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University
of Victoria

Canadian Institute for
Substance Use Research

Building knowledge for societal change

The economic cost of alcohol use in Canada and the cancer prevention potential of alcohol policies

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Disclosure and disclaimer

I have no conflicts of interest to declare

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Subject matter

Alcohol use is a preventable cause of cancer and a major contributor to health and economic burden in Canada. This PHO Rounds brings together findings from two complementary lines of evidence: a modelling study of alcohol policy impacts on cancer incidence and mortality, and the Canadian Substance Use Costs and Harms (CSUCH) study, which quantifies the broader economic costs of substance use in Canada. The policy modelling study, published in *The Lancet Public Health*, examined how alcohol warning labels and minimum unit pricing could reduce alcohol-attributable cancer outcomes. The CSUCH study places these harms in a wider societal context, including the publicly-funded impact on health care, lost productivity, and criminal justice. Together, these studies show that alcohol control is not only a cancer prevention strategy, but also an important opportunity to reduce preventable costs and improve population health.

Agenda

1. The healthcare cost of substance use in Canada, from the Canadian Substance Use Costs and Harms study version 4.0
2. Other economic costs from substance use, from the Canadian Substance Use Costs and Harms study version 3.0
3. The cancer prevention potential of alcohol policy (minimum unit pricing and alcohol container labelling) from a recent scientific article



Learning objectives

1. Describe the causal relationship between alcohol consumption and cancer risk, including the major alcohol-attributable cancer sites
2. Recognize alcohol use as a modifiable cancer risk factor and contributor to health care, productivity, and societal costs in Canada.
3. Interpret evidence on how alcohol policies, including minimum unit pricing and warning labels, may reduce alcohol-attributable cancer incidence and mortality.
4. Identify opportunities for physicians to support cancer prevention through patient communication, risk counselling, and advocacy for evidence-based alcohol policy.



**The healthcare cost of substance use in Canada,
from the Canadian Substance Use Costs and Harms
study version 4.0**



Sources for this section

All estimates from:

Canadian Substance Use Costs and Harms Scientific Working Group. (2026).
Canadian Substance Use Costs and Harms Report: Healthcare 2017–2024.
(Prepared by the Canadian Institute for Substance Use Research and the
Canadian Centre on Substance Use and Addiction.) Ottawa, Ont.: CCSA

AND

<https://csuch.ca/tool-v4/explore-the-data/>

CSUCH background

Canadian Substance Use Costs and Harms Scientific Working Group

**Canadian Centre on Substance Use and
Addiction (CCSA)**

Pam Kent, PhD, Principal Investigator
Director, Research and Emerging Trends

Adam Sherk, PhD

Anat Ziv, PhD

Aisha Giwa, PhD

Raadiya Malam, MPH

Chandni Sondagar, MPH, PMP

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Tim Stockwell, PhD, Principal Investigator
Scientist, CISUR; Professor Emeritus,
University of Victoria

