



2007



A Half-Day Seminar on Recent Research and Emerging Prevention Opportunities

Alcohol, Cancer & Public Policy



Proceedings

Wednesday,
October 31, 2007
St. Lawrence Hall
Toronto, Ontario
Canada

Toronto Cancer Prevention Coalition Website:
www.toronto.ca/health/resources/tcpc/index.htm

Centre for Addiction and Mental Health Website:
www.camh.net

(Conference Page - www.toronto.ca/health/resources/tcpc/acp_seminars.htm)

Alcohol, Cancer & Public Policy

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Wednesday, October 31, 2007

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*Co-Chaired by
the Centre for Addiction and Mental Health (CAMH)
and the Toronto Cancer Prevention Coalition (TCPC)*

Background

THE TORONTO CANCER PREVENTION COALITION (TCPC) STARTED IN FEBRUARY 1998 AS AN advocate for policy, education and action to prevent cancer. Its membership includes government, university, union, health, environment, school board, community, activist and survivor representatives who work together with a common purpose. The Coalition reports to Toronto Board of Health and Toronto City Council.

A subcommittee of the TCPC, the Alcohol Working Group has been active in a variety of initiatives such as:

- advocating for some of the recommendations in the Alcohol and Cancer Best Advice paper (Centre for Addiction and Mental Health)
- attempting to get alcohol on the agenda of the family health and Local Health Integrated Networks (LHINs)
- linking to inter-ministerial groups with respect to alcohol and cancer
- linking with the National Alcohol Strategy group “Reducing Alcohol Related Harm in Canada: Toward a Culture of Moderation.”

In June 2007 there was a presentation on “Alcohol as a risk factor for cancer: evidence, challenges and strategic responses” by Norman Giesbrecht, Chair, Alcohol Working Group of TCPC to members of the TCPC Steering Committee. One of the actions that emerged was to organize a seminar on alcohol and cancer and to highlight the role of public policy in reducing alcohol-related cancers.

There are a number of key organizations that have made statements about the relationship between alcohol and cancers in the past decade, including:

- American Institute on Cancer Research/World Cancer Research Fund (AICR/WCRF)- Nutrition, Food and Cancer Prevention paper (1997)
- United States National Cancer Institute (2005)

- United States Department of Health and Human Health (2006)
- American Cancer Society (2006)
- International Agency for Research on Cancer (IARC, 2007)
- Alcohol and Cancer: Best Advice, CAMH (2007)
- Canadian Cancer Society and Cancer Care Ontario: Report on Cancer 2020: A Call for Renewed Action on Cancer Prevention and Early Detection in Ontario
- Canadian Centre on Substance Abuse: National Alcohol Strategy (2007).

Seminar

The Toronto Cancer Prevention Coalition and the Centre for Addiction and Mental Health brought together over thirty five public health, non-profit agencies, retail and, local and provincial government representatives to learn about and discuss strategies to change the disturbing trends related to alcohol causing various cancers. In total there were 90 attendees at this event. The half-day seminar on Alcohol, Cancer and Public Policy addressed the current research and emerging prevention opportunities.

The seminar plans were timely in light of the Toronto seminar coincidentally being held on the same day that the report *“Food, Nutrition, Physical Activity, and the Prevention of Cancer: a Global Perspective”* was released by the World Cancer Research Fund and American Institute of Cancer Research. (WCRF/AICR)

The Toronto seminar involved presentations by four speakers followed by a four-person panel, and then a general discussion.

