2023

Summary of harms related to smoking and alcohol consumption in the Middlesex-London region

A SUMMARY OF THE ONTARIO HEALTH AND PUBLIC HEALTH ONTARIO REPORT: BURDEN OF HEALTH CONDITIONS ATTRIBUTABLE TO SMOKING AND ALCOHOL BY PUBLIC HEALTH UNIT IN ONTARIO

POPULATION HEALTH ASSESSMENT & SURVEILLANCE TEAM

MIDDLESEX-LONDON HEALTH UNIT | Office of the Medical Officer of Health

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Executive Summary:

From a recent report from Ontario Health (OH) and Public Health Ontario (PHO), smoking and alcohol attributable harms and injuries present a considerable burden on the health care system in Ontario and the Middlesex-London region. Between 2015 and 2017, the prevalence of people in the Middlesex-London region 20 years of age and older who reported that they smoke cigarettes daily or occasionally was 18.1%. The report showed that annually there was an estimated 597 (16.3%) deaths, 2,082 (7.9%) hospitalizations, and 3,917 (3.2%) emergency department (ED) visits among Middlesex-London residents age 35 and older that were attributable to smoking (Summary Table). Smoking attributable harms were higher for males compared to females for both Ontario and the Middlesex-London region.

OH and PHO also reported that between 2015 and 2017, the prevalence of current alcohol consumption for people age 19 and older who consumed more than two drinks per week among Middlesex-London residents was 36.5%, which is considered risk beyond a low level according to the new Canadian Guidelines. It was estimated that in an average year in the Middlesex-London region, there were 154 (4.1%) deaths, 842 (2.4%) hospitalizations and 6,968 (3.8%) ED visits among residents age 15 and older attributable to alcohol consumption (Summary Table). Alcohol attributable harms were approximately three times higher for males compared to females for both Ontario and the Middlesex-London region. These and other Middlesex-London region findings from the OH and PHO report, both for smoking and alcohol consumption, are summarized in this report.

Summary Table: A summary of prevalence and estimated annual health outcomes attributable to smoking and alcohol consumption, Middlesex-London

Consumption	Prevalence of use[a,b] (2015-2017)	Emergency department visits Estimated count (% of all visits)	Hospitalizations Estimated count (% of all hospitalizations)	Deaths Estimated count (% of all deaths)
Smoking	18.1%	3917 (3.2%)	2082 (7.9%)	597 (16.3%)
Alcohol	36.5%	6968 (3.8%)	842 (2.4%)	154 (4.1%)

[a] Respondents 20 years of age and older who are daily or occasional smokers.
[b] Respondents 19 years of age and older who have had more than two drinks per week.

Purpose:

The new report released by Ontario Health (OH) and Public Health Ontario (PHO), *Burden of Health Conditions Attributable to Smoking and Alcohol*, provides estimates of prevalence of smoking and alcohol consumption and the attributable harms to illustrate the burden of disease and injury. In Canada, smoking is the leading cause of disability and death, while alcohol is the sixth leading cause. OH and PHO reported that in 2017, alcohol and smoking contributed to approximately 89% of all substance use health care costs in Canada. Preventing and reducing smoking and alcohol attributable harms and injuries can reduce the substantial burden on the health care system locally and across the province. This document summarizes findings from the report that are relevant for the Middlesex-London region.

Traditional tobacco use is a sacred and cultural practice for many Indigenous peoples in Canada. For the purposes of this data summary, when tobacco is named, it references commercial tobacco products and related harms.

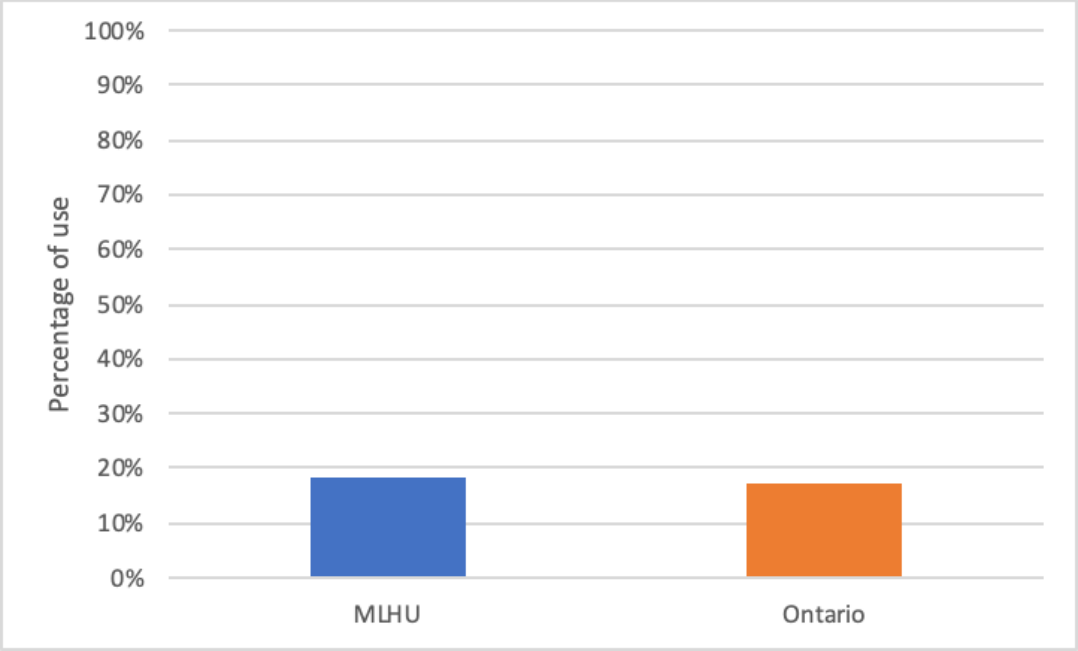
Prevalence of smoking and alcohol consumption:

Smoking

OH and PHO used the 2015 to 2017 Canadian Community Health Survey (CCHS) to estimate the prevalence of current smoking for residents of Ontario public health units. Smoking was defined as daily or occasional smoking of cigarettes only and does not include any other forms of tobacco, such as chew, waterpipe or vaping. It does not include smoking non-tobacco products, such as cannabis, nor does the data address health harms associated with environmental tobacco smoke exposure by individuals who are not daily or occasional smokers. As such, these estimates are conservative. The prevalence and harms described in this report are only associated with commercial tobacco use for recreational purposes and are not associated with the sacred and traditional uses of tobacco.