Jinhui Zhao, PhD, MD

Keegan Lawrence, MSc

Background





Categories of substance use included



ALCOHOL



TOBACCO



CANNABIS



COCAINE



OPIOIDS



**OTHER CNS
DEPRESSANTS**



**OTHER CNS
STIMULANTS**



**ALL OTHER
PSYCHOACTIVE
DRUGS**

Major domains of costs and harms

Healthcare Costs



Lost Productivity Costs



Criminal Justice

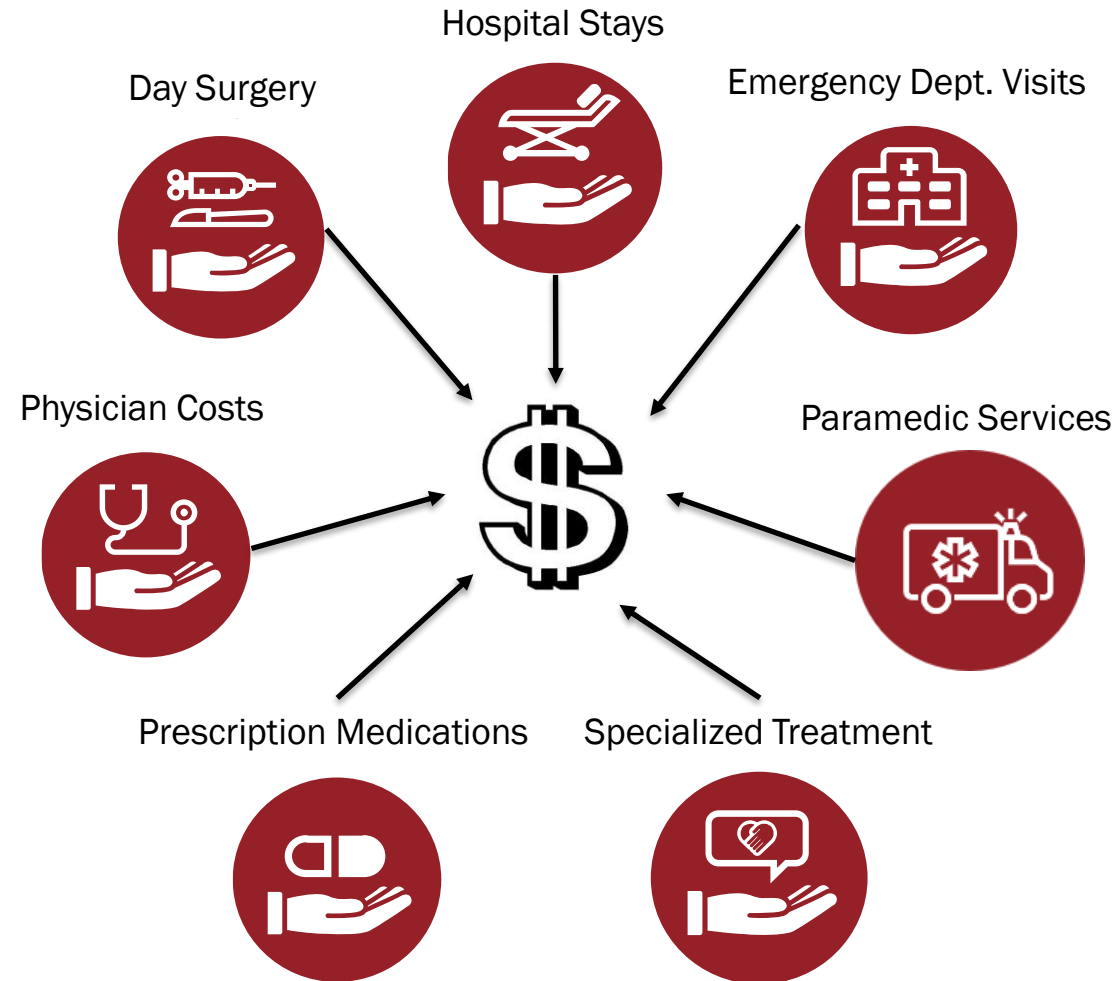


Other Direct Costs





Healthcare cost categories



Healthcare Costs \$16.4 Billion in 2024

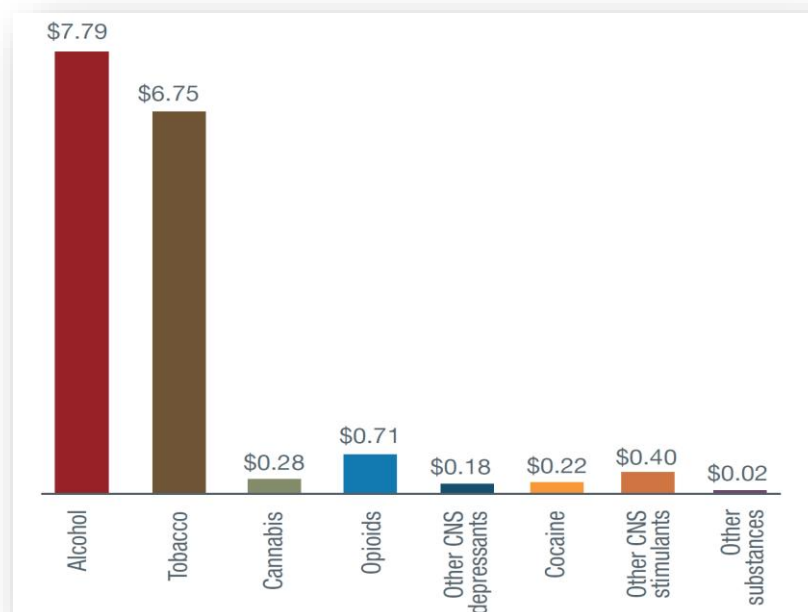
Costs (in billions) of healthcare attributable to substance use in Canada by substance, 2024



ALCOHOL



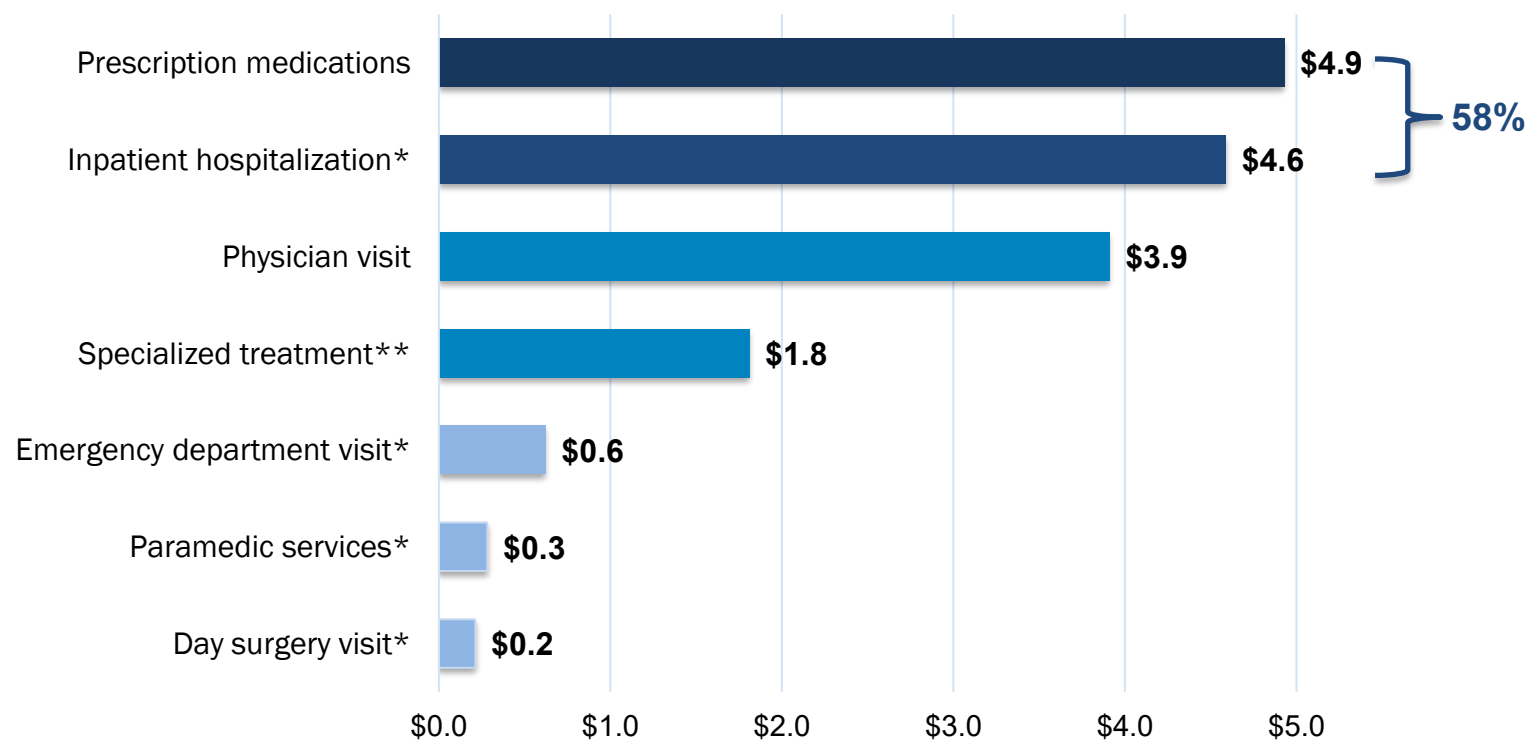
TOBACCO





Prescription medications and hospitalizations were the largest drivers of healthcare costs