Welcome

Fiona Nelson, Chair, Toronto Cancer Prevention Coalition Steering Committee and
Norman Giesbrecht, Senior Scientist, Centre for Addiction and Mental Health

Invited Speakers (in order of presentation)

Anthony Miller, Professor Emeritus, Department of Public Health Sciences, Faculty of
Medicine, University of Toronto

Jürgen Rehm, Professor and Chair, Addiction Policy, Department of Public Health Sciences,
Faculty of Medicine, University of Toronto; Senior Scientist and Section Co-chair, Centre
for Addiction and Mental Health

John McLaughlin, Vice President, Preventive Oncology, Cancer Care Ontario

Heather Logan, Director, Cancer Control Policy, Canadian Cancer Society

Afternoon Panel

Denise DePape, Manager, Healthy Living, Toronto Public Health and Panel Chair

Janet McAllister, Program Consultant, Centre for Addiction and Mental Health

Rosana Pellizzari, Associate Medical Officer of Health, City of Toronto and Director,
Planning and Policy, Toronto Public Health

Fiona Nelson, Chair, Toronto Cancer Prevention Coalition Steering Committee

Media Coverage

Media coverage of the issue of alcohol and cancer was across the province but primarily focused on the report *“Food, Nutrition, Physical Activity, and the Prevention of Cancer: a Global Perspective”* issued by the World Cancer Research Fund and American Institute of Cancer Research on the same day as the Toronto seminar. There was no print coverage of the seminar in the 3 main Toronto newspapers. However in London, Ontario, the seminar was covered in the article “Research says even light drinking hikes cancer risk” by Sharon Lem from the Sun media, London Free Press, Wednesday, October 31, 2007.

Summary of Morning Presentations

Anthony Miller

**Professor Emeritus, Department of Public Health Sciences, Faculty of Medicine,
University of Toronto**



Professor Miller started his presentation by building the knowledge foundation for the audience with definitions and descriptions of carcinogenicity and cancer and continued with its links to alcohol. The following is a brief synopsis of his presentation.

Carcinogenicity is the ability to cause cancer. The carcinogens may be physical, chemical or genetic. Cancer is the uncontrolled growth of cells which may spread locally or to other parts of the body. There are two forms; carcinomas which are cancer of the epithelial and glandular organs, and sarcomas which are cancers of the fibrous tissue and bone. Most cancers have multiple causes. An agent may cause cancer on its own or with other factors or causes such as alcohol and tobacco. Whether a person gets cancer also depends on susceptibility factors such as genetics or acquired susceptibility.

Cancer is the largest single cause of premature death affecting 72,700 people in Canada in 2007 (34,300 female and 38,300 male).

The International Agency for Research on Cancer (IARC) declared that there is sufficient evidence that alcohol consumption increases the risk of: breast cancer, colorectal cancer, cancer of the esophagus, liver cancer, larynx cancer, mouth and pharynx cancer. These alcohol related cancers accounted for 1,828 (.8% of all deaths) in Canada in 2002. Alcohol related hospital stays due to cancer amounted to 37,295 (3.0%) of acute care hospital days in Canada.

Research on the causes of alcohol-related hospital stays due to cancer has become more specific. We now know the connection between the amount of alcohol consumed and its relationship to the risk of cancers.

For example:

Breast cancer: Women who drink an average of 3 or more alcoholic drinks/day increase their risk of breast cancer by 50% and those drinking 1-2 drinks/day raise their risk by 10%.

Colon and Rectum Cancer: Women and men who drink 3 or more alcoholic drinks/day increase their colon and rectum cancer risk by 40%.

When alcohol is combined with smoking tobacco, the effects multiply. Heavy alcohol consumption combined with heavy smoking increases the risks of these cancers by 16-20 times. Combining heavy smoking and drinking increases the risk of mouth, pharynx, larynx and esophagus cancers, as is shown in the slide below:

There is no difference in risk factors and types of alcohol. It is the amount of alcohol consumed that is important. Alcohol consumption causes: 6% of breast cancers, 6% of colorectal cancers, 20% of head and neck cancers and 30% of liver cancer and roughly 3% of all cancers.

