Health risks associated with alcohol consumption

SECTION 1: HEADER

Indicator Type: Core Indicator

Description

- **Health risks associated with alcohol consumption:** Proportion of the population aged 19 and over by the continuum of risk associated with weekly alcohol use i.e.:
    - **Low risk**: 0 to 2 standard drinks per week OR
    - **Moderate risk**: 3 to 6 standard drinks per week OR
    - **Increasingly high risk**: 7 or more standard drinks per week

There is a continuum of risk associated with weekly alcohol use, where the risk of alcohol-related consequences is increased with each additional standard drink.

* Note: This indicator excludes pregnant women and breastfeeding women.

* Note: This indicator is based on Canada's Guidance on Alcohol and Health | Canadian Centre on Substance Use and Addiction (1).

Specific Indicators

- Low risk (2 or less including zero standard drinks)
- Moderate risk (3 to 6 standard drinks)
- Increasingly high risk (7 or more standard drinks)

Outcomes Related to this Indicator

- Societal Outcome (Prevention of Injury and Substance Misuse): There is reduced incidence and severity of substance misuse and substance-related injuries, hospitalizations, disabilities and deaths
- Societal Outcome (Prevention of Injury and Substance Misuse): Members of the public have an increased capacity to prevent injury and substance misuse.
- Societal Outcome (Prevention of Injury and Substance Misuse): Sustained behaviour change by the public contributes to the prevention of injury and substance misuse.

Assessment and/or Surveillance Requirements

- The board of health shall conduct epidemiological analysis of surveillance data...in the area of alcohol use (Chronic Disease Prevention Program).
- The board of health shall conduct epidemiological analysis of surveillance data...in the area of alcohol and other substances (Prevention of Injury and Substance Misuse).

http://www.ontario.ca/publichealthstandards

Related Health Indicator(s) from Other Sources

Centers for Disease Prevention and Control (2):

- Prevalence of binge drinking (5 or more and 4 or more drinks on one occasion during the last 30 days for males and females respectively).
- Moderate alcohol use is considered two drinks or less in a day for men, and one drink of less in a day for women.
- Heavy drinking - Males who have 15 or more drinks in a week, and female respondents who have more than 8 drinks in a week.
- Prevalence of heavy drinking (male respondents aged 18 years and older who report an average of more than 2 drinks per day or 15 or more in a week and female respondents aged 18 years and older who report an average of more than 1 drink per day or 8 drinks in a week in the past 30 days).

Australian Bureau of statistics (3):

- Based on Australia's National Health and Medical Research Council which proposed guidelines in December 2020 for drinking alcohol.
- Proportion of persons 18 years and older who exceeded lifetime risk alcohol guidelines (no more than 4 standard drinks a day and no more than 10 standard drinks a week).
- In their analysis, exceeding the guidelines are interpreted as the proportion of persons who exceeded single occasion risk alcohol guidelines (consumed 5 or more drinks on any day at least monthly in the last 12 months (on at least 12 occasions per year).

Ontario Student Drug Use and Health Survey (OSDUHS) (4)

- OSDUHS gathers health and drug use self-reported responses across students of Ontario grades 7 to 12.
- There are questions based on the World Health Organization’s Alcohol Use Disorders Identification Test (AUDIT) scale.
- AUDIT assesses hazardous or harmful drinking.
- It is a 10-item screener that measures hazardous or harmful drinking in the past year. Responses to each of the 10 items are rescaled from 0 to 4. A summated score ranging from 0 to 40 is computed for students who answered all 10 items. A score of eight or higher out of 40 is considered to detect drinking at a hazardous or harmful level. Those who do not answer all 10 questions are excluded from the computation. Nondrinkers (valid skips) are included in the computation and assigned a score of zero.

- There is a derived variable AUDIT 8+, that identifies students who have self-reported hazardous or harmful drinking.

Related OPHS Topics

This section cross-links the indicator to related Core Indicators products, by referencing the OPHS Alignment tables. List all OPHS topics where this indicator would be used; these will be linked to the appropriate OPHS Standard pages.

Population Health Assessment

Substance Use and Injury Prevention

SECTION 2: METHOD OF CALCULATION

Method of Calculation

Prevalence of low risk alcohol consumption

$$\frac{Weighted\ population\ aged\ 19+\ years\ who\ consumed\ 0\ to\ 2\ standard\ drinks\ per\ week\ (low\ risk)}{weighted\ total\ population\ aged\ 19+\ years} \times 100$$

Prevalence moderate risk alcohol consumption

$$\frac{Weighted\ population\ aged\ 19+\ years\ who\ consumed\ 3\ to\ 6\ standard\ drinks\ per\ week\ (moderate\ risk)}{weighted\ total\ population\ aged\ 19+\ years} \times 100$$

Prevalence of increasingly high risk alcohol consumption

$$\frac{Weighted\ population\ aged\ 19+\ years\ who\ consumed\ 7\ or\ more\ standard\ drinks\ per\ week\ (increasingly\ high\ risk)}{weighted\ total\ population\ aged\ 19+\ years} \times 100$$

