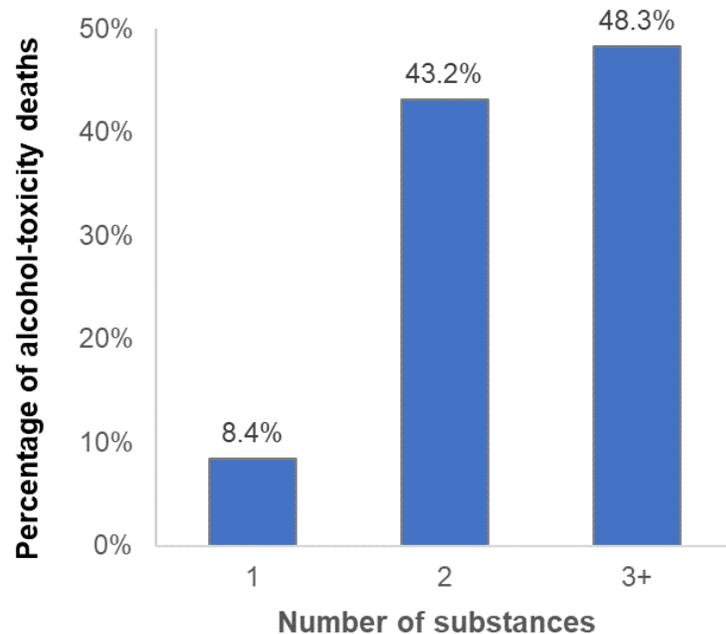


Alcohol toxicity deaths

Trends & characteristics

2021

92% of deaths had **other substances** directly contribute to death



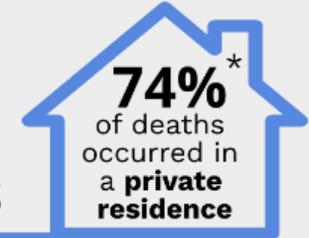
Demographics



73% of deaths occurred among **males**



The median age at death was **41 years**



Alcohol toxicity death rates were **3X** higher in **Northern** vs **Southern Ontario**