Example: Risk from lifetime cigarette smoking and alcohol consumption on larynx cancer

Ounces of alcohol (thousands)	Cigarettes (thousands)			
	0	<150	150-299	≥300
0	1	2	4	8
<10	2	4	6	11
10-25	4	6	10	16
≥ 25	8	11	16	24

In conclusion, alcohol consumption causes cancer in humans and the risk is largely restricted to heavy drinkers but moderate alcohol consumption does increase the risk of cancer. ■

(For the complete slides of Anthony Miller's presentation, refer to the appendix)

Jürgen Rehm

Centre for Addiction and Mental Health

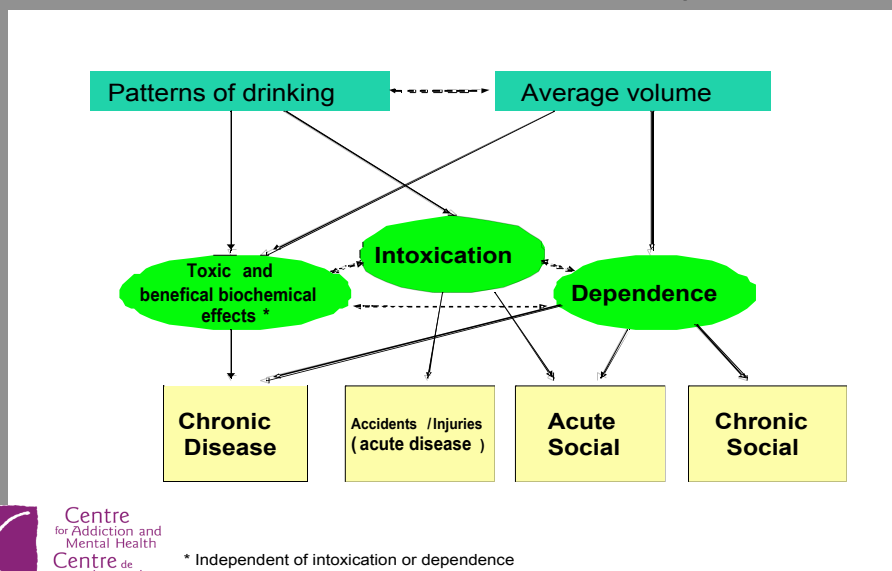
The Burden of Cancer Attributable to Alcohol Drinking in Canada 2002

Centre for Addiction and Mental Health
Toronto, Canada
University of Toronto



Dr. Rehm indicated that the harmful effects of alcohol consumption in Canada occur in two dimensions: average volume of consumption and patterns of drinking such as binge drinking and drinking that occurs outside of meals. The consequences are summarized in the model found in slide below.

Basic causal model of alcohol consumption, intermediate mechanisms, and long-term consequences (from Rehm et al., 2003; Babor et al., 2003)



Currently, alcohol is the third leading risk factor for burden of disease and trauma in developed countries, as measured by premature mortality and disability.


High risk drinking – defined as 5 or more drinks per occasion at least monthly, increased from 10% to 14% from 1993-2004 in Canada (Canadian Community Health Surveys). In the last year, 23% of drinkers have reported consuming more than the Low-Risk Drinking Guidelines at least once. Low-Risk Drinking Guidelines supported by CAMH and partners recommend no more than 2 drinks per day and no more than 14 per week for men and 9 per week for women.

There is usually a linear relationship between average volume of consumption and risk.

The cost of cancer due to alcohol in Canada in the year of 2002 was \$41,359,802 (2.8% of total alcohol attributable costs for acute care hospitalizations), as is shown below.

Malignant Neoplasms	Acute care costs (\$)		
	TOTAL		OVERALL
	M	F	
Mouth and oropharynx cancers	\$ 8,229,114	\$ 2,532,532	\$ 10,761,646
Oesophageal cancers	\$ 8,073,821	\$ 2,175,343	\$ 10,249,164
Liver cancers	\$ 5,444,504	\$ 2,267,023	\$ 7,711,527
Laryngeal cancers	\$ 5,375,372	\$ 1,032,853	\$ 6,408,225
Breast cancers	—	\$ 5,522,096	\$ 5,522,096
Other neoplasms	\$ 193,714	\$ 513,430	\$ 707,143
TOTAL	\$ 27,316,525	\$ 14,043,277	\$ 41,359,802

2.8% of the total alcohol - attributable costs for acute care hospitalizations in Canada, 2002.