Healthcare costs (in billions) attributable to substance use in Canada by healthcare service, 2024



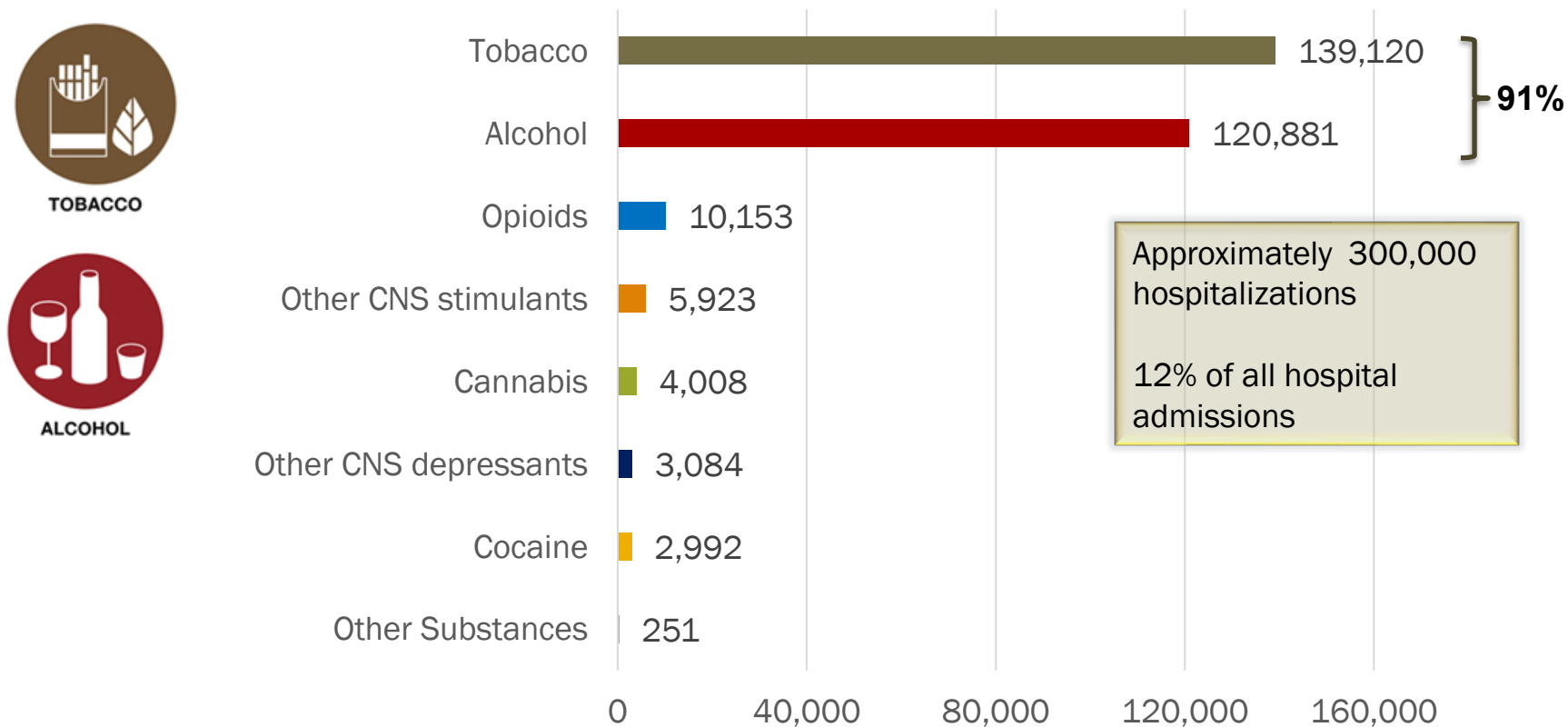
*Quebec was not included

**Residential and non-residential services



1 in 10 hospital admissions are attributable to substance use

Number of hospitalizations attributable to substance use in Canada (excluding Quebec) by substance, 2024



What does it mean?

Alcohol and tobacco, two legal substances, are the primary drivers of healthcare burden.

This highlights the need for continued efforts to increase public awareness and strengthen public health policies

Opioid-related healthcare costs showed the largest increase, alongside the increasing toxicity and instability of the unregulated drug supply.

Need to continue investing in harm reduction strategies, prevention programs, and treatment services to reduce opioids related harms.

Cannabis-related healthcare costs increased through 2020 and subsequently stabilized.

This trend highlights the need to continue monitoring cannabis-related harms over time and to identify populations experiencing increased harms, including cannabis poisonings among children and youth.



Other economic costs from substance use, from the Canadian
Substance Use Costs and Harms study version 3.0



Sources for this section

All estimates from:

Canadian Substance Use Costs and Harms Scientific Working Group.
(2023). Canadian substance use costs and harms 2007–2020.
(Prepared by the Canadian Institute for Substance Use Research and the
Canadian Centre on Substance Use and Addiction.) Ottawa, Ont.:
Canadian Centre on Substance Use and Addiction.

