

Alcohol and Cancer Risk

Overview

The link between alcohol consumption and many cancers is supported by a growing body of evidence. What is equally clear is that people are not aware of the connection between the alcohol they consume today and the cancer they may develop tomorrow.

Family Physicians and all health care providers have a key role to play in educating Nova Scotians about this risk and how to mitigate it. This edition of *In Practice* was prepared to highlight recent research findings, explore the connection between alcohol and the development of certain cancers, provide an overview of Canada's low risk drinking guidelines and introduce a new screening/ intervention tool.

“There is a lack of awareness in the medical community and among the general public about this issue. Alcohol is very definitely a carcinogen.”

*Dr. Robert Strang,
Chief Medical Officer of Health,
Nova Scotia Department of
Health and Wellness*

Cancer Incidence Linked to Alcohol Consumption

The table below highlights the types of cancer linked to alcohol consumption and the strength of the associated evidence for increased risk. This link can be significant. One recent study, for example, showed that with as little as one alcoholic drink a day the risk of breast cancer increases by 13%; two drinks/day increases the risk by 27% and at levels of 3-4 drinks/day the risk increases by 57%.¹

- A recent European study published in the *British Medical Journal* found that alcohol accounted for 10% of total cancer incidence in men and 3% in women.

- Just one drink a day can increase the risk of cancers of the oral cavity and pharynx by 42%. With two drinks a day, the risk increases to 96%.
- Use of alcohol and tobacco together increase the risk of cancers of the mouth, pharynx and larynx more than use of tobacco or alcohol alone.²

“There is more to this than the effects of drinking alcohol. It affects a person's physiology.”

*Dr. Stephanie Snow, Medical Oncologist,
Capital Health Cancer Care Program*

Table 1: Alcoholic drinks and the risk of cancer, WCRF²

Strength of evidence	Alcoholic drinks increase risk
Convincing	Mouth, pharynx and larynx Oesophagus Colorectal (men) Breast (pre- and postmenopause)
Probable	Liver Colorectal (women)
Substantial effect on risk unlikely	Kidney

¹ Butt, P., Beirness, D., Gliksman, L., Paradis, C., & Stockwell, T. (2011). *Alcohol and health in Canada: A summary of evidence and guidelines for low risk drinking*. Ottawa, ON: Canadian Centre on Substance Abuse.

² Marmot, M., Atinmo, T., Byers, T., Chen, J., Hirohata, T., Jackson, A., et al. (2007). *Food, Nutrition, Physical Activity, and the Prevention of Cancer: a Global Perspective*. (WCRF/AICR Expert Report). UCL (University College London), American Institute for Cancer Research: Washington, USA, 162.

Alcohol Consumption and Cancer Related Death

While US data from 1978 reported that 3% of cancer deaths were attributable to alcohol, a study published in the April 2013, Vol. 3, No. 4 issue of the *American Journal of Public Health* reported that alcohol now accounts for approximately 3.5% of all cancer deaths in the United States. The report, *Alcohol-Attributable Cancer Deaths and Years of Potential Life Lost in the United States* is available at <http://ajph.aphapublications.org/doi/pdf/10.2105/AJPH.2012.301199>

Estimates of the number of alcohol-attributable cancer deaths were based on meta-analyses published since 2000 and on adult alcohol-consumption data from the 2009 *Alcohol Epidemiologic Data System*, the 2009 *Behavioral Risk Factor Surveillance System*, and the 2009–2010 *National Alcohol Survey*.

The research indicated the more alcohol a person drinks, the greater the risk for cancer-related death. But even low consumption levels are associated with risk. Daily consumption of up to 20 grams of alcohol – less than 1.5 drinks – accounted for 26% to 35% of alcohol-attributable cancer deaths.

The majority of alcohol-attributable cancer deaths in women were from breast cancer and in men were from upper airway and esophageal cancers.