The national and global impact related to disability adjusted life years (DALY) and years of life lost (YLL) were presented and can be found in the appendices.

New research has shown that stopping drinking reduced the risks for head, neck and esophageal cancers, but that it took 15-20 years before the risks were as low as for lifetime abstainers. ■

(For the complete slides of Jürgen Rehm's presentation, refer to the appendix)

John McLaughlin

Vice President, Preventive Oncology, Cancer Care Ontario, Professor, Public Health Sciences, University of Toronto, Senior Investigator, Samuel Lunenfeld Research Institute

Cancer Prevention in Ontario: Action on Alcohol



Dr. McLaughlin reviewed the vision, mission, goal and purpose of Cancer Care Ontario.

In 2003, the Cancer 2020 report declared prevention targets for tobacco, diet and nutrition, healthy body weight, physical activity, alcohol consumption, occupational/environmental carcinogens, ultra violet exposure, viral infections, cancer screening targets involve breast, cervical and colorectal cancers.

The Cancer 2020 report calls for action and sustainability in cancer prevention and detection and provides baseline estimates and indicators for research.

One of the targets in the report is to increase the number of adults ages 19 and over who don't drink at all or follow the Low-Risk Drinking Guidelines of the Centre for Addiction and Mental Health and the Ontario Public Health Association.

The second priority related to alcohol supports the development of a comprehensive alcohol strategy for Ontario.

Dr. McLaughlin highlighted the cancer incidence trends for alcohol in Ontario.

1. Breast
2. Colorectal
3. Oral cavity
4. Pharyngeal
5. Laryngeal
6. Esophageal
7. Liver

The Ontario Cancer Cohort (OCC) set up a plan to serve as an integrated platform for studies of cancer and other chronic diseases. The research will include etiology, prevention, early detection, determinants of cancer, cancer rate variation, risk factors and behaviour change, harmonize initiatives that play a role in characterizing tumour heterogeneity and its determinants. The OCC's

next steps involve establishing evidence-based guidelines for cancer prevention, improving surveillance and risk factor monitoring, research, evaluation and development, implementation and evaluation of provincial cancer prevention programs. ■

Population Attributable Fraction

$$\text{PAF\%} = \left[\frac{\text{Pe} \times (\text{RR}-1)}{1 + \text{Pe}(\text{RR}-1)} \right] \times 100$$

Where, Pe = proportion of population exposed

RR = relative risk

Average daily alcohol consumption categories used to calculate PAF

Sex	Category 1		Category 2		Category 3	
	Grams per day	# of drinks	Grams per day	# of drinks	Grams per day	# of drinks
Male	0.25–40	~ 1-3	40–60	~ 3-4	≥ 60	≥ 5
Female	0.25–20	~ 1	20–40	~ 2-3	≥ 40	> 3

➤ Canadian standard drink contains 13.6 grams of alcohol (= 12 oz / 341 mL can or bottle of beer; 5 oz glass of table wine; 1.5 oz shot of liquor (rye, rum, whiskey, vodka))

(For the complete slides of John McLaughlin's presentation, refer to the appendix)

Heather Logan

Director, Cancer Control Policy and Information, Canadian Cancer Society



Canadian Cancer Society
Société canadienne du cancer

Alcohol and Cancer: Policies and Public Health Messages from the Canadian Cancer Society

Policy development by the Canadian Cancer Society (CCS) is based on quality scientific evidence and the precautionary principle. Quality involves the size of the study population, the length of follow-up, the number of centres involved, the control for bias and confidence, accuracy of data analysis, the conclusions, interpretation of statistical results and the source of the publication. Policy recommendations from the World Health Organization (WHO) Interventions, Cancer 2020 and CAMH Alcohol and Cancer Best Advice papers were highlighted by Heather. As indicated below, here is a summary of the effective population level interventions to reduce alcohol consumption, as indicated by the WHO.