Recommended Subset Analysis Categories

- Derived CCHS (2019-2020) variable ALWDVWKY (total), ~~or ALWDVDLY (average)~~ which indicates total ~~or average o~~ number of drinks consumed~~cosumed~~ in the past week ~~week~~. This may~~will~~ be different for each cycle.~~a~~ ~~prioALWDVCDLY~~ variable
- Suggested Age Groups:

    - 19-44, 45-64, 65+ *Note: Health units may change age categories depending on the specific analysis questions and availability of data.
- Sex: male, female and total.
- Geographic areas of residence: Ontario, public health unit, municipality, and smaller areas of geography based on aggregated postal code.
- Geographic areas for:
    - CCHS - Public Health Units.
- This indicator excludes pregnant persons and~~personswomen and~~ individuals who are breastfeeding ~~women~~, and they will have to be excluded~~excluded~~ through~~thrrough~~ creation of the variables.~~th.~~ As an example, omitting~~example omitting~~ mac_025 or mex_110. These may not be available across all cycles. ~~and therefore in~~

SECTION 3: DATA SOURCES

Data Source(s) Table

Data Source(s)

Before beginning the use of the CCHS it is highly recommended to refer to the user guide for details pertaining to survey re-designs, sampling and distribution methods, etc.

Numerator and Denominator: Canadian Community Health Survey (CCHS)
Original Source: Statistics Canada
Distributed by:
1. Ontario Ministry of Health and Long-Term Care (MOHLTC)
2. Statistics Canada
Suggested citation (see Data Citation Notes):
1. Canadian Community Health Survey [year], Statistics Canada, Share File, Ontario MOHLTC
2. Canadian Community Health Survey [year], Statistics Canada, Public Use Microdata File, Statistics Canada

SECTION 4: NOTATIONS

Analysis Checklist

CCHS

- *It is recommended that public health units use the Share File provided by the Ministry of Health and Long-Term Care rather than Public Use Microdata File (PUMF) provided by Statistics Canada. The Share File has a slightly smaller sample size because respondents must agree to share their information with the province to be included; however, the share file has more variables and fewer grouped categories within variables. The Share File is a cleaner dataset for Ontario analysis because all variables that were not common content, theme content or optional content for Ontario have been removed.*
- *There may be slight differences between results from the share file and data published on the Statistics Canada website for the Health Indicators because rates calculated for Health Indicators use the master CCHS data file.*

- *Not applicable respondents should be excluded; however, it is important to understand who these respondents are from the questionnaire skip patterns to be able to describe the relevant population.*
- *Users need to consider whether or not to exclude the 'Refusal, 'Don't Know' and 'Not Stated' response categories in the denominator. Rates published in most reports, including Statistics Canada's publication Health Reports generally exclude these response categories. In removing not stated responses from the denominator, the assumption is that the missing values are random, and this is not always the case. This is particularly important when the proportion in these response categories is high.*
- *Estimates must be appropriately weighted (generally the share weight for the CCHS) and rounded.*
- *Users of the CCHS Ontario Share File must adhere to Statistics Canada's release guidelines for the CCHS data when publishing or releasing data derived from the file in any form. Refer to the appropriate user guide for guidelines for tabulation, analysis and release of data from the CCHS. In general, when calculating the CV from the share file using the bootstrap weights, users should not use or release weighted estimates when the unweighted cell count is below 10. For ratios or proportions, this rule should be applied to the numerator of the ratio. Statistics Canada uses this approach for the tabular data on their website. When using only the Approximate Sampling Variability (CV) lookup tables for the share file, data may not be released when the unweighted cell count is below 30. This rule should be applied to the numerator for ratios or proportions. This provides a margin of safety in terms of data quality, given the CV being utilized is only approximate.*
- *Before releasing and/or publishing data, users should determine the CV of the rounded weighted estimate and follow the guidelines below:*
    - *CCHS 2015 onwards suppression/warning guidelines: If unweighted numerator is less than 10 then should be suppressed or if unweighted denominator is less than 20.*
    - *If CV is greater than 35.0 than the estimate should be suppressed.*
    - *CV estimate greater than 15.0 and less than or equal to 35.0 should be flagged with warning about interpret with caution due to high sampling variability*
    - *CV of 15.0 or less is fine to release.*
- *Caution should be taken when comparing/combining the results across cycles. Please use the reference document for clarity of changes between cycles. In short at the time of this core indicator design, CCHS was redesigned~~redesineds~~ for 2015/16 and 2021.~~this~~*
- *Statistics Canada notes the following: "As a result of … redesigns and major changes to collection and sampling approaches as well as content updates, caution should be taken when comparing data from previous cycles to data released for the 2015 and 2021 and for data released 2022 and onwards" (5).*

Indicator Comments

- Smaller size PHUs might consider combining moderate and high categories.
- Alcohol consumption is associated with a number of risks and health problems, as well as potential benefits. The three intermediate mechanisms are dependence, intoxication and biochemical effects (toxic and beneficial). The major burden of morbidity and mortality related to alcohol use falls into two main categories: injuries and chronic disease (6, 7).