The Health Impact of Alcohol – Beyond Cancer

Consuming an average of only one or two alcoholic drinks per day over the long term has been causally linked with significant increases in the risk of epilepsy, pancreatitis, low birthweight, hemorrhagic stroke, dysrhythmias, liver cirrhosis, and hypertension.³

Misuse of alcohol can also cause alcohol dependence syndrome, alcoholic psychosis, nervous system degeneration, alcoholic polyneuropathy, alcoholic myopathy, alcoholic cardiomyopathy, alcoholic gastritis, alcoholic liver diseases and hepatitis, alcohol induced pancreatitis, fetal alcohol syndrome, and alcohol toxicity and poisoning.⁴

However, for men and women over the age of 45, alcohol is a protective factor against ischemic heart disease.

The evidence indicates that females who consume one standard drink a day decreased their risk for premature death from ischemic heart disease by 34%. Two drinks a day lowers that benefit to 25%. At three drinks a day the risks and benefits cancel each other. Women who consume four drinks a day, have an 86% increased risk of dying from ischemic heart disease.

In men, one drink a day decreases the risk of dying from ischemic heart disease by 13%. However, all benefit is lost at 2 drinks a day. Men who consume 3-4 drinks a day increase their risk of dying from the disease by 8%.

Similar benefits were observed for diabetes mellitus. Women who consumed two drinks a day had a 40% decreased risk of premature death from this disease.

Men who consumed one drink a day had a 12% reduction in mortality. At six drinks or more a day, mortality in males increases by 72%. Mortality in females increases by 739% at five or more drinks a day.

Emerging research also shows that a large part of the observed health effects of wine are actually due to confounders. Low to moderate alcohol use is a proxy for better health and social capital. In older people, being physically active and eating a healthier diet is more effective in reducing death from ischemic heart disease than by consuming small amounts of alcohol.

The research also indicates that the protective effect of alcohol totally disappears when drinkers report at least one heavy drinking occasion per month.

“ [T]here is no safe threshold for alcohol and cancer risk. Reducing alcohol consumption is an important and under-emphasized cancer prevention strategy. ”

*Dr. David Nelson, Lead Author
National Cancer Institute*

³ Butt, P., Beirness, D., Gliksman, L., Paradis, C., & Stockwell, T. (2011). *Alcohol and health in Canada: A summary of evidence and guidelines for low risk drinking*. Ottawa, ON: Canadian Centre on Substance Abuse.

⁴ Ibid.

Drinking Patterns

Data from a study conducted by Paradis et al. published in the *Canadian Journal of Public Health*, 2010, provides insight into drinking patterns for Canadians by province and gender.⁵ This research collected data through telephone interviews with 14,067 Canadians between the ages of 18 and 76. Data is reported for the Maritime region.

Males

- Maritime men typically drink on 84 occasions over the course of a year.
- Men in the Maritimes consume 486 drinks on average each year.
- Beer is the drink of choice for men in the Maritimes where it accounts for 59% of all alcohol consumed. Wine accounts for 16%; spirits for 24% and coolers for 2% of alcohol consumed by men.
- Maritime men consume a usual daily quantity of 4.1 drinks – higher than all other provinces.
- Seventy-three percent of Maritime males binge drink at least once a year – higher than the rest of Canada.