Canadian Cancer Society
Société canadienne du cancer

WHO Effective Population level interventions – Alcohol Consumption Reduction (2007)

- Pricing and taxation
- Identify and enforce minimum age requirements for legal purchase
- Restrictions on hours or days of sale

Considerations:

- Dependence of government on alcohol trade for tax income
- Patterns of alcohol use in different segments of the population
- Knowledge, attitudes and behaviors regarding alcohol use
- Political will/interest

Like most prevention efforts, the combination of population based (public policy) and individual approaches (individual action) are likely to be the most successful

<http://www.who.int/cancer/modules/Prevention%20Module.pdf>

CCS has many partnerships including the Cancer 2020 - Action Plan, Priorities, Targets and Recommendations, the Toronto Cancer Prevention Coalition, the Ontario Ministry of Health Promotion and the Centre for Addiction and Mental Health, the Ontario Chronic Disease Prevention Alliance, and the Chronic Disease Prevention Alliance of Canada.

The interventions the CCS is engaged in, involving other partners include: planning and coordinating chronic disease prevention activities, public policies that address the prevention of chronic disease, effective creation and exchange of knowledge.

In the future, the CCS will review diet, nutrition and cancer prevention messaging, including alcohol use in light of the AICR/WCRF release and continue with their commitment to partnerships to control cancer and chronic disease.

The CCS's action on alcohol and cancer involves acknowledging evidence and investing in research, informing Canadians, establishing and enforcing health first public policy, creating an environment for health individual action, collaborating to share knowledge, resources and ideas and to evaluate interventions and programs. ■

(For the complete slides of Heather Logan's presentation, refer to the appendix)

Summary of Panel Presentations

Janet McAllister

Program Consultant, Centre for Addiction and Mental Health (CAMH)

Alcohol and cancer does not seem to be recognized by the general population as an area of concern. Most people recognize the dangers of drinking and driving, alcohol and cirrhosis of the liver, but not the relationship of alcohol and cancer. The Alcohol and Cancer Best Advice paper (CAMH) was developed to address this issue and to provide a synopsis of alcohol's relationship to cancer.

Janet summarized how the CAMH recommendations from the best advice paper could be/are being implemented:

1. *Put alcohol on the agenda of chronic disease and cancer prevention*

- Provincial Cancer Prevention & Screening Council includes CAMH
- Ontario Chronic Disease Committee has representation for alcohol and cancer
- Cancer 2020 has grouped alcohol with nutrition & physical activity risk factors
- Toronto Cancer Prevention Coalition included alcohol as a risk factor (2000)
- National Alcohol Strategy Working Group -National Framework for Action to Reduce the Harms Associated with Alcohol and Other Drugs and Substances in Canada (April 2007).

2. *Build more effective links with mainstream cancer organizations*

Organizations working in the area of lowering the harms related to drinking need to work with groups such as Canadian Cancer Society, Ontario Public Health Association to raise the profile of alcohol and cancer.

There needs to be recognition that alcohol is often interrelated with tobacco use and other drug consumption. Alcohol use is also related to mental illness. Studies have shown that 40-60% of those with mental health problems have an addiction problem of some sort.

The pros and cons of dealing with alcohol strategies separately or with other issues such as drugs, cancer, mental illness, community safety or injury prevention was raised.

3. *Promote effective interventions*

There needs to be a combination of health promotion strategies that are coordinated strategically. Strategies need to be implemented in a collaborative and coordinated manner. Policy alone does not work without enforcement.