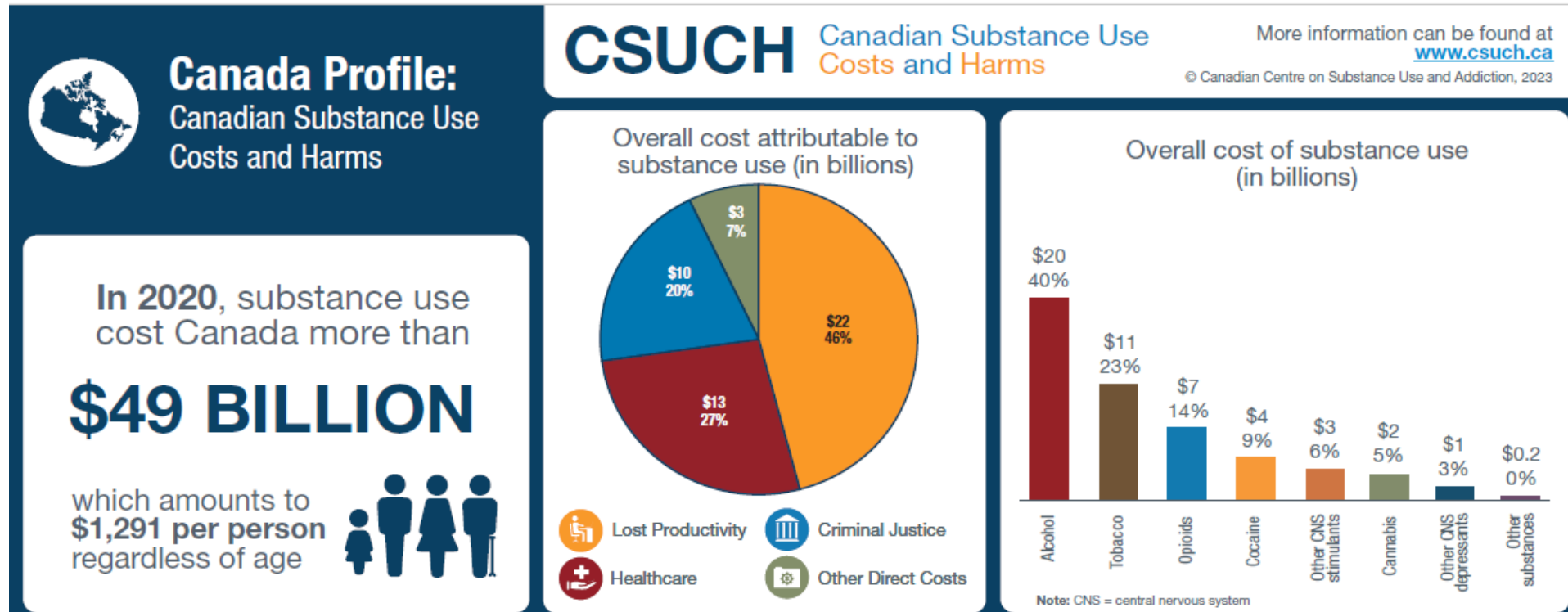
AND

<https://csuch.ca/explore-the-data/>

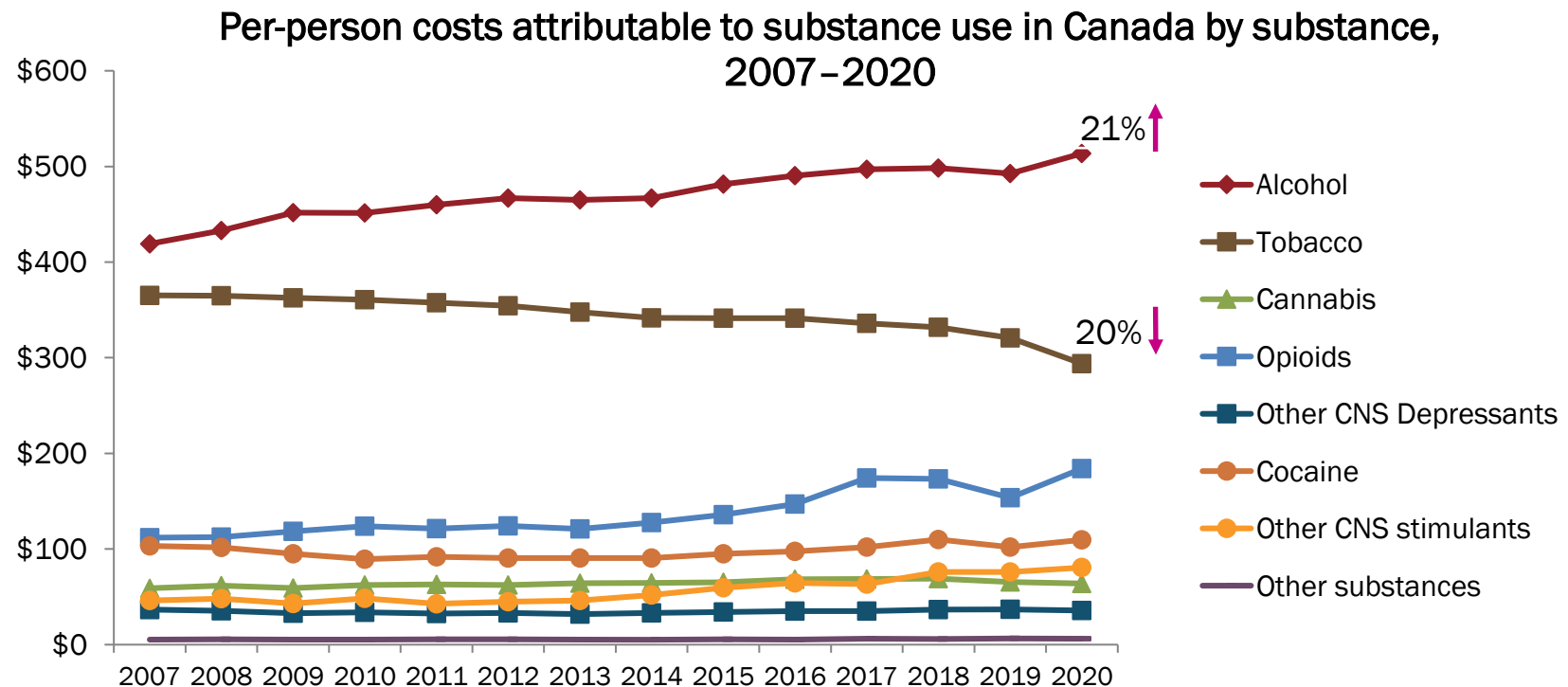
CSUCH in global perspective

- CSUCH is the world's most comprehensive national substance use surveillance system, focused on the resulting harms and costs
- Some countries have either single-substance systems or single-year systems, but none have longitudinal multisubstance systems, for example:
 - Australia: Alcohol, National Alcohol Indicators Project
 - Global systems like the Global Burden of Disease have only a focused set of indicators (DALYs, YLLs, deaths, etc.) and do not include substance use-attributable costs

