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Burden of Health Conditions Attributable to Smoking and Alcohol by Public Health Unit in Ontario

PHO Rounds, February 23, 2023

Presenters:

Naomi Schwartz, Lead for Smoking Cessation and Epidemiologist, Ontario Health

Justin Thielman, Epidemiologist Lead, Health Promotion, Chronic Disease and Injury Prevention,
Public Health Ontario

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Disclosure

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

Learning objectives

- Identify health conditions that are caused by smoking and alcohol consumption
- Describe recent estimates of deaths, hospitalizations, and emergency department visits that are caused by smoking and alcohol use in Ontario
- Explain the types of health conditions that have the greatest number of harms due to smoking and alcohol consumption

About the report



Burden of Health Conditions Attributable to Smoking and Alcohol
by Public Health Unit in Ontario

- Presents smoking and alcohol attributable deaths, hospitalizations and emergency department visits for Ontario and by public health unit (PHU)
- Collaboration between Public Health Ontario and Ontario Health
- Available at publichealthontario.ca/smoking-alcohol
- Report, appendix A (detailed estimates), supplementary tables and technical appendix
- The report and appendix A are also available in French

About the report

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The burden of chronic diseases in Ontario: key estimates to support efforts in prevention

publichealthontario.ca/cdburden

The Burden of Chronic Diseases in Ontario

Key Estimates to Support Efforts in Prevention
July 2019

Ontario Public Health Standards goal: To reduce the burden of chronic diseases of public health importance and improve well-being

Ontario Public Health Standards:

Requirements for Programs, Services and Accountability

Protecting and Promoting the Health of Ontarians

Effective: June, 2021

Consultative groups and expert feedback

- Ontario Chronic Disease Prevention Management in Public Health;
 - Ontario Public Health Association, Alcohol Workgroup;
 - Ontario Public Health Collaboration on Cannabis; and
 - Tobacco Control Area Networks
-
- Mental Health and Addictions Centre of Excellence, Ontario Health;
 - Michael Chaiton, Ontario Tobacco Research Unit, CAMH;
 - Michelle Cotterchio, Prithwish De, Zeinab El-Masri, Vicki Lee from Ontario Health;
 - Celina Degano, Erin Hobin, Pamela Leece, Anne Philipneri, Sarah Richmond, Brendan Smith from Public Health Ontario;
 - Bill Evans, Ontario Health and McMaster University;
 - Adam Sherk, Canadian Institute for Substance Use Research, University of Victoria;
 - Kevin D. Shield, Centre for Addiction and Mental Health; and
 - Tim Stockwell, Canadian Institute for Substance Use Research

COVID-19 Pandemic

- An examination of the impact of COVID-19 on smoking and alcohol attributable harms was not possible in this report because data were only available up to 2019 at the time of analysis.
- When data become available, future research is warranted on the substantial impact of the COVID-19 pandemic on chronic disease prevention and health outcomes.

Approach

- Attributable harms: estimated proportion of an outcome (e.g., deaths) caused by smoking or alcohol consumption
- Harms in the report include
 - Cancers
 - Cardiovascular diseases
 - Lower respiratory diseases
 - Diabetes
 - Neuropsychiatric conditions, digestive disorders and injuries (for alcohol only)

Smoking

Poll #1

The largest number of smoking attributable hospitalizations are from what health condition?

Prevalence of smoking

- 17.5% of people in Ontario age 20 and older reported that they currently smoke cigarettes every day or occasionally
- PHUs ranged from a low of 12.3% to a high of 28.0%

Calculating smoking attributable harms

Population attributable fractions were calculated using Levin's formula for each outcome and disease site using age- and sex-specific estimates:

- prevalence of smoking (current and former smoking)
- disease-specific relative risk (current versus never smoking and former versus never smoking)
- total number of each health condition outcome

PHU estimates were calculated by multiplying

- provincial age- and sex-specific smoking population attributable fractions by
- total number of outcomes in each sex and age group for each PHU

Ontario: Smoking Summary

In an average year, an estimated:

- **16,673 deaths**
- **68,046 hospitalizations**
- **125,384 emergency department visits**

were attributable to smoking in people age 35 and older

These smoking attributable outcomes made up:

- **17.0% of deaths**
- **8.7% of hospitalizations**
- **3.4% of emergency department visits**

from all causes in people age 35 and older in Ontario

Ontario: Smoking

Estimates of average annual deaths, hospitalizations and emergency department visits from health conditions attributable to smoking in people age 35 and older, Ontario

	Total smoking attributable health conditions	Cancer	Cardiovascular	Diabetes	Respiratory
Deaths	16,673	7,583	5,122	158	3,810
Hospitalizations	68,046	8,469	30,811	661	28,105
Emergency department visits	125,384	3,718	33,395	1,384	86,887

Algoma: Smoking Summary

Example of PHU level results

In an average year, an estimated:

- **251 deaths**
- **1,050 hospitalizations**
- **2,567 emergency department visits**

were attributable to smoking in people age 35 and older

These smoking attributable outcomes made up:

- **18.6% of deaths**
- **10.3% of hospitalizations**
- **4.1% of emergency department visits**

from all causes in people age 35 and older in Algoma

Algoma: Smoking

Example of PHU level results

Estimates of average annual deaths, hospitalizations and emergency department visits from health conditions attributable to smoking in people age 35 and older, Algoma

	Total smoking attributable health conditions	Cancer	Cardiovascular	Diabetes	Respiratory
Deaths	251	106	78	2	64
Hospitalizations	1,050	128	487	11	424
Emergency department visits	2,567	87	532	29	1,919

Opportunities to reduce smoking

Policies and programs from the Smoke-Free Ontario Scientific Advisory Committee include:

- Increased prices and taxation;
- Product and packaging restrictions;
- Availability restrictions;
- Frequent mass media health promotion campaigns of sufficient duration;
- Broadened protection from second-hand smoke exposures in outdoor settings, homes and workplaces; and
- Increased access to smoking cessation programs.