4. *Develop effective information dissemination strategies*

Alcohol, No Ordinary Commodity by Thomas Babor and colleagues (2003, Oxford U. Press) shows that education strategies don't "change behaviour." Education is a strategy that needs to be used in conjunction with other interventions.

5. *Promote monitoring, research and prevention planning*

Currently, the Centre for Addiction Research in British Columbia is piloting research, monitoring alcohol and other drugs, looking at consumption, morbidity and mortality, as well as interventions. ■

Rosana Pellizzari

**Associate Medical Officer of Health, City of Toronto and Director, Planning and Policy,
Toronto Public Health**

Dr. Pellizzari gave an overview on the action related to alcohol and cancer prevention interventions that need to be focused on from the local public health point of view.

The background statistics used as a base for decision making are:

- 80% of Canadians 15 years and older use alcohol
- 14% are high risk drinkers
- in Canada, alcohol is among the top 3 risk factors contributing to the burden of disease, disability and death.

There is considerable concern that the public is not aware of the link that alcohol has with cancer. Dr. Pellizzari spoke about the need to work towards a culture of moderation.

Toronto statistics show that the rate of alcohol use is the lowest in Canada. It is assumed that the low number is related to the multicultural population since many new immigrants come from cultures where alcohol use is discouraged or minimal. The 2002 Rapid Risk Factor Surveillance System identified 96% of Toronto adults as low risk drinkers.

Alcohol is the new tobacco. Our provincial liquor board is aggressively marketing it as sexy and cool, similar to the marketing approach of tobacco companies. Consumption of alcohol is increasing with little attention being given towards its harmful effects. There are great profits to be made from alcohol taxes, yet, just like tobacco, those who are interested in promoting and protecting the health of the public are up against powerful interests of corporations and organizations who are threatened by a decrease in profits.

There are four areas highlighted in the National Alcohol Strategy that we can use as a model for planning: health promotion, prevention and education; health impacts and treatments; availability of alcohol; and safer communities.

Much of the policy work and regulation can focus on controlling the availability of alcohol through the liquor control board, licensing and enforcement, taxation and pricing and the advertising and promotion of alcohol. There is also a need for safer communities through mobilization, education, and enforcement for reducing alcohol-related violence.

Currently, Toronto Public Health links with mainstream cancer organizations. It promotes effective interventions such as advocacy for public health policy such as municipal alcohol policy, prevention of deregulation of alcohol sales or peer education strategies for youth. It also promotes the Low-Risk Drinking Guidelines. ■

Fiona Nelson

Chair, Toronto Cancer Prevention Coalition Steering Committee

Ms. Nelson informed the audience about the harms from alcohol including cancer, violence and other diseases. She also mentioned that Fetal Alcohol Spectrum Disorder is not a child's option but something they had no choice in. She drew parallels between alcohol issues and smoking. She noted that smoking had to become socially unacceptable for there to be a change in the number of people who smoke.

Fiona also alerted the audience to the two different goals of the Liquor Control Board of Ontario and that the revenue from the LCBO does not balance the cost to society. Not just with cancer but with social, health and traffic issues. ■

Discussion

The topics of the follow-up discussion were wide ranging. They included:

- statistics indicate that average consumption is increasing
- advertising (location, messaging around LRDG and drinking with meals, comprehensive approach to messaging)
- similarities and differences between alcohol and tobacco
- political environment and political readiness
- National Alcohol Strategy and action related to it
- recognition of Ontario Public Health Association's work (see OPHA website)
- promotion of Municipal Alcohol Policy
- role modeling

Recommendations

The following recommendations are based on a combination of the discussion points from the Alcohol Cancer and Public Policy seminar and applicable recommendations from the National Alcohol Strategy (NAS) 2007. Discussion time was short at the end of the seminar so combining the two sources for the following recommendations makes a stronger, more comprehensive approach than if the recommendations were based only on the seminar suggestions.