OH and PHO found that during the 2015 to 2017 period, 17.5% of people in Ontario ages 20 and older reported that they currently smoke cigarettes every day or occasionally. The prevalence of current smoking among residents of Ontario's 34 public health units ranged from 12.3% to 28.0%. The prevalence of current smoking for Middlesex-London residents was 18.1%, which was comparable to the province overall **(Figure 1).**

Figure 1: Prevalence of current smoking among people age 20 and older, Middlesex-London and Ontario, 2015-2017



Data Sources:
Ontario Health and Ontario Agency for Health Protection and Promotion (Public Health Ontario). Burden of Health Conditions Attributable to Smoking and Alcohol by Public Health Unit in Ontario. Toronto: King's Printer for Ontario; 2023.

Canadian Community Health Survey, cycles 2015 to 2017, Statistics Canada, Ontario Share File, Distributed by Ontario Ministry of Health.

Alcohol consumption

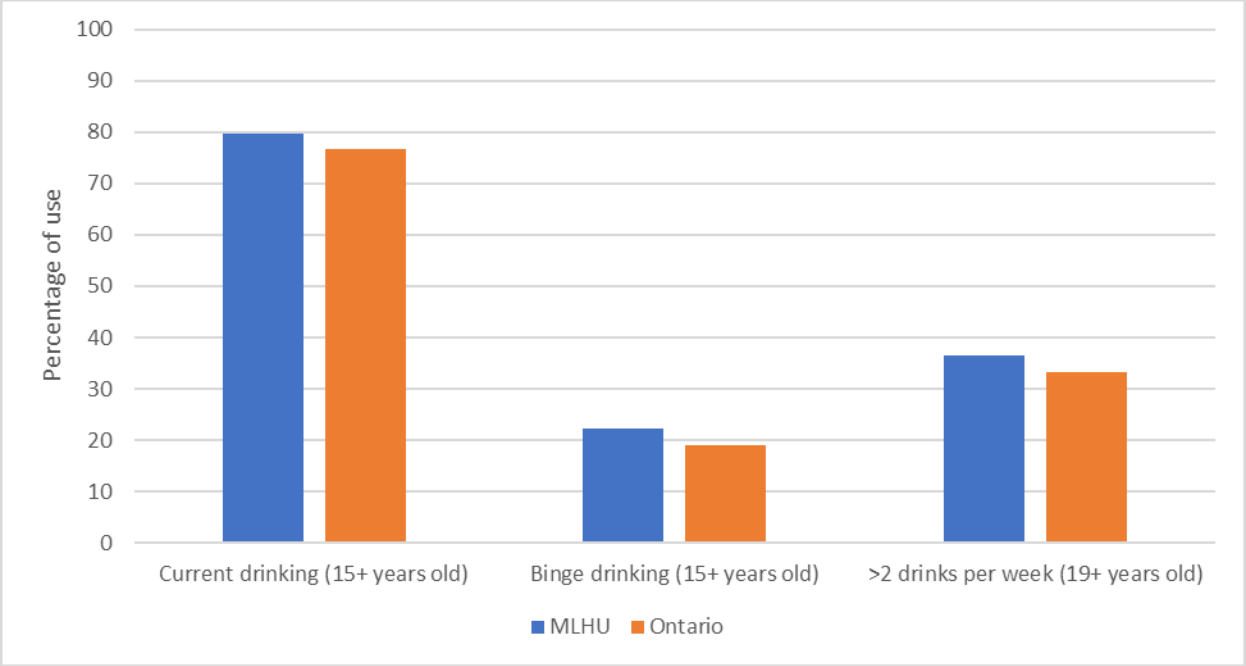
Using the most recently available self-reported data from the Canadian Community Health Survey (CCHS; 2015 to 2017), OH and PHO estimated the proportion of the population reporting current drinking, binge drinking and consuming more than two drinks of alcohol in past week. These were defined as:

- Current drinking: has had a drink of alcohol in their lifetime and has had a drink in the past 12 months, among people age 15 and older.
- Binge drinking: has consumed five or more (for males), or four or more (for females) drinks of alcohol on one occasion at least once a month in the past 12 months, among people age 15 and older.
- > 2 drinks per week: consumption in excess of two drinks of alcohol in the past week, among people age 19 and older who were not pregnant or breastfeeding.

During the 2015 to 2017 period, over three-quarters (76.8%) of people in Ontario age 15 and older reported that they currently drink alcohol. The prevalence of current drinking among

residents of Ontario's 34 public health units ranged from a low of 63.2% to a high of 83.7%. Similar to Ontario, the prevalence of current drinking for Middlesex-London Health Unit is 79.8% **(Figure 2)**.

Figure 2: Prevalence of alcohol consumption among people age 15 and older and 19 and older, Middlesex-London and Ontario, 2015-2017



Data Sources:
Ontario Health and Ontario Agency for Health Protection and Promotion (Public Health Ontario). Burden of Health Conditions Attributable to Smoking and Alcohol by Public Health Unit in Ontario. Toronto: King's Printer for Ontario; 2023.