Rural
1.8 deaths per 100,000 people

Deaths rates were **similar** in **rural** vs **urban** residences



Urban
1.9 deaths per 100,000 people

*This proportion is among cases where location of incident was known

Stimulant toxicity deaths

Trends & characteristics

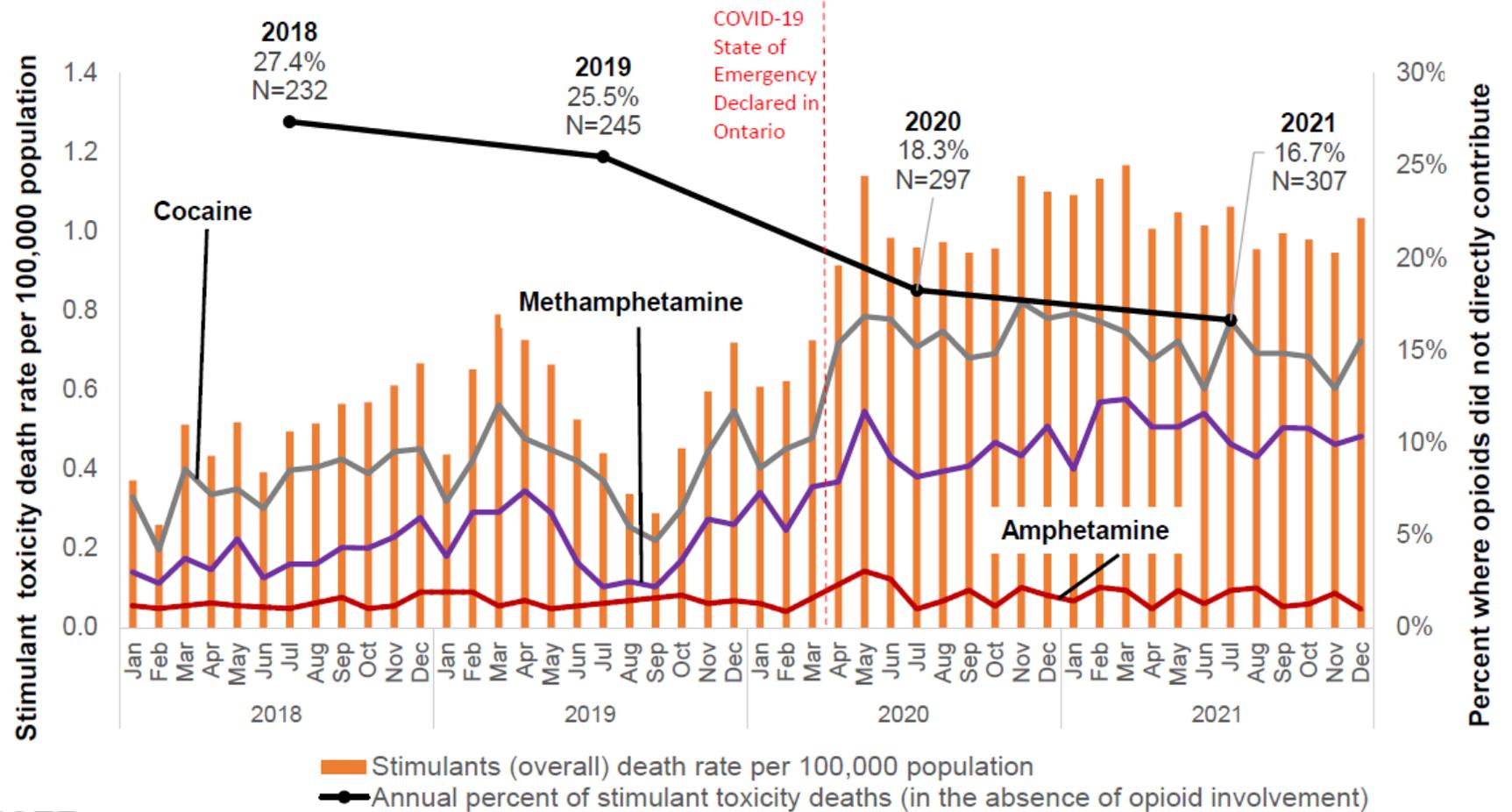
SUMMARY

2x Increase in the number of stimulant toxicity deaths from 2018 to 2021

60% of all substance-related deaths from 2018 to 2021 **involved stimulants** as a direct contributor to death