Developing an overall plan that focuses on alcohol and cancer can be simplified by using the tobacco policy model of Ontario as a basis for its approach. Work at the local level and the higher levels of government at the same time in order to gather support to develop and implement strong effective legislation.

There are differences between tobacco and alcohol but there are also many similarities. Initially there was acceptability at the societal level for people to smoke in restaurants, bars, movie theatres, hospitals. Alcohol has a parallel issue where the negative effects of drinking (such as cancer) may often be ignored.

It does not matter whether it is financial, emotional, social, or related to their work, there often is a level of acceptability or resignation that things never change. The recommendations found below will move towards change. and they are broken down into five strategies: policy development, supportive environment, personal skills, awareness and treatment.

“The report by the World Cancer Research Fund and the American Institute for Cancer Research shows that the evidence is more and more convincing about how we live, what we eat and our individual risk of cancer,” says Heather Logan, Director, Cancer Control Policy and Information, Canadian Cancer Society.

“These are issues we have been promoting for some time.”

FROM MEDIA COVERAGE

“Our new provincial standards clearly do direct our sector to collaborate with school boards, workplaces, municipalities and community partners in health promotion strategies to reduce the use and misuse of alcohol as a strategy in prevention of chronic disease and injury.”

ROSANA PELLIZZARI

“...we never questioned the years of social drinking.”

ROSANA PELLIZZARI

Policy Development

- Work with the LCBO and AGCO in developing an expanded perspective on and definitions of social responsibility so that it includes concern about the increase in overall consumption and high risk drinking in Ontario, and includes initiatives to control access to alcohol, introduce 'ceilings' on density of outlets, and controls on alcohol advertising and marketing in their planning.
- Collaborate with the liquor control agencies to ensure alcohol control is better managed in high risk communities.
- Advocate for changes in alcohol advertising legislation, for example, increasing limitations so that there is less exposure to youth.
- Implement or strengthen Municipal Alcohol Policies and, using a similar model, apply it to community groups such as sport teams and non-profit groups.
- Develop policies and programs appropriate to youth's stages of development including avoidance of high risk drinking.
- Develop, review and evaluate policies for university and college programs.
- Work with the workplaces to develop policy related to alcohol.

Supportive Environment

- Request that each Board of Health write a letter of support for the National Alcohol Strategy highlighting alcohol and chronic disease/cancer. The Boards of Health can act as advocates.
- Tie in the recommendations from the National Alcohol Strategy with local intervention and strategy planning.
- Ensure that better management of alcohol is included in the Ministry of Health Promotion's chronic disease prevention planning and advocate that the alcohol and cancer issue be part of health promotion planning at local and provincial levels.
- Change the norm of resisting the need to address the negative effects of alcohol (besides drinking and driving) so that health effects are included in planning.
- Coordinate alcohol related initiatives that focus on decreasing drinking. Funding and resources are not always available for alcohol and cancer initiatives but there may be other areas that focus on alcohol use prevention or decreasing usage. Although the messaging may not be focused on alcohol and cancer, indirectly work can still be focused on a common goal of decreasing alcohol consumption. Examples include initiatives focusing on alcohol and injury prevention, decreasing binge drinking, concurrent disorders. Take opportunities to promote the alcohol and cancer message. Coordinate efforts so that they can have a bigger impact because of timing and/or exposure.
- Explore options to encourage greater social acceptability of those who choose to abstain from drinking alcohol during occasions when others are drinking or to choose to be an abstainer.
- Promote the change of culture around drinking so that it is more acceptable to drink at meal times than after or before – for those who are consumers (pattern drinking). There is research that demonstrates that if one drinks with one's meal compared to separately, the incidence of chronic disease/cancer lowers.
- Advocate for increased enforcement.

Personal Skills

- Promote role modeling by parents as this plays an important role in their children's drinking habits. Skill building for parents is an area that needs to be developed too. There are also other role models that may affect youth, such as famous people, coaches, and teachers. Programs to support these people in being good role models can be developed and evaluated.