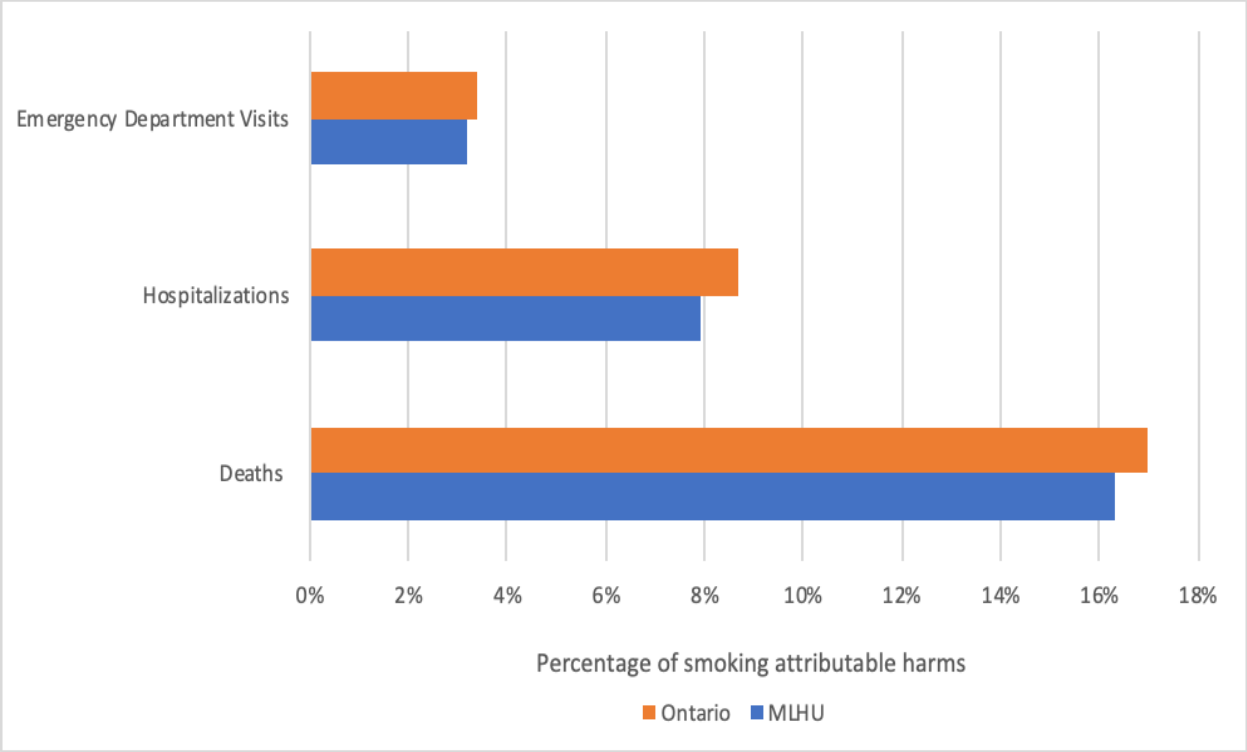
Canadian Community Health Survey, cycles 2015 to 2017, Statistics Canada, Ontario Share File, Distributed by Ontario Ministry of Health.

Smoking and alcohol attributable harms:

Smoking
Smoking attributable harms pose a substantial burden on the health care system. OH and PHO found that in Ontario, an estimated 16,673 (17.0%) deaths, 68,046 (8.7%) hospitalizations and 125,384 (3.4%) emergency department (ED) visits were attributable to smoking in people age 35 and older in an average year **(Figure 3).**

For the Middlesex-London region in an average year, there was an estimated 597 (16.3%) deaths, 2082 (7.9%) hospitalizations and 3917 (3.2%) emergency department visits that were attributable to smoking among people ages 35 and older **(Figure 3)**.

Figure 3: Smoking attributable harms relative to all causes among people age 35 and older, Middlesex-London and Ontario, annual average 2015-2019 (hospitalizations and emergency department visits) and 2014-2018 (deaths)



Data Sources:
Ontario Health and Ontario Agency for Health Protection and Promotion (Public Health Ontario). Burden of Health Conditions Attributable to Smoking and Alcohol by Public Health Unit in Ontario: Supplementary Tables. Toronto: Queen's Printer for Ontario; 2023.

Deaths from Vital Statistics – Death, 2014 to 2018, Office of the Registrar General. Hospitalizations from Discharge Abstract Database 2015 to 2019, Ontario Ministry of Health, IntelliHEALTH ONTARIO, Extracted November 2021.

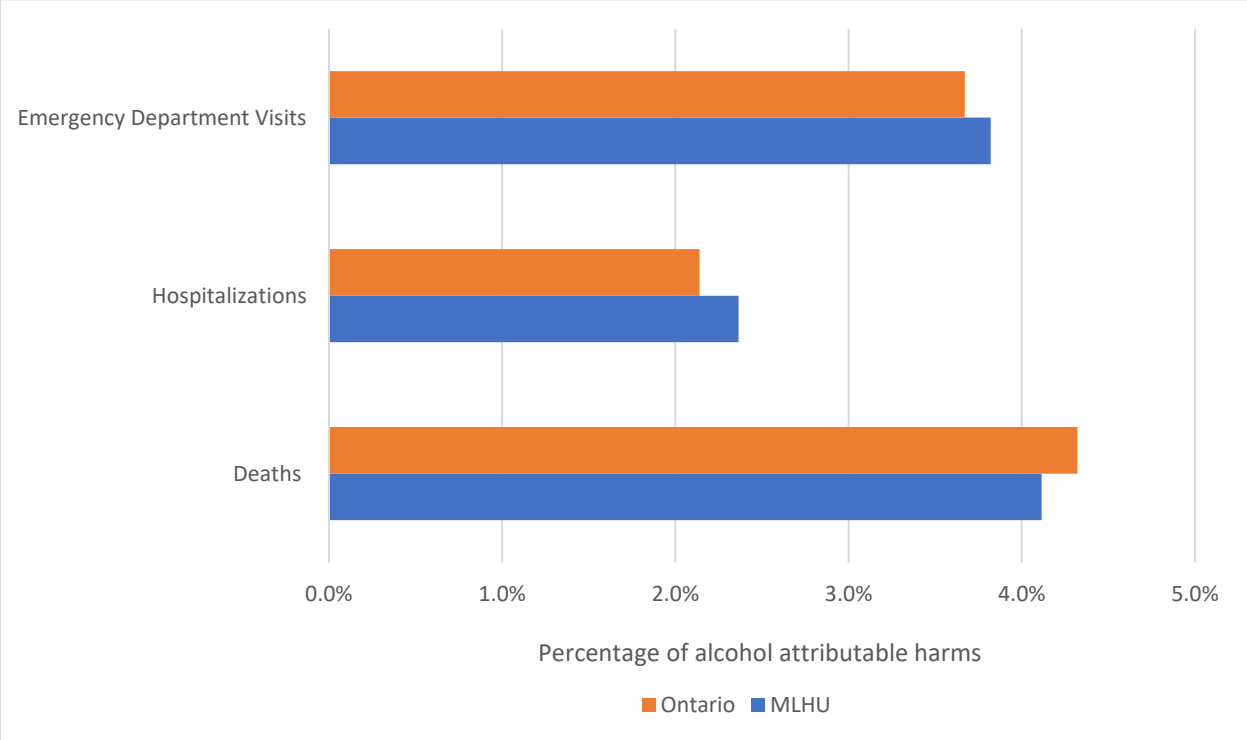
Emergency department visits from National Ambulatory Care Reporting System 2015 to 2019, Ontario Ministry of Health, IntelliHEALTH ONTARIO, Extracted November 2021.