Females

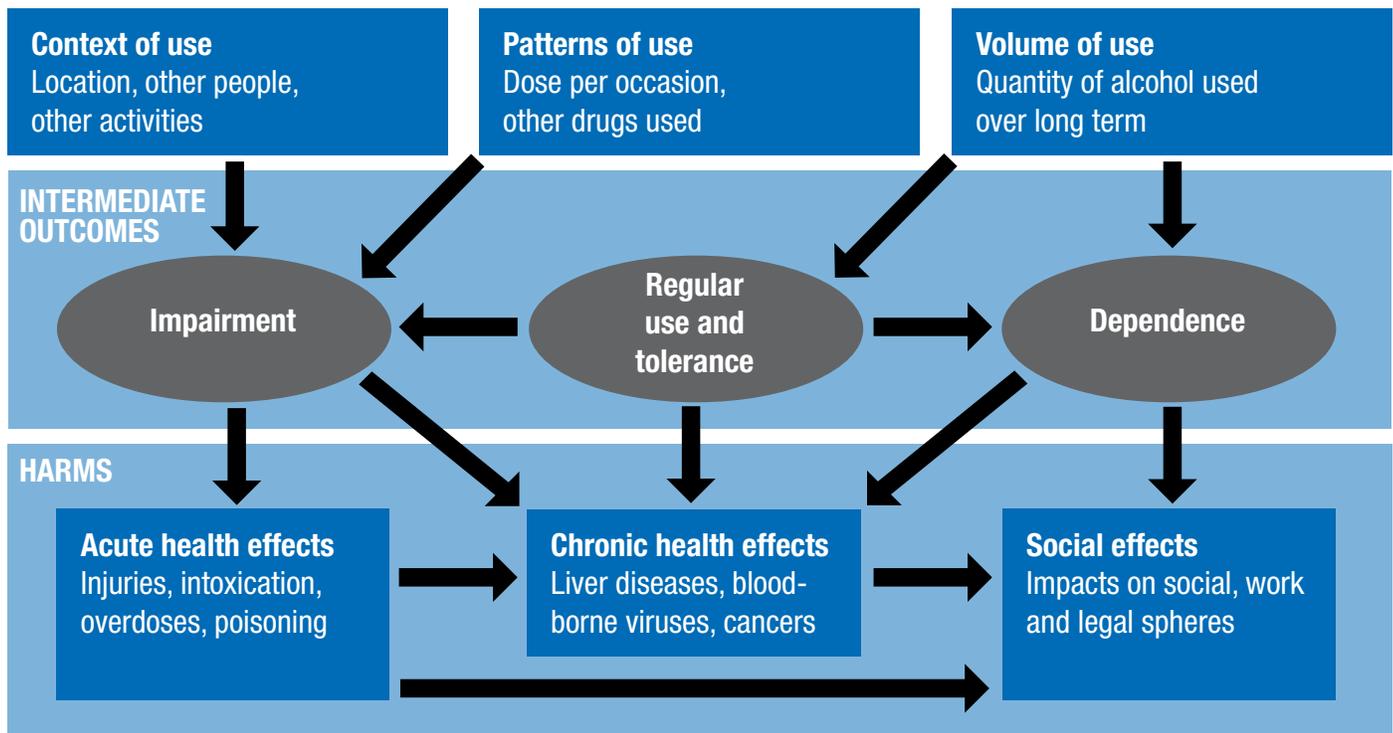
- Maritime women typically drink on 45 occasions over the course of a year.
- Women in the Maritimes consume 164 drinks on average each year.
- Wine is the drink of choice for women in the Maritimes where it accounts for 38% of all alcohol consumed. Spirits account for 24%; beer for 19% and coolers for 18% of alcohol consumed by women.
- Maritime women consume a usual daily quantity of 2.5 drinks – higher than all other provinces.
- Forty-three percent of Maritime females reported binge drinking at least once a year – higher than the rest of Canada.

Where, when and how alcohol is consumed can impact health, safety and wellbeing in different ways. Alcohol can result in immediate injury through intoxication and impairment; in negative social consequences through dependence and chronic disease from extended use.⁶

Since 1996, there has been a 14% increase in per capita alcohol consumption in Canada. In response to this, and a greater understanding of the health, social and economic consequences of consumption, a concerted effort has been made to provide consistent and evidence-based guidance to Canadians.

Canada's Low-Risk Alcohol Drinking Guidelines, intended for adults aged 25–65 years who choose to drink, take into consideration the many dimensions of alcohol use and provide information on how to reduce the risk of alcohol-related harms in both the short (acute effects) and long-term (chronic effects). These guidelines are not specific to cancer, but balance out the multiple health risks and benefits of alcohol use.

Figure 1: Dimensions of alcohol use and related harms.⁶



⁵ Paradis, C., Demers, A., & Picard, E. (2010). Alcohol Consumption: A Different Kind of Canadian Mosaic. *Canadian Journal of Public Health*, 101(4), 275-80.