 **1843** Stimulant toxicity deaths in 2021

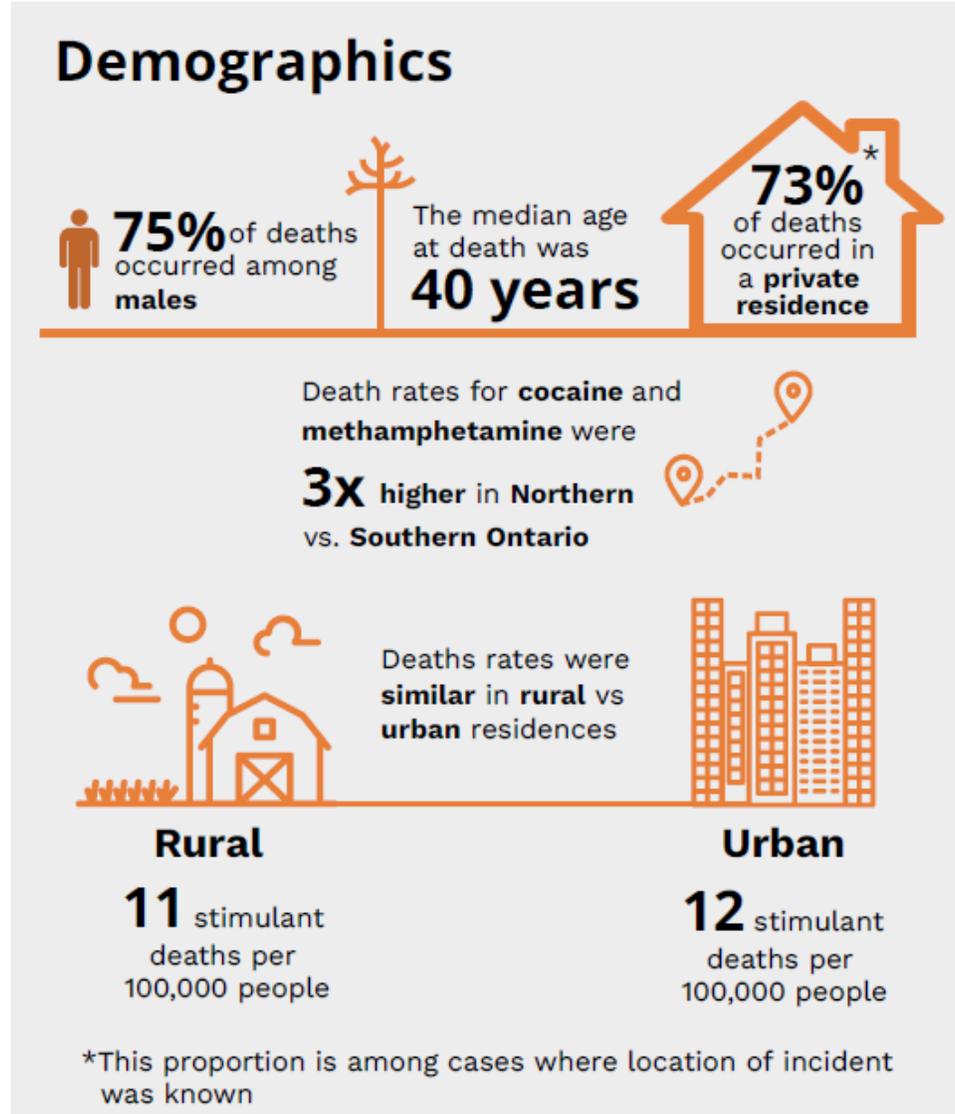
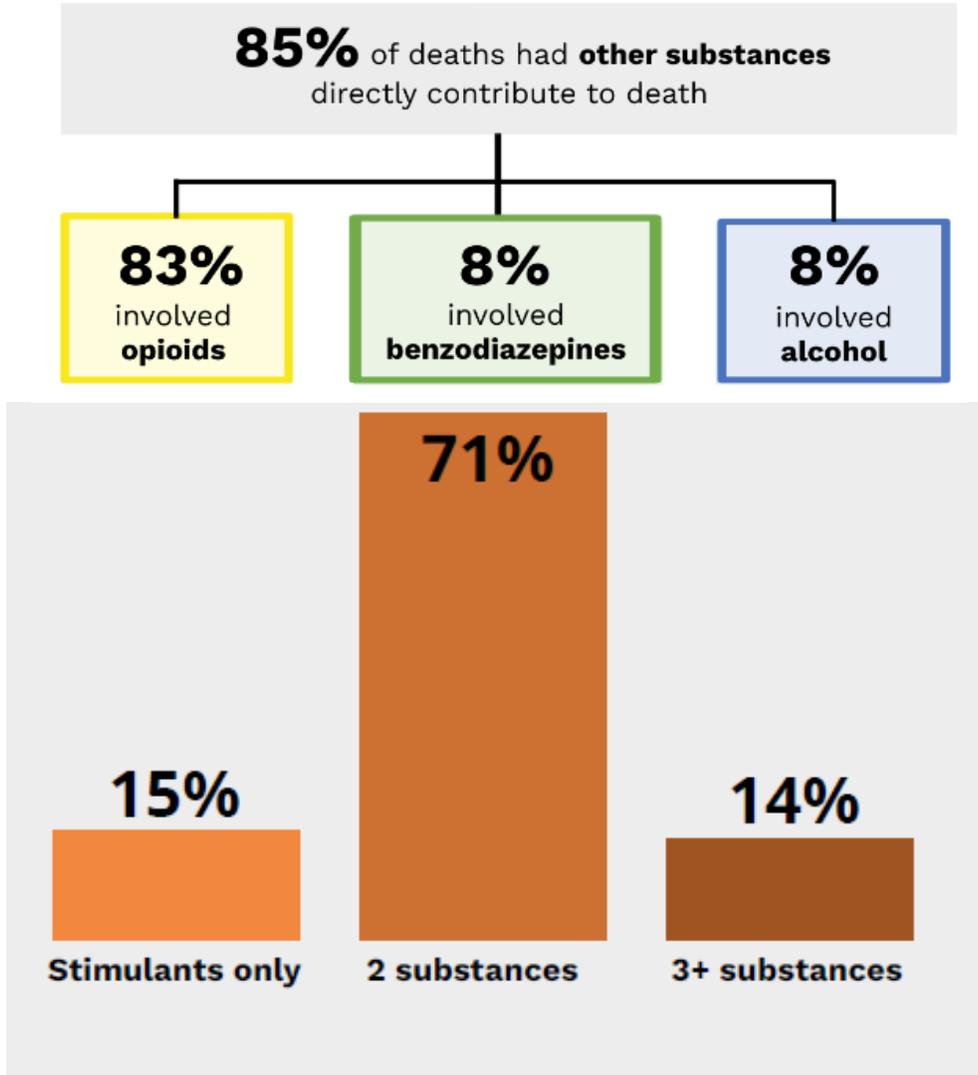
- **68%** Cocaine
- **48%** Methamphetamine
- **17%** Both cocaine and methamphetamine
- **7%** Amphetamine