- According to studies by the World Health Organization, alcohol consumption is a leading contributor to chronic disease and is recognized as a strong risk factor affecting health in developed countries (7-9).
- Both the volume of alcohol consumed and high-risk drinking patterns were found to contribute to chronic disease and disability. High-risk drinking patterns impact chronic disease, especially ischemic or other cardiovascular disease categories (6-11).
- The health benefits associated with low-risk drinking are mostly relevant from middle-aged onwards (when risk of cardiac illness increases). It is not recommended to start drinking or to drink more to achieve health benefits, as health benefits can be better achieved through other means (12).
- The World Cancer Research Foundation (WCRF) and the American Institute for Cancer Research (AICR) maintain "there is no level of consumption of alcoholic drinks below which there is no increase in the risk of cancers it causes", but recognize there may be a protective effect of alcohol against coronary artery disease. The WCRF/AICR recommends no more than two drinks a day for men and one drink a day for women (13).
- Canada's Guidance on Alcohol and Health offers evidence-based recommendations to help individuals make informed choices about their alcohol consumption and overall well-being. Developed using the latest research on alcohol-related risks, this guidance replaces the Low-Risk Alcohol Drinking Guidelines (LRDGs) issued in 2011 (1).
- Rooted in the principle of autonomy in harm reduction, the guidance emphasizes that everyone in Canada has the right to be informed that any level of alcohol consumption carries inherent risks (1).

SECTION 5: REFERENCES

Glossary

~~**Health risks associated with alcohol consumption**¶~~
~~¶~~
~~There is a continuum of risk associated with weekly alcohol use where the risk of harm from alcohol is:¶~~

- ~~Low risk: 0 to 2 standard drinks per week¶~~
- ~~Moderate risk: 3 to 6 standard drinks per week¶~~
- ~~Increasingly high risk: 7 or more standard drinks per week ¶~~

~~Each additional standard drink radically increases the risk of alcohol-related consequences.¶~~

~~*Standard drink - see below~~

Alcoholic drink:

- CCHS (14) - defined as one bottle or can of beer or a glass of draft, one glass of wine or a wine cooler, one drink or cocktail with 1 and a 1/2 ounces of liquor.
- These definitions are not as precise as the definition of standard drink.

Standard drink (12) - quantities of different alcoholic beverages that contain roughly the same amount of alcohol. The Canadian Centre on Substance Abuse (CCSA) defines one standard drink as 17.05 ml or 13.45 g of pure alcohol. This is roughly equivalent to:

- 341 mL (12 oz.) bottle of 5% beer, cider or cooler
- 142 mL (5 oz.) glass of 12% wine
- 43 mL (1.5 oz) shot of 40% spirits

Short-term or "acute" effects (12) from drinking are associated with the 'dose' taken on one occasion and the degree of impairment

Long-term or "chronic" effects (12) from drinking are associated with the volume of alcohol consumed in the longer term and result from its effects mainly on the central nervous and digestive systems.

Lifetime abstainer (12) - a person who has never had even one drink of alcohol.

Cross-References to Other Indicator(s)

- Alcohol-related injury and mortality from motor vehicle traffic collisions (Section 4C: Injury Prevention and Substance Abuse Prevention)
- Underage Alcohol Drinking (Section 5B: Alcohol)
- Heavy Drinking Episodes (Section 5B: Alcohol)
- Drinking and Driving Prevalence (Section 5B: Alcohol)

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SECTION 6: CREDITS

Acknowledgements

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Revision History

Complete the standard text, and link it to the subgroup webpage:
This Core Indicator Product webpage is maintained by the [Subgroup Name] Subgroup.

Use the following table structure to document changes made to the indicator over time, and by whom:

Date	Review Type	Author	Changes	PDF
March 27, 2025	Full Review	Dylan Melmer	➢ Initial review of this core indicator, no changes to definitions or major content. Just minor edits and comments in preparation for publication ○ Moved content to provide high level information at a glance. ○ Added sub headings to formulas ○ Added specific variables from CCHS to provide examples ○ Added context around CCHS redesigns	[Insert PDF Symbol]
Most recent changes added to bottom of table.				
EXAMPLE: April 23, 2019	Website Update: No Review of Content	James Lane, on behalf of the CIWG	**No changes made to indicator definitions or documentation.** Migrated to new website structure and format, including: ➢ Reorganized content to provide high-level information at a glance, and move in-depth analytic information into dedicated sections. ➢ Reworded formulas for plain language. ➢ Added descriptive sub-headings to the Analysis Checklist and Indicator Comments sections. ➢ Added Revision History table with PDF copy of previous version for reference.	

***Review Type Options:**

New Indicator	Ad hoc Review	Full Review
New Indicator Gap	*etc.*	