Alcohol consumption

Poll #2

The largest number of alcohol attributable deaths are from what health condition?

Prevalence of alcohol consumption

- 33.2% of people in Ontario age 19 and older reported having more than two drinks in the past week
- PHUs ranged from a low of 23.5% to 42.6%

Current drinking

- 76.8% of people in Ontario age 15 and older reported current drinking, which is defined as having one or more drinks in the past 12 months
- PHUs ranged from a low of 63.2% to a high of 83.3%

Binge drinking

- 18.9% of people in Ontario age 15 and older reported binge drinking, which is defined as five or more drinks for males and four or more drinks for females on one occasion at least once a month in the past 12 months
- PHUs ranged from a low of 13.3% to a high of 28.4%

Calculating alcohol attributable harms

Population attributable fractions were calculated for each outcome and disease site using InterMAHP and:

- age- and sex- specific prevalence of current drinking, former drinking, lifetime abstinence, and binge drinking
- age- and sex-specific relative average alcoholic drinks per week (for different age and sex subgroups compared to a reference subgroup)
- per capita consumption from sales data, tourist consumption and unrecorded consumption
- total number of each health condition outcome

PHU estimates were calculated by multiplying:

- provincial age- and sex-specific alcohol population attributable fractions from InterMAHP by
- total number of outcomes in each sex and age group for each PHU

Ontario: Alcohol Summary

In an average year, an estimated:

- **4,330 deaths**
- **22,009 hospitalizations**
- **194,692 emergency department visits**

were attributable to alcohol in people age 15 and older

These alcohol attributable outcomes made up:

- **4.3% of deaths**
- **2.1% of hospitalizations**
- **3.7% of emergency department visits**

from all causes in people age 15 and older in Ontario

Ontario: Alcohol

Estimates of average annual deaths, hospitalizations and emergency department visits from health conditions attributable to alcohol in people age 15 and older, Ontario

	Total alcohol attributable health conditions	Cancer	Cardio-vascular	Communicable disease	Digestive condition	Endocrine condition	Neuro-psychiatric	Intentional injury	Motor vehicle collision	Unintentional injury
Deaths	4,330	1,204	934	126	865	-67	329	306	87	545
Hospitalizations	22,009	2,071	-2,263	1,282	4,709	-285	8,379	1,250	672	6,194
Emergency department visits	194,692	613	2,528	5,559	5,435	-927	57,536	9,112	9,391	105,446

Algoma: Alcohol Summary

Example of PHU level results

In an average year, an estimated:

- **57 deaths**
- **310 hospitalizations**
- **2,306 emergency department visits**

were attributable to alcohol in people age 15 and older

These alcohol attributable outcomes made up:

- **4.1% of deaths**
- **2.4% of hospitalizations**
- **2.7% of emergency department visits**

from all causes in people age 15 and older in Algoma

Algoma: Alcohol

Example of PHU level results

Estimates of average annual deaths, hospitalizations and emergency department visits from health conditions attributable to alcohol in people age 15 and older, Algoma

	Total alcohol attributable health conditions	Cancer	Cardio-vascular	Communicable disease	Digestive condition	Endocrine condition	Neuro-psychiatric	Intentional injury	Motor vehicle collision	Unintentional injury
Deaths	57	15	13	2	11	-1	6	3	1	6
Hospitalizations	310	25	-49	13	54	-4	159	20	7	84
Emergency department visits	2,306	10	38	88	63	-22	491	126	97	1,415

Opportunities to reduce alcohol consumption

Policy actions from the Canadian Alcohol Policy Evaluation project include:

- Increased prices and taxation;
- Restrictions on marketing and advertising;
- Physical availability restrictions;
- Increased screening, brief interventions and referrals to treatment;
- Regular monitoring and reporting on consumption and alcohol-related harms; and
- Health and safety messaging on labels, at on- and off-premise outlets, and other media platforms.

Comparative burden in Ontario (3 years)

	COVID-19, Jan 15, 2020 to Jan 14, 2023	Smoking 3-year estimate	Alcohol 3-year estimate
Deaths	15,786	50,019	12,990
Hospitalizations	64,740	204,138	66,027

Key messages

- Smoking and alcohol attributable harms and injuries present a considerable burden on the health of Ontarians and the health care system
- Need for policies and programs at federal, provincial and local levels to prevent and reduce smoking and alcohol consumption
- Need for further research on the impact of the pandemic on smoking and alcohol use, chronic disease and health care utilization

Limitations of the report

- Provincial prevalence estimates for smoking and alcohol consumption rather than public health unit-specific
- Self-reported smoking and alcohol consumption
- Exclusion of secondary causes for deaths, hospitalizations and emergency department visits
- Emerging literature on alcohol consumption and cardioprotective effects not incorporated
- Some outcomes are not included (e.g., fetal alcohol spectrum disorder)
- Synergistic harms of combining smoking and alcohol are not included

How to mobilize this report

- Estimates can be used to “make the case” for programs and policies to prevent and reduce smoking and alcohol consumption
 - Share with your Board of Health, regional partners and other stakeholders
 - Incorporate the estimates into population health assessment
- Estimates can be used to draw attention to risk factors and chronic disease as we emerge from the pandemic
- Focus on the impact on population health and the burden on the health care system

Poll #3

How will your organization use this report?

Questions and discussion

Speaker contact:

Justin Thielman, Public Health Ontario, Justin.Thielman@oahpp.ca