Stimulant toxicity deaths

Trends & characteristics

2021



Benzodiazepine toxicity deaths

Trends & characteristics

SUMMARY

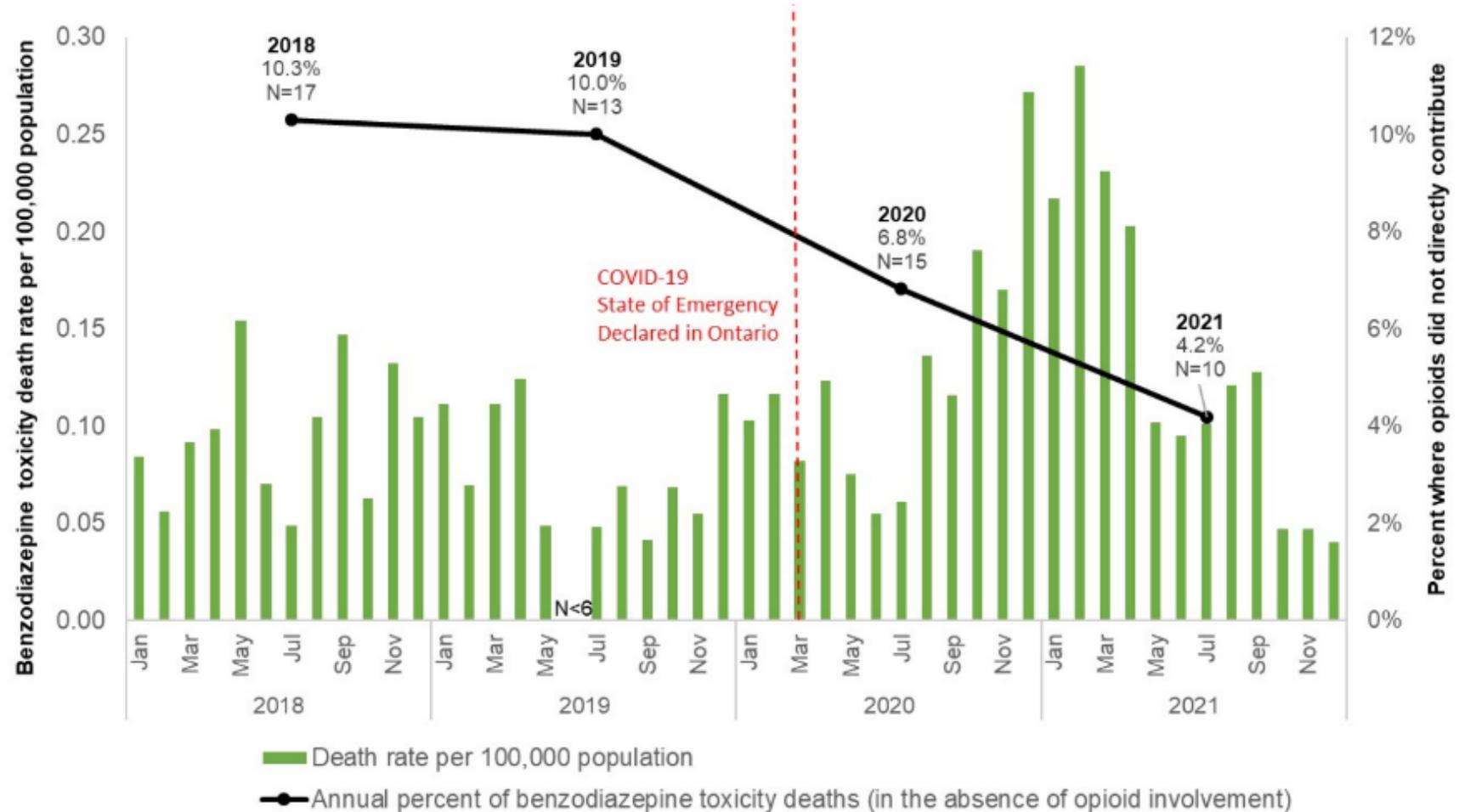
45% increase in the number of benzodiazepine toxicity deaths from 2018 to 2021