Alcohol consumption

Alcohol attributable harms and injuries also present a considerable burden on the health care system. OH and PHO estimated that in Ontario, alcohol attributed health conditions caused an average of 4,330 deaths, 22,009 hospitalizations and 194,692 emergency department (ED) visits in people ages 15 and older. This represented 4.3% of deaths, 2.1% of hospitalizations and 3.7% of ED visits from all causes **(Figure 4).**

For the Middlesex-London region in an average year, there was an estimated 154 (4.1%) deaths, 842 (2.4%) hospitalizations and 6,968 (3.8%) emergency department visits that were attributable to alcohol consumption among people ages 15 and older **(Figure 4)**.

Figure 4: Alcohol attributable harms relative to all causes for people age 15 and older, Middlesex-London and Ontario, annual average 2015-2019 (hospitalization and emergency department visits) and 2014-2018 (deaths)



Data Sources:
Ontario Health and Ontario Agency for Health Protection and Promotion (Public Health Ontario). Burden of Health Conditions Attributable to Smoking and Alcohol by Public Health Unit in Ontario: Supplementary Tables. Toronto: Queen's Printer for Ontario; 2023.

Deaths from Vital Statistics – Death, 2014 to 2018, Office of the Registrar General.

Hospitalizations from Discharge Abstract Database 2015 to 2019, Ontario Ministry of Health, IntelliHEALTH ONTARIO, Extracted November 2021.

Emergency department visits from National Ambulatory Care Reporting System 2015 to 2019, Ontario Ministry of Health, IntelliHEALTH ONTARIO, Extracted November 2021.

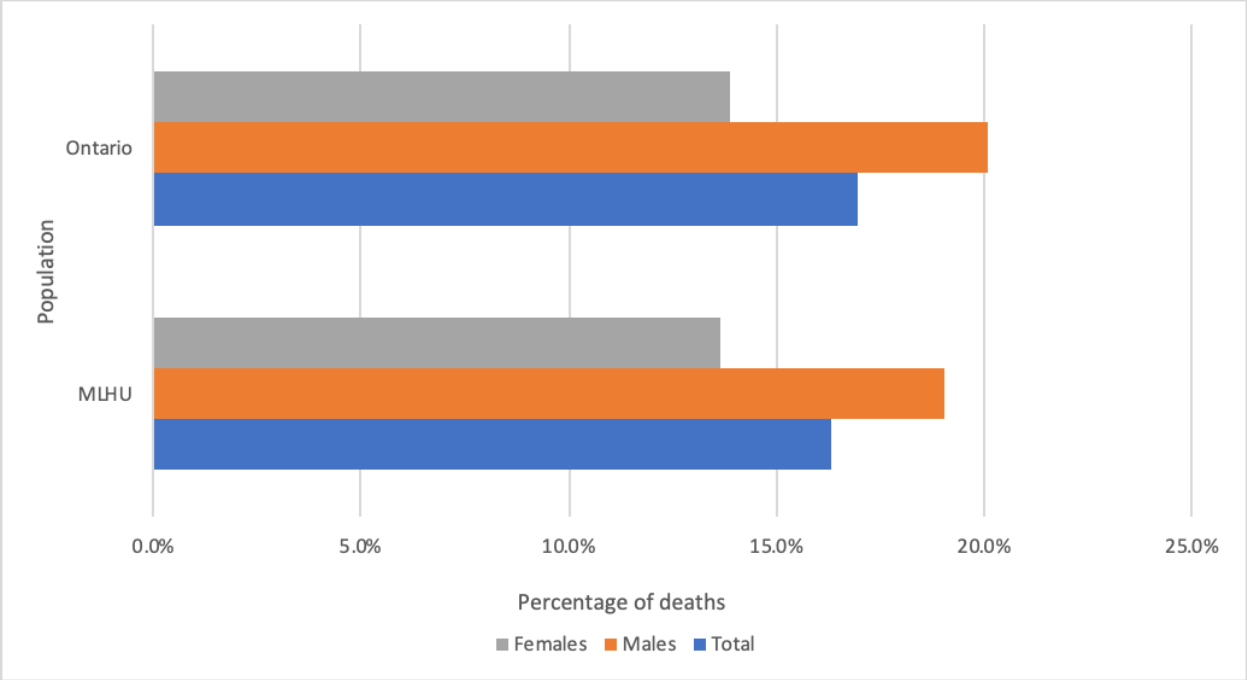
Smoking and alcohol attributable deaths:

Smoking

The OH and PHO report found that for Ontario and the Middlesex-London region, the highest number of smoking attributable deaths was from cardiovascular conditions and cancer. Smoking attributable deaths from all causes were higher for males compared to females for both Ontario and the Middlesex-London region **(Figure 5, Table 1)**.

In the Middlesex-London region, smoking contributed to nearly one in every six deaths. For males specifically in the Middlesex-London region this represented one in every five deaths. For females in the Middlesex-London region, this represented more than one in every eight deaths.

Figure 5: Estimates of smoking attributable deaths by sex for people age 35 and older, Middlesex-London and Ontario, annual average 2014-2018



Data Sources:

Ontario Health and Ontario Agency for Health Protection and Promotion (Public Health Ontario). Burden of Health Conditions Attributable to Smoking and Alcohol by Public Health Unit in Ontario: Supplementary Tables. Toronto: Queen's Printer for Ontario; 2023.

Deaths from Vital Statistics – Death, 2014 to 2018, Office of the Registrar General.

Table 1: Estimates of smoking attributable deaths by sex for people age 35 and older, Middlesex-London and Ontario, annual average 2014-2018

Population	Sex	Total deaths from all causes	Total smoking attributable deaths	Percent of total deaths from all causes attributable to smoking
MLHU	Total	3,663	597	16.3%
	Males	1,797	343	19.1%
	Females	1,865	254	13.6%
Ontario	Total	98,293	16,673	17.0%
	Males	49,164	9,880	20.1%
	Females	48,917	6,793	13.9%

Data Sources:
Ontario Health and Ontario Agency for Health Protection and Promotion (Public Health Ontario). Burden of Health Conditions Attributable to Smoking and Alcohol by Public Health Unit in Ontario: Supplementary Tables. Toronto: Queen's Printer for Ontario; 2023.