⁶ Butt, P., Beirness, D., Gliksman, L., Paradis, C., & Stockwell, T. (2011). *Alcohol and health in Canada: A summary of evidence and guidelines for low risk drinking*. Ottawa, ON: Canadian Centre on Substance Abuse.

Canada's Low-Risk Drinking Guidelines

“A lot of doctors have been lulled into a sense of complacency by the reporting on the benefits of alcohol. But the evidence linking alcohol to cancer is overwhelming.”

Dr. Peter Butt,
Associate Professor,
College of Medicine,
University of Saskatchewan

Canada's first low-risk drinking guidelines were published in 2011 following a recommendation in the national alcohol strategy: *Reducing Alcohol-related Harm in Canada*, which was released in 2007. Nova Scotia's alcohol strategy, *Changing the Culture of Alcohol in Nova Scotia*, released that same year, also supported the development of national guidelines.

An independent expert advisory panel, chaired by Dr. Peter Butt, an Associate Professor in the Department of Academic Family Medicine at the University of Saskatchewan, developed the guidelines. An extensive research database was created, and the guidelines underwent an international peer review process.

The guidelines set out different levels of consumption for males and females. The reason: alcohol has a greater impact on females than males. Here's why:

- On average, women weigh less than men, and smaller people reach higher blood-alcohol levels than larger people.
- Kilogram for kilogram, women have less water in their bodies than men do – even if a woman and a man of the same weight drink an equal amount of alcohol, the woman's blood-alcohol concentration will be higher.
- Women have a smaller liver and less alcohol-metabolizing enzymes; therefore, they digest alcohol in their stomach differently than men.

The guidelines recommend the following limits:

WOMEN	0 to 2 drinks a day, up to 10 drinks a week
MEN	0 to 3 drinks a day up to 15 drinks a week
MEN and WOMEN	Have non-drinking days per week to avoid dependence
Note	These are not targets; these are limits.

The Canadian Public Health Association reports that a standard drink contains 13.6 g of alcohol.

Standard drinks are:

- 355 ml (12 ounce) can of 5% beer
- 146 ml (5 ounce) glass of 10% to 12% wine
- 44 ml (1.5 ounce) of 40% hard liquor or spirits

All of the above standard drinks have the same amount of alcohol in them.

As well, the national guidelines identify populations (including youth and pregnant women) and situations (e.g., when driving, when taking medication) where alcohol should be avoided. Tips are also provided to help further reduce the risk of alcohol-related harms.

View *Canada's Low-Risk Alcohol Drinking Guidelines* at <http://www.ccsa.ca/Eng/Priorities/Alcohol/Canada-Low-Risk-Alcohol-Drinking-Guidelines/Pages/default.aspx>.

Family physicians and all health care providers – Your Role

“ Family doctors need to have a conversation with their patients about their alcohol consumption and increased risk for cancer. Even one drink a day may be enough to increase cancer risk. ”

*Dr. Stephanie Snow,
Medical Oncologist,
Capital Health Cancer Care Program*

Drinking any amount of alcohol increases a person’s risk for cancer. Yet only 33% of Canadians know that drinking alcohol increases the risk of developing several types of cancer.

Family physicians and all healthcare providers are instrumental in helping increase awareness and understanding as well as helping to change behaviour. Several tools have been developed to assist health care providers in their efforts to communicate Canada’s low risk drinking guidelines with patients.

The following resources are available on the Canadian Centre on Substance Abuse website (www.ccsa.ca):

- *The Guidelines for Healthcare Providers to Promote Low-Risk Drinking Among Patients*
- *Low-Risk Drinking Guideline Brochure*
- *Low-Risk Drinking Guideline Poster*
- *Canada’s Low-Risk Drinking Guidelines*

These resources may be helpful for health care providers in supporting

routine alcohol screening and in advising patients who choose to drink to follow the guidelines.