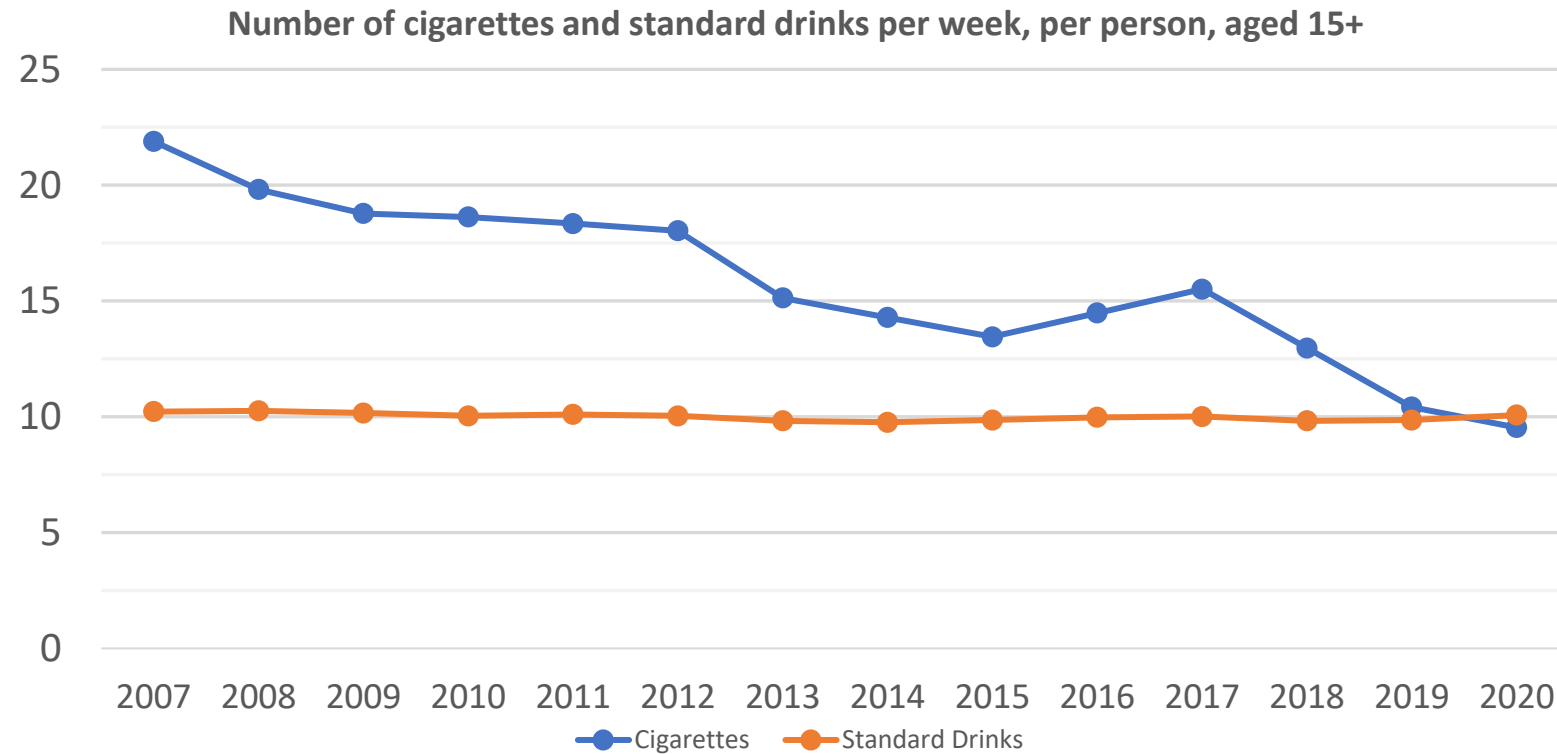
Top line findings from CSUCH 3.0



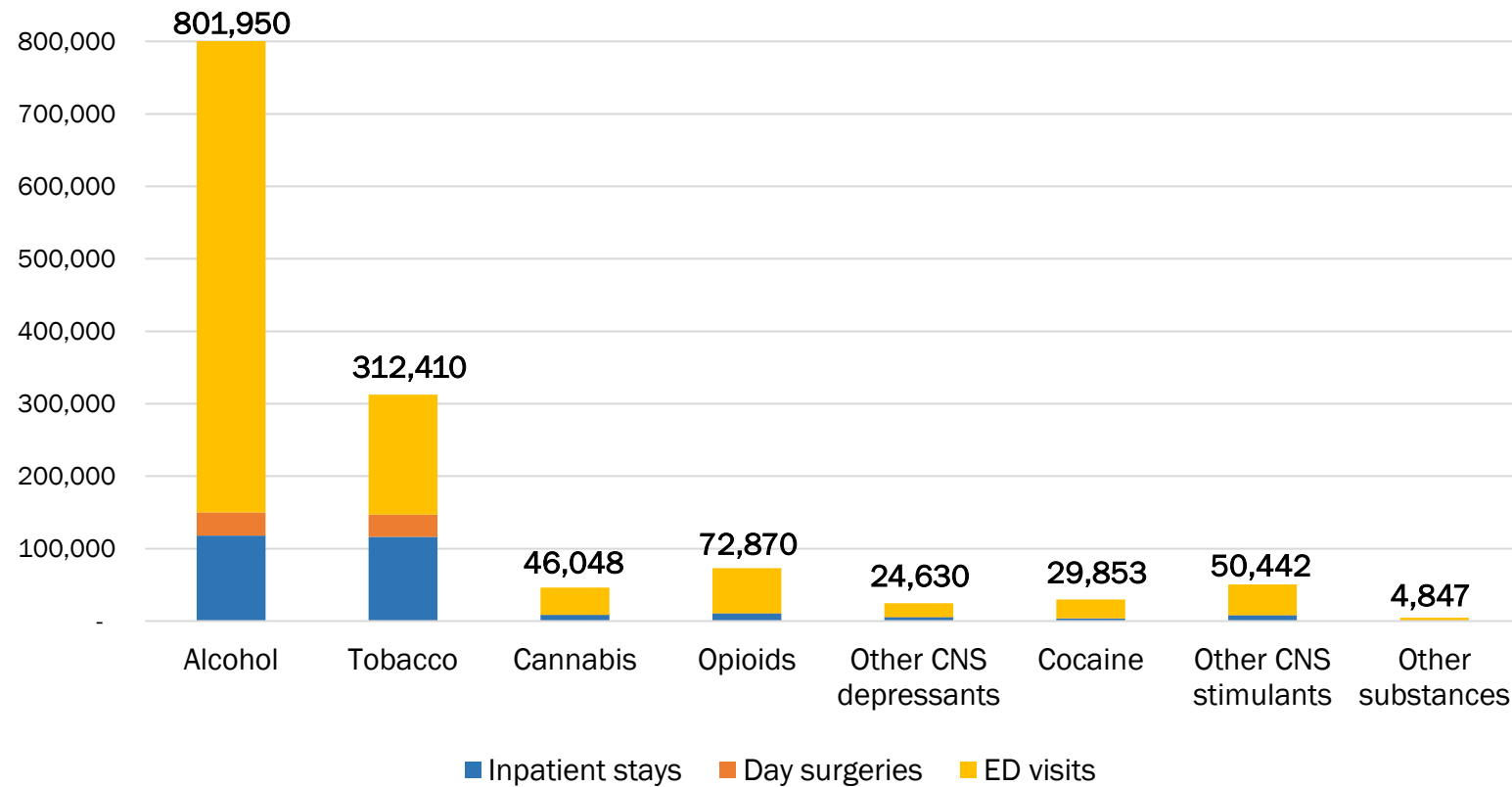
Costs of alcohol and tobacco use have diverged



Trends in tobacco and alcohol use



Number of Hospital Visits Highest for Alcohol





The cancer prevention potential of alcohol policy: A modelling study



Sources for this section

THE LANCET
Public Health

The effect of alcohol minimum unit pricing and cancer warning labels on cancer incidence and mortality in Canada: an epidemiological modelling study

Adam Sherk, Keegan W Lawrence, James M Clay, Erin Hobin, Tim Stockwell

Sherk, A., Lawrence, K. W., Clay, J. M., Hobin, E., & Stockwell, T. (2026). The effect of alcohol minimum unit pricing and cancer warning labels on cancer incidence and mortality in Canada: an epidemiological modelling study. *The Lancet Public Health*, 11(3), e164-e175.



Background

- Alcohol is a Group 1 carcinogen causally linked to multiple cancer sites (oral cavity and pharynx, oesophageal, colorectal, liver, pancreatic, laryngeal and breast)
- Canadian policy focus: Minimum Unit Pricing (MUP) and Alcohol Warning Labels (AWLs)
- Hypothesized substantial preventable cancer burden in Canada
- Funding from Canadian Cancer Society through Canadian Institutes for Health Research Catalyst grant # 707617