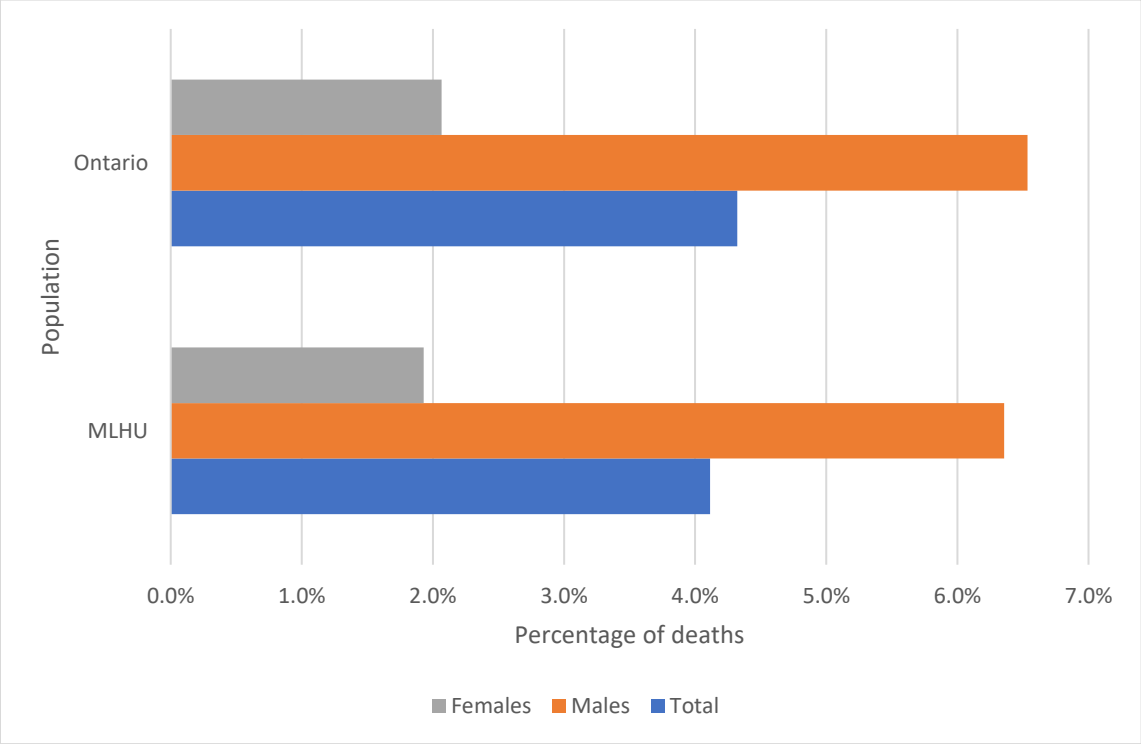
Deaths from Vital Statistics – Death, 2014 to 2018, Office of the Registrar General.

Alcohol consumption

The OH and PHO analysis found that for Ontario, the highest number of alcohol attributable deaths was from cancer, followed by cardiovascular conditions. For the Middlesex-London region, cancer was the leading cause, then digestive conditions (conditions that affect the gastrointestinal tract, liver, pancreas). Alcohol attributable deaths from all causes were approximately three times higher for males compared to females for both Ontario and the Middlesex-London region **(Figure 6, Table 2).**

In the Middlesex-London region, alcohol contributed to nearly one in every 24 deaths. For males specifically in the Middlesex-London region this represented one in every 16 deaths. For females in the Middlesex-London region, this represented more than one in every 52 deaths.

Figure 6: Estimates of alcohol attributable deaths by sex for people age 15 and older, Middlesex-London and Ontario, annual average 2014-2018



Data Sources:
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Deaths from Vital Statistics – Death, 2014 to 2018, Office of the Registrar General.

Table 2: Estimates of alcohol attributable deaths by sex for people age 15 and older, Middlesex-London and Ontario, annual average 2014-2018

Population	Sex	Total deaths from all causes	Total alcohol attributable deaths	Percent of total deaths from all causes attributable to alcohol
MLHU	Total	3,737	154	4.1%
	Males	1,844	117	6.4%
	Females	1,893	37	1.9%
Ontario	Total	100,181	4,330	4.3%
	Males	50,572	3,305	6.5%
	Females	49,608	1,025	2.1%

Data Sources:
Ontario Health and Ontario Agency for Health Protection and Promotion (Public Health Ontario). Burden of Health Conditions Attributable to Smoking and Alcohol by Public Health Unit in Ontario: Supplementary Tables. Toronto: Queen's Printer for Ontario; 2023.

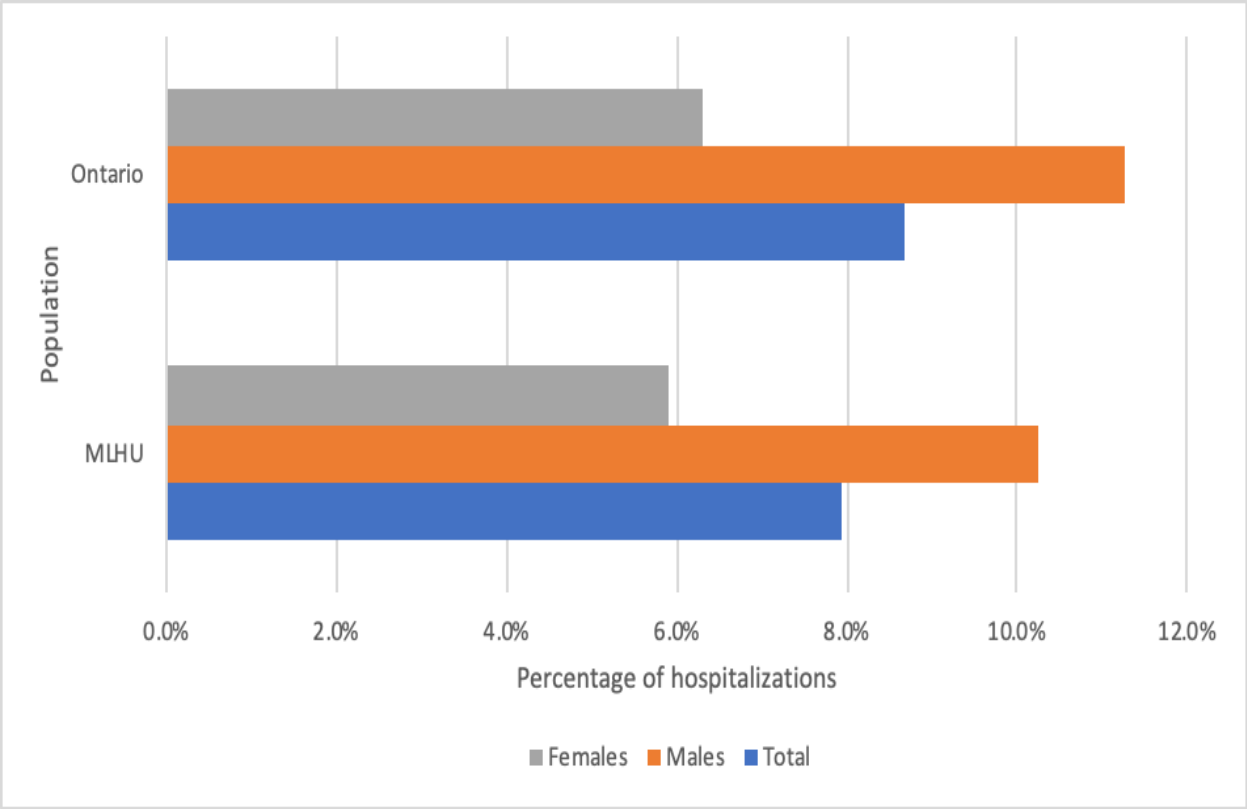
Deaths from Vital Statistics – Death, 2014 to 2018, Office of the Registrar General.