9% of all substance-related deaths from 2018 to 2021 **involved benzodiazepine** as a direct contributor to death



239 benzodiazepine toxicity deaths in 2021

→ **82%** were caused by **non-pharmaceutical** benzodiazepines

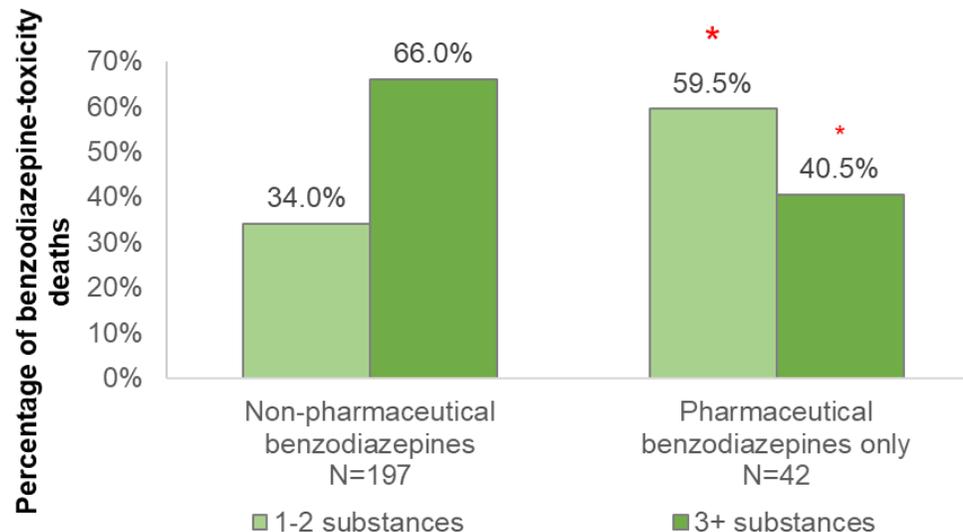


Benzodiazepine toxicity deaths

Trends & characteristics

2021

>98% of deaths had **other substances** directly contribute to death

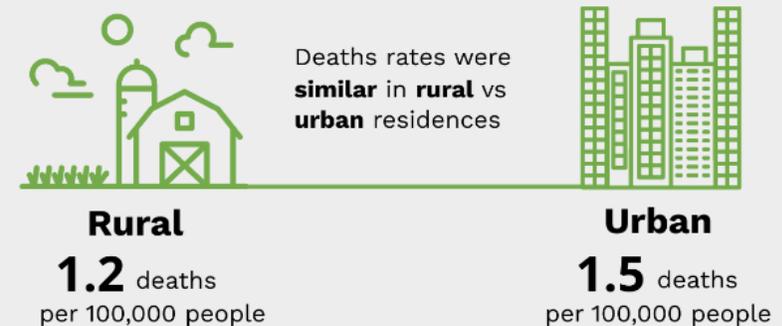


Demographics



Death rates for **non-pharmaceutical** benzodiazepines were **2.3X** higher in Northern vs. Southern Ontario