Study aims

- Estimate the baseline alcohol-attributable cancer incidence and mortality in Canada in 2022
- Model the impact of two levels of minimum unit price (CAD\$1.75 and CAD\$2.00 per Cdn standard drink) and alcohol container labels on cancer incidence and mortality
- Assess heterogeneity by sex, age, household income quintile, and cancer site



Why was modelling used?

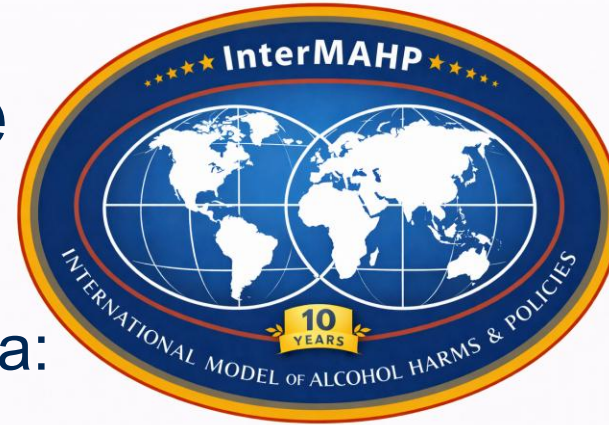
- Projected changes in cancer incidence and mortality may heighten impact for legislators and policymakers
- Possible to generate subgroup-specific estimates (by sex, age, income quintile, cancer site, and province) using integrated data sources
- Ethical and practical constraints prevent experimental policy trials at the population level



Data sources

- Statistics Canada: Cancer incidence and cancer mortality data
- Canadian Community Health Survey alcohol use data
- Administrative alcohol sales data (by province, 2022)
- Product-level alcohol price and sales data from BC Liquor
- Product-level alcohol price and sales data from Liquor Control Board of Ontario
- Population estimates by age, sex, and province (July 1, 2022)
- Relative risk functions from WHO Global Status Report on Alcohol and Health (and related meta-analyses)