Smoking and alcohol attributable hospitalizations:

Smoking
The OH and PHO report showed that the largest number of smoking attributable hospitalizations was from respiratory conditions and cardiovascular diseases for both Ontario and the Middlesex-London region. Smoking attributable hospitalizations were higher for males compared to females for both Ontario and MLHU **(Figure 7, Table 3).**

In the Middlesex-London region, smoking contributed to nearly one in every 12 hospitalizations. For males specifically in the Middlesex-London region this represented one in every 10 hospitalizations. For females in the Middlesex-London region, this represented approximately one in every 16 hospitalizations.

Figure 7: Estimates of smoking attributable hospitalizations by sex for people age 35 and older, Middlesex-London and Ontario, annual average 2015-2019



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Hospitalizations from Discharge Abstract Database 2015 to 2019, Ontario Ministry of Health, IntelliHEALTH ONTARIO, Extracted November 2021.

Table 3: Estimates of smoking attributable hospitalizations by sex for people age 35 and older, Middlesex-London and Ontario, annual average 2015-2019

Population	Sex	Total hospitalizations from all causes	Total smoking attributable hospitalizations	Percent of total hospitalizations from all causes attributable to smoking
MLHU	Total	26,224	2,082	7.9%
	Males	12,294	1,260	10.2%
	Females	13,930	823	5.9%
Ontario	Total	785,564	68,046	8.7%
	Males	374,405	42,154	11.3%
	Females	411,159	25,892	6.3%

Data Sources:
Ontario Health and Ontario Agency for Health Protection and Promotion (Public Health Ontario). Burden of Health Conditions Attributable to Smoking and Alcohol by Public Health Unit in Ontario: Supplementary Tables. Toronto: Queen's Printer for Ontario; 2023.

Hospitalizations from Discharge Abstract Database 2015 to 2019, Ontario Ministry of Health, IntelliHEALTH ONTARIO, Extracted November 2021.

Alcohol consumption

According to OH and PHO estimates, the largest number of alcohol attributable hospitalizations was from neuro-psychiatric conditions (mental, neurologic, substance use conditions) followed by unintended injuries (falls, drowning, poisoning). Alcohol attributable hospitalizations were approximately three times higher for males compared to females for both Ontario and Middlesex-London residents **(Figure 8, Table 4).**

In the Middlesex-London region, alcohol contributed to nearly one in every 41 hospitalizations. For males specifically in the Middlesex-London region this represented approximately one in every 22 hospitalizations. For females in the Middlesex-London region, this represented approximately one in every 120 hospitalizations.

Figure 8: Estimates of alcohol attributable hospitalizations by sex for people age 15 and older, Middlesex-London and Ontario, annual average 2015-2019

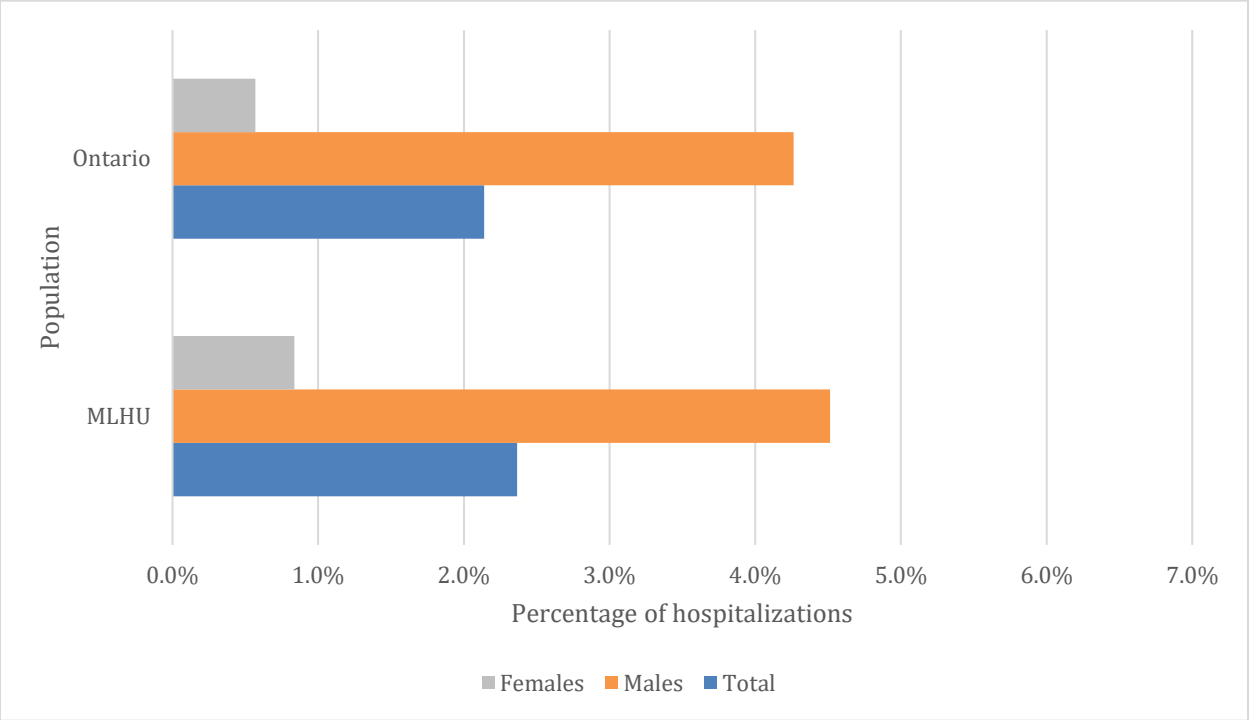

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Table 4. Estimates of alcohol attributable hospitalizations by sex for people age 15 and older, Middlesex-London and Ontario, annual average 2015-2019

Population	Sex	Total hospitalizations from all causes	Total alcohol attributable hospitalizations	Percent of total hospitalizations from all causes attributable to alcohol
MLHU	Total	35,611	842	2.4%
	Males	14,812	668	4.5%
	Females	20,799	174	0.8%
Ontario	Total	1,028,338	22,009	2.1%
	Males	437,397	18,645	4.3%
	Females	590,942	3,364	0.6%

Data Sources:
Ontario Health and Ontario Agency for Health Protection and Promotion (Public Health Ontario). Burden of Health Conditions Attributable to Smoking and Alcohol by Public Health Unit in Ontario: Supplementary Tables. Toronto: Queen's Printer for Ontario; 2023.