Death rates for **pharmaceutical** benzodiazepines were **7X** higher in Northern vs. Southern Ontario



*This proportion is among cases where location of incident was known

Opioid toxicity deaths

Trends & characteristics

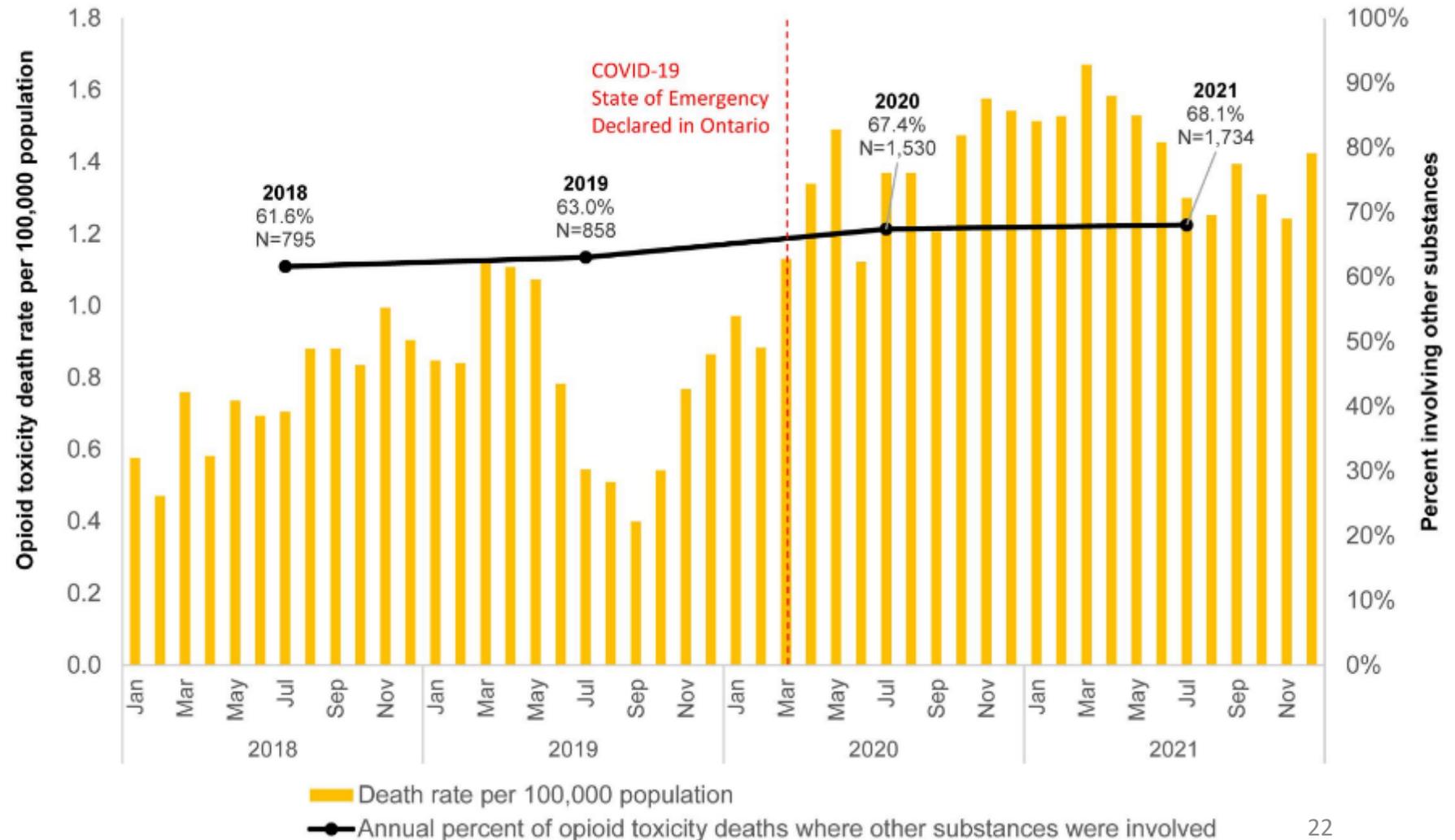
SUMMARY

2X Increase in the number of opioid toxicity deaths from 2018 to 2021

85% of all substance-related deaths from 2018 to 2021 **involved opioids** as a direct contributor to death