Alcohol Screening, Brief Intervention & Referral: A Clinical Guide (inserted in this publication and free for download at www.sbir-diba.ca), provides a simple three-step process for alcohol screening, brief intervention and referral. Use of the tool will enable determination of a patient’s level of risk (elevated risk, alcohol abuse or alcohol dependence). Once defined the guide outlines appropriate advice and support. The guide can be used with your patients to:

- Screen for at risk drinking behaviour;
- Determine level of risk;
- Conduct brief interventions;
- Assess readiness to change;
- Refer patients to appropriate resources;
- Assess progress towards goals;
- Monitor and manage withdrawal.

Family physicians and all healthcare providers can play a role in public health beyond the patient visit. Alcohol risk reduction requires a comprehensive and coordinated approach that begins in the community and supports patient education and counselling by healthcare providers. Policy and program interventions can support moderate alcohol consumption by controlling things like price, advertising and accessibility.

The Centre for Disease Control Task Force on Community

Preventative Services recommends the following evidence-based strategies to reduce alcohol consumption:

- Using regulatory authority (through licensing, zoning, and other means) to limit alcohol outlet density for the prevention of excessive alcohol consumption and related harms;
- Maintaining existing limits on the days during which alcoholic beverages are sold;
- Maintaining limits on hours of alcohol sale in on-premises settings;
- Increasing the unit price of alcohol by raising taxes;
- Enhancing enforcement of laws prohibiting the sale of alcohol to minors.

The Task Force also concludes on the basis of strong evidence that dram shop (retail alcohol establishment) liability is effective in preventing and reducing alcohol-related harms.

“ We need to do a much better job especially in primary care and emergency care to ask people about their alcohol use. The Alcohol Screening, Brief Intervention & Referral: A Clinical Guide is a valuable tool to help us. ”

*Dr. Robert Strang,
Chief Medical Officer of Health*

Task Force Findings

Intervention	Finding
Interventions Directed Toward the General Population	
Regulation of alcohol outlet density	Recommended based on sufficient evidence
Maintaining limits on days of sale	Recommended based on strong evidence
Maintaining limits on hours of sale	Recommended based on sufficient evidence
Increasing alcohol taxes	Recommended based on strong evidence
Over-service law enforcement initiatives	Insufficient evidence
Dram shop liability	Recommended based on strong evidence
Interventions Directed Toward Underage Drinkers	
Enhanced enforcement of laws prohibiting sales to minors	Recommended based on sufficient evidence

Cancer Care Nova Scotia is a provincial program of the Department of Health and Wellness. Its mandate is to evaluate, coordinate and strengthen the cancer system in Nova Scotia.

Cancer Care Nova Scotia works with and supports professionals and stakeholders in the health care system to bring about patient-centred change. Its ultimate goal is to reduce the burden of cancer on individuals, families, communities and the health care system.

In Practice is a supplement to *Cancer Care Nova Scotia's* newsletter. It is written specifically for primary care practitioners with information that we hope will make a difference in your cancer practice.

Please contact Christine Smith, Communications Manager, *Cancer Care Nova Scotia*, by phone at 902-473-2932 or by email at christine.smith@ccns.nshealth.ca with comments or suggestions for future topics.



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Conclusion

Alcohol is a carcinogen. Consuming even small amounts can increase a person's risk for cancer. Raising awareness of the health risks associated with alcohol is an important first step in changing cultural norms and ultimately the patterns of alcohol use in Nova Scotia. This will require a comprehensive approach not unlike the Tobacco Control Strategy. Family physicians and other healthcare providers play a critical role in making their patients aware of the risks associated with consuming alcohol. Educating patients that drinking even moderate amounts of alcohol increases their risk of cancer is an important first step.

We hope the information included in this *In Practice* and the *Alcohol Screening, Brief Intervention & Referral: A Clinical Guide* enclosed will be helpful to you in counselling your patients on the risks associated with consuming alcohol.

If you have questions or comments about Alcohol and Cancer Risk, please call us at 1-866-599-2267 or email us at info@ccns.nshealth.ca

Experts Interviewed for this In Practice

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