Core modelling software



- AAFs calculated using the formula:

$$AAF_{c,p,s,a,i} = \frac{PFD_{p,s,a,i}[RRFD_{c,s} - 1] + \int_{0.03}^{150} P_{p,s,a,i}(x)[RR_{c,s}(x) - 1] dx}{1 + PFD_{p,s,a,i}[RRFD_{c,s} - 1] + \int_{0.03}^{150} P_{p,s,a,i}(x)[RR_{c,s}(x) - 1] dx}$$

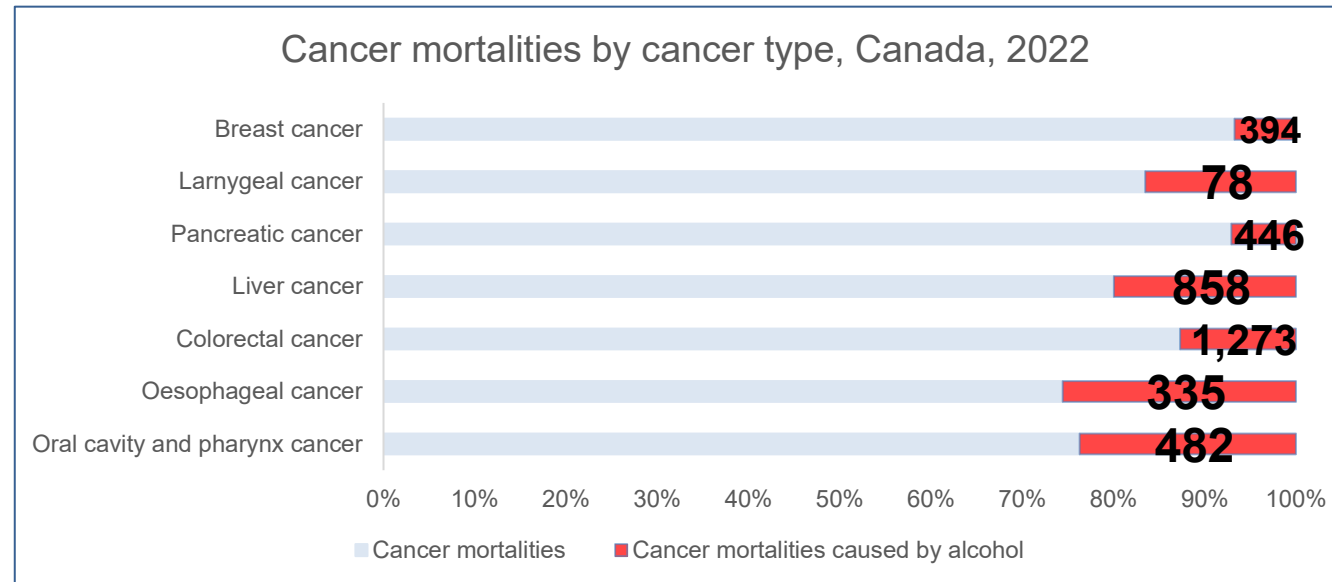
- Estimates the proportion of each cancer condition that would not have occurred in the absence of alcohol



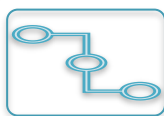
Baseline estimates

In Canada 2022, alcohol caused an estimated

- 19,498 incident cancer cases
- 3,866 cancer deaths



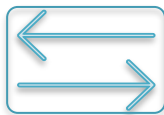
Alcohol policy scenarios



Baseline Scenario



Scenario 1: Cancer Warning Label



Scenario 2: Multi-Message Rotating Label



Scenario 3: MUP \$1.75



Scenario 4: MUP \$2.00



Scenario 5: MUP \$2.00 with Cancer Warning Label



Clarification:

- Mandatory health warnings on alcohol products indicating health risks from alcohol consumption.

Rationale and Impact:

- Influences consumer behaviour towards more informed choices
- Supported by research study from the Yukon demonstrating per capita reductions in alcohol consumption

Clarification:

- A policy setting a minimum price per standard drink to curb the availability of very cheap alcoholic drinks.

Rationale and Impact:

- Implemented in Scotland and Wales; shown to reduce per capita alcohol consumption
- Anticipated to significantly reduce overall alcohol intake, particularly among vulnerable populations.

Study findings

	Baseline	Policy 1: Cancer Warning Label	Policy 2: Multi-Message Rotating Label	Policy 3: MUP of \$1.75	Policy 4: MUP of \$2.00	Policy 5: MUP of \$2.00 + Cancer Warning Label
		Estimate (% change) [95% UE]	Estimate (% change) [95% UE]	Estimate (% change) [95% UE]	Estimate (% change) [95% UE]	Estimate (% change) [95% UE]
Alcohol-caused cancer incident cases						
Female	3,411	-75 (-2.2%) [-4.1%, -1.1%]	-205 (-6.0%) [-10.7%, -2.2%]	-77 (-2.3%) [-2.8%, -2.1%]	-183 (-5.4%) [-6.6%, -4.2%]	-253 (-7.4%) [-10.3%, -5.2%]
Male	6,087	-88 (-1.4%) [-2.7%, -0.7%]	-241 (-4.0%) [-7.1%, -1.4%]	-134 (-2.2%) [-2.7%, -2.1%]	-341 (-5.6%) [-6.9%, -4.3%]	-421 (-6.9%) [-9.2%, -5.0%]
Total	9,498	-163 (-1.7%) [-3.2%, -0.9%]	-446 (-4.7%) [-8.4%, -1.7%]	-211 (-2.2%) [-2.7%, -2.1%]	-524 (-5.5%) [-6.8%, -4.3%]	-674 (-7.1%) [-9.6%, -5.1%]
Alcohol-caused cancer mortalities						
Female	1,125	-17 (-1.5%) [-2.8%, -0.8%]	-47 (-4.2%) [-7.4%, -1.5%]	-17 (-1.5%) [-1.8%, -1.4%]	-41 (-3.6%) [-4.5%, -2.8%]	-57 (-5.1%) [-7.1%, -3.5%]
Male	2,741	-34 (-1.2%) [-2.3%, -0.6%]	-92 (-3.4%) [-6.0%, -1.2%]	-50 (-1.8%) [-2.2%, -1.7%]	-128 (-4.7%) [-5.7%, -3.6%]	-159 (-5.8%) [-7.7%, -4.2%]
Total	3,866	-51 (-1.3%) [-2.4%, -0.7%]	-139 (-3.6%) [-6.4%, -1.3%]	-67 (-1.7%) [-2.1%, -1.6%]	-169 (-4.4%) [-5.4%, -3.4%]	-216 (-5.6%) [-7.5%, -4.0%]