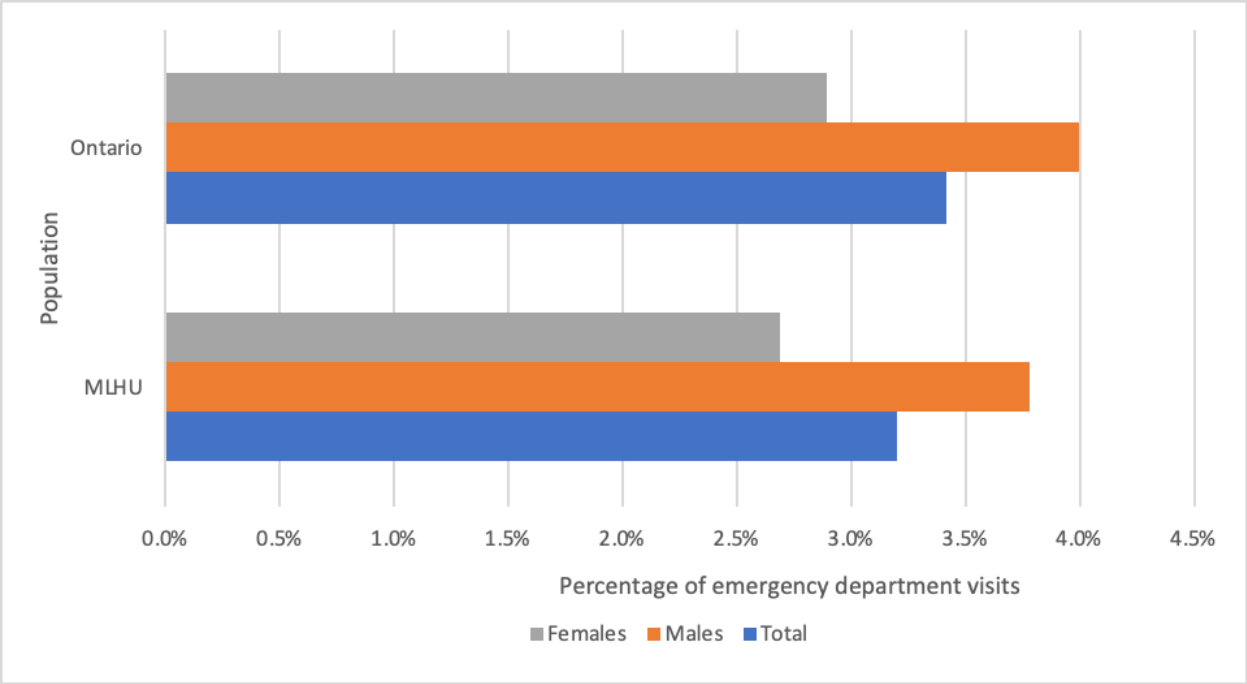
Hospitalizations from Discharge Abstract Database 2015 to 2019, Ontario Ministry of Health, IntelliHEALTH ONTARIO, Extracted November 2021.

Smoking and alcohol attributable emergency department visits:

Smoking
Smoking attributable emergency department (ED) visits for Ontario and the Middlesex-London region were highest for respiratory conditions, followed by cardiovascular diseases. Smoking attributable ED visits were higher for males compared to females for Middlesex-London residents and in Ontario overall **(Figure 9, Table 5).**

In the Middlesex-London region, smoking contributed to nearly one in every 30 emergency department visits. For males specifically in the Middlesex-London region this represented approximately one in every 26 emergency department visits. For females in the Middlesex-London region, this represents approximately one in every 37 emergency department visits.

Figure 9: Estimates of smoking attributable emergency department visits by sex for people age 35 and older, Middlesex-London and Ontario, annual average 2015-2019



Data Sources:
Ontario Health and Ontario Agency for Health Protection and Promotion (Public Health Ontario). Burden of Health Conditions Attributable to Smoking and Alcohol by Public Health Unit in Ontario: Supplementary Tables. Toronto: Queen's Printer for Ontario; 2023.

Emergency department visits from National Ambulatory Care Reporting System 2015 to 2019, Ontario Ministry of Health, IntelliHEALTH ONTARIO, Extracted November 2021.

Table 5. Estimates of smoking attributable emergency department visits by sex for people age 35 and older, Middlesex-London and Ontario, annual average 2015-2019

Population	Sex	Total emergency department visits from all causes	Total smoking attributable emergency department visits	Percent of total emergency department visits from all causes attributable to smoking
MLHU	Total	122,337	3,917	3.2%
	Males	57,203	2,165	3.8%
	Females	65,134	1,752	2.7%
Ontario	Total	3,671,804	125,384	3.4%
	Males	1,729,284	69,200	4.0%
	Females	1,942,520	56,184	2.9%

Data Sources:
Ontario Health and Ontario Agency for Health Protection and Promotion (Public Health Ontario). Burden of Health Conditions Attributable to Smoking and Alcohol by Public Health Unit in Ontario: Supplementary Tables. Toronto: Queen's Printer for Ontario; 2023.