 **2547** Opioid toxicity deaths in 2021

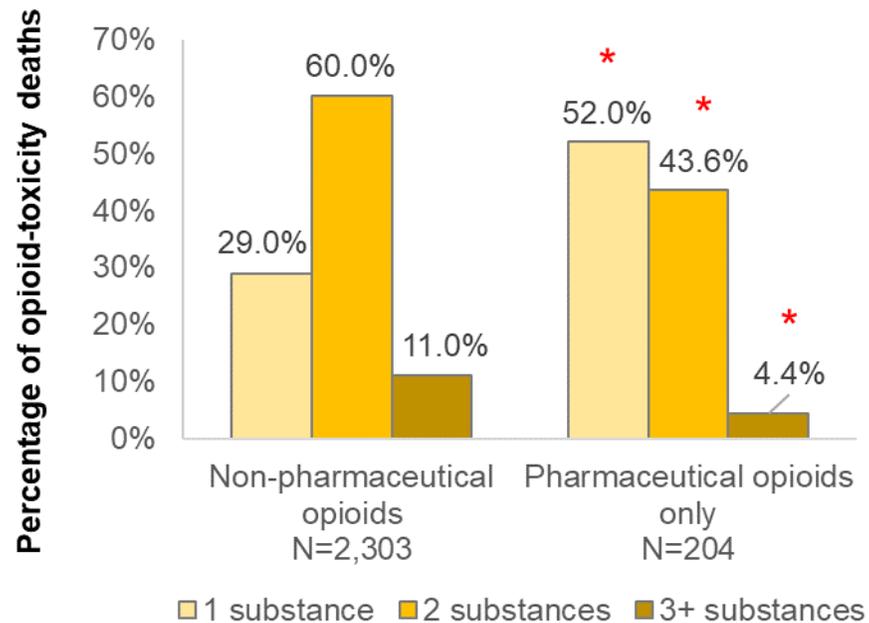
→ **90%** were caused by **non-pharmaceutical** opioids



Opioid toxicity deaths

Trends & characteristics

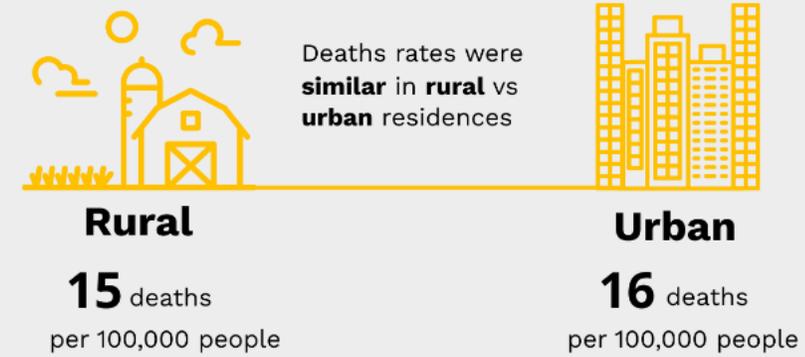
2021



Demographics



Death rates for **non-pharmaceutical** and **pharmaceutical** opioids were **3X** higher in **Northern** vs. **Southern Ontario**



*This proportion is among cases where location of incident was known

Responses should consider the following:

- Adaptation and expansion of **harm reduction programs** across Ontario that support use of multiple substances
- Improved management and screening of **co-occurring substance use disorders** as well as the expansion of education, tools and programs to support people who use alcohol and drugs.
- Programs and services in Northern Ontario that address the specific barriers to health and social services that exist in **sparsely populated and remote regions**.



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Community Response and Lived Experience