Study findings

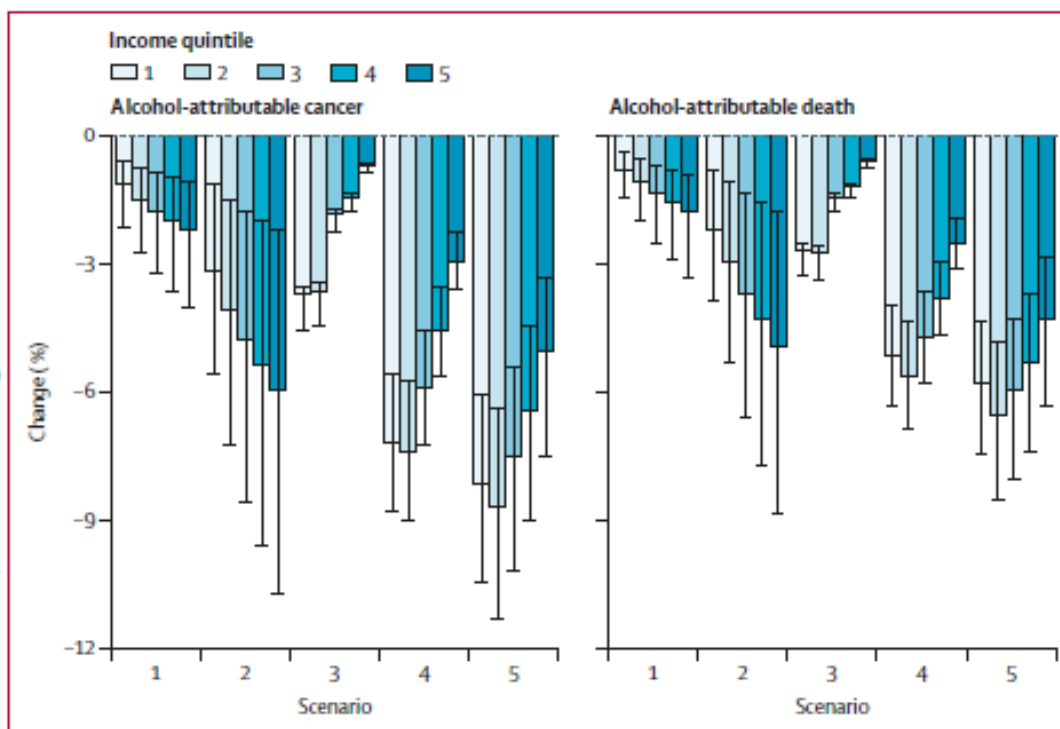
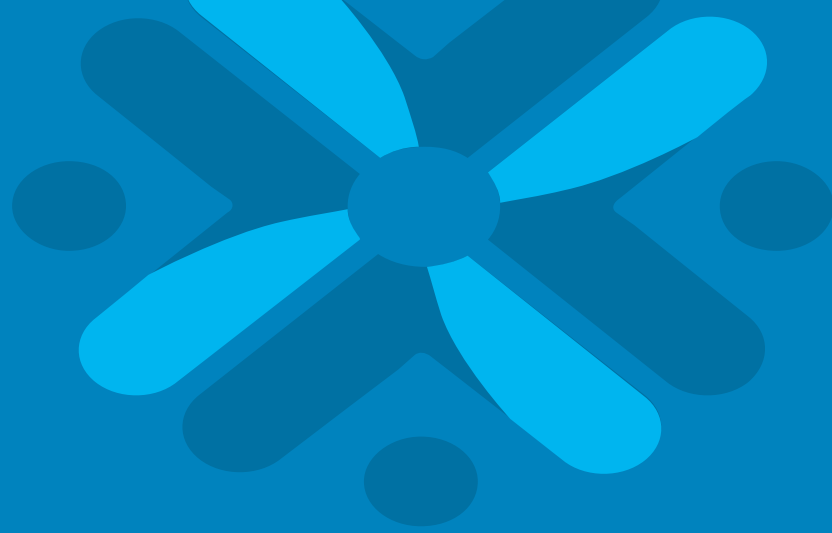


Figure 1: Percentage changes in the number of alcohol-attributable cancer incident cases and deaths, by alcohol policy scenario and household income quintile, Canada, 2022
Income quintile 1 is the lowest (least income) and income quintile 5 is the highest (most income). Scenario 1 is a cancer warning label on alcohol containers, scenario 2 is a multi-message rotating label on alcohol containers, scenario 3 is a minimum unit price of CAN\$1.75, scenario 4 is a minimum unit price of \$2.00, and scenario 5 is a cancer warning label on alcohol containers and a minimum unit price of \$2.00.

- Largest proportional benefits in lower-income quintiles
- Stronger effects among males for MUP scenarios

Implications and conclusions

- The MUP \$2.00 with cancer labels scenario yielded the largest impact, reducing cancer incidence by 7.1% and mortality by 5.6%
- Potential for substantial equity gains: the lowest-income quintile experienced $\approx 8\text{--}9\%$ reductions vs. $\approx 4\text{--}5\%$ in the highest-income quintile
- Alcohol policies, particularly those combining pricing and labelling, could substantially reduce the cancer burden and health inequalities



Questions and Comments