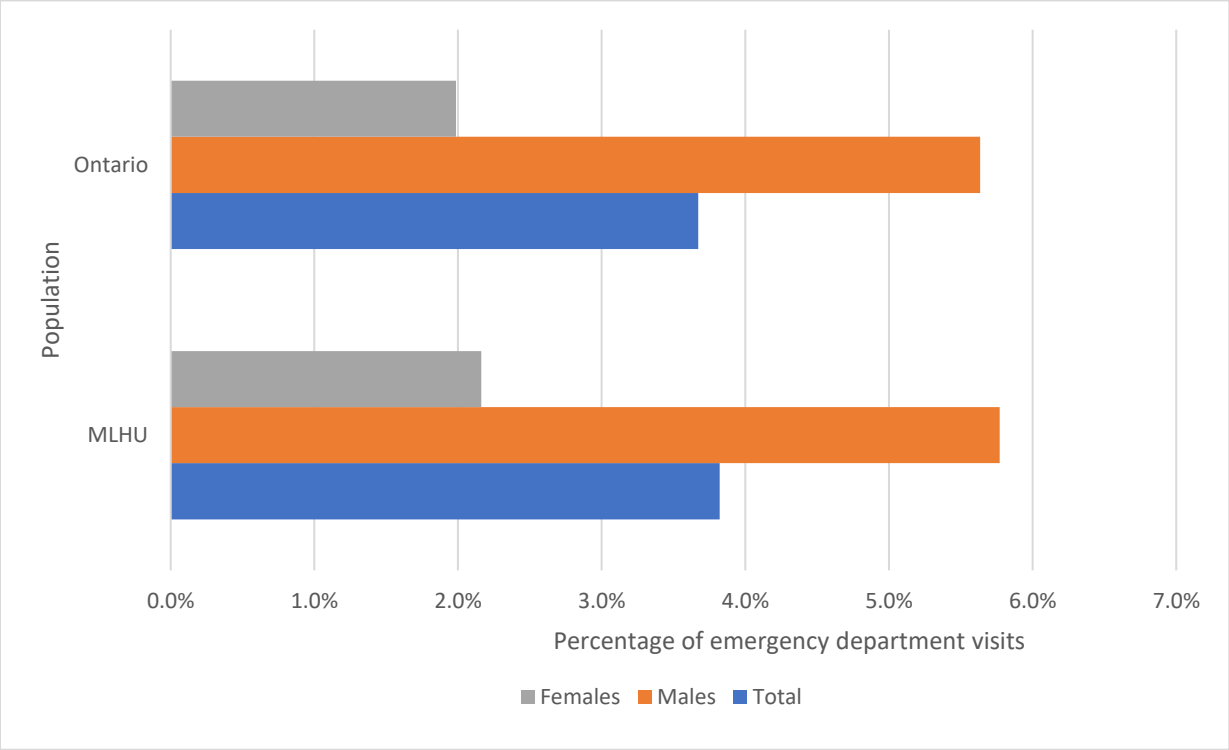
Emergency department visits from National Ambulatory Care Reporting System 2015 to 2019, Ontario Ministry of Health, IntelliHEALTH ONTARIO, Extracted November 2021.

Alcohol consumption

Alcohol attributable emergency department (ED) visits for Ontario and the Middlesex-London region were highest for unintended injuries (falls, drowning, poisoning) followed by neuro-psychiatric conditions (mental, neurologic, substance use conditions). Alcohol attributable ED visits were approximately three times higher for males compared to females for Middlesex-London residents and in Ontario overall **(Figure 10, Table 6).**

In the Middlesex-London region, alcohol contributed to nearly one in every 26 ED visits. For males specifically in the Middlesex-London region this represented approximately one in every 17 emergency department visits. For females in the Middlesex-London region, this represented approximately one in every 42 emergency department visits.

Figure 10: Estimates of alcohol attributable emergency department visits by sex for people age 15 and older, Middlesex-London and Ontario, annual average 2015-2019



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Emergency department visits from National Ambulatory Care Reporting System 2015 to 2019, Ontario Ministry of Health, IntelliHEALTH ONTARIO, Extracted November 2021.

Table 6: Estimates of alcohol attributable emergency department visits by sex for people age 15 and older, Middlesex-London and Ontario, annual average 2015-2019

Population	Sex	Total emergency department visits from all causes	Total alcohol attributable emergency department visits	Percent of total emergency department visits from all causes attributable to alcohol
MLHU	Total	182,384	6,968	3.8%
	Males	83,840	4,839	5.8%
	Females	98,544	2,130	2.2%
Ontario	Total	5,302,338	194,692	3.7%
	Males	2,449,671	138,056	5.6%
	Females	2,852,667	56,637	2.0%

Data Sources:
Ontario Health and Ontario Agency for Health Protection and Promotion (Public Health Ontario). Burden of Health Conditions Attributable to Smoking and Alcohol by Public Health Unit in Ontario: Supplementary Tables. Toronto: Queen's Printer for Ontario; 2023.

Emergency department visits from National Ambulatory Care Reporting System 2015 to 2019, Ontario Ministry of Health, IntelliHEALTH ONTARIO, Extracted November 2021.

Data Caveats:

- Smoking is defined as daily or occasional smoking cigarettes only and does not include any other forms of tobacco, such as chew, waterpipe or vaping. It does not include smoking non-tobacco products, such as cannabis, nor does the data address health harms associated with environmental tobacco smoke exposure by individuals who are not daily or occasional smokers. As such, these estimates are conservative. The harms described in this report are only associated with commercial tobacco use for recreational purposes and are not associated with the sacred and traditional uses of tobacco.

- Only harms partially or fully attributable to smoking and alcohol were included in this report. Only primary cause of death or primary diagnosis was counted for each harm. For example, deaths may be recorded as other conditions and not directly attributed to smoking or alcohol use. This may result in an underestimate of the true burden of harms associated with smoking and alcohol consumption.

- 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.

- Due to limitations of the data available, the analysis was not able to incorporate socioeconomic differences that may impact the effect of smoking and alcohol on various harms.

- The terms used to refer to sex in this report (male, female, men and women) come from the report's data sources and do not represent the full gender diversity found in Ontario's population.

- This report does not quantify the synergistic impacts created when smoking and alcohol are combined. The increase in risk of disease becomes much greater when someone smokes cigarettes and drinks alcohol together, compared to the sum of the risks from smoking and drinking separately. Therefore, the risk estimates are likely an underestimate of these harms since the combined synergistic risk is not quantified.

- Smoking and alcohol consumption were self-reported and therefore prone to biases recall bias and social desirability bias. There is also the potential for measurement bias because people may transition from current smoking or drinking to former smoking or drinking, which would not be reflected in the estimates provided.

- For alcohol and smoking, there may be a lag between exposure and health outcomes, which was not accounted for in the analysis, given the inconsistency in lag time between different exposures and health outcomes.

- The methods used to calculate smoking and alcohol population attributable fractions were different and therefore cannot be directly compared.