Awareness

There are many awareness campaigns, yet research shows that there is limited impact or no impact when education is used in isolation. There is still a need for education as part of a comprehensive strategy, especially when working towards effective policy and a supportive environment. We have learned from tobacco and other initiatives that messaging is important. Messaging should be from a public health and environmental management perspective and not from a perspective that stigmatizes drinkers.

- Clarify confusing and mixed messages about alcohol consumption and health.
- Develop/implement a social marketing campaign on the Low-Risk Drinking Guidelines.
- Promote abstinence as a valid goal for all ages.
- Advocate for labels on liquor/beer bottles that show standard drinks.
- Develop a campaign for the public that highlights their liability related to alcohol such as serving alcohol to minors, house parties, etc.

“How are people responding to the evidence?”

DENISE DEPAPE

Assessment and Treatment

- Ensure there is university and college curriculum for health and social service professions that includes information about alcohol and its harmful health effects including cancer. Include effective related programming in the curriculum such as health promotion initiatives or effective treatment modalities.
- Promote brief interventions in various settings, such as clinics, doctors’ offices, university health services and others.
- Evaluate treatment programs.
- Evaluate treatment and programs for the First Nations community.

“We need to raise the awareness of the link between alcohol and cancer and clearly must go to a culture of moderation.”

ROSANA PELLIZZARI

Who attended the seminar

Albion Neighbourhood Services	Parent Action on Drugs
Association of Local Public Health Agencies	Public Health Agency of Canada
Canadian Cancer Society-Ontario Division	Region of Peel Health department
Canadian Cancer Society-North York Unit	Ryerson University
Cancer Care Ontario	Simcoe Muskoka District Health Unit
Canadian Breast Cancer Foundation-Ontario Chapter	Sirona Consultants
Centre for Addiction and Mental Health	South Riverdale Community Health Centre
Citizen and Community Members	St. Michael’s Hospital
Haliburton, Kawartha, Pine Ridge District Health Unit	Sudbury FOCUS Community Project
Hamilton Public Health Services	Toronto Cancer Prevention Coalition
Liquor Control Board of Ontario	Toronto City Council
Miller Neighbour & Associates	Toronto Board of Health
Ministry of Community and Social Services	Toronto Public Health
Ministry of Health Promotion	Toronto Western Research Institute
Mount Sinai Hospital	University of Toronto-Department of Public Health Sciences
Niagara Region Health Department	University of Waterloo
Occupational Health Clinics for Ontario Workers, Inc.	Wellington-Dufferin-Guelph Public Health
Ontario Breast Screening program	Women’s College Hospital
Ontario Chronic Disease Prevention Alliance	York Region Public Health
Ontario Public Health Association	

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Appendix

Slides from the 4 plenary presentations.

- A. *Anthony Miller*, Professor Emeritus, Department of
Public Health Sciences, Faculty of Medicine,
University of Toronto
- B. *Jürgen Rehm*, Professor and Chair, Addiction Policy,
Department of Public Health Sciences, Faculty of
Medicine, University of Toronto
- C. *John McLaughlin*, Vice President, Preventive
Oncology, Cancer Care Ontario
- D. *Heather Logan*, Director, Cancer Control Policy,
Canadian Cancer Society

Appendix - Slide Presentations

Anthony Miller

The Carcinogenicity of Alcohol consumption

Anthony B. Miller MD, FRCP
 Professor Emeritus
 Department of Public Health
 Sciences
 University of Toronto

1

Why are we concerned about cancer?

Cancer is the largest single cause of premature death
 Cancer is not an optimal route to death
 In 2007, 72,700 people will die from cancer, 34,300 women and 38,300 men

4

What is carcinogenicity?

The ability to cause cancer
 Carcinogens - cancer causing agents, may be:
 Physical - e.g. ionizing radiation, -X rays
 Chemical - e.g. asbestos, tobacco smoke
 Genetic - i.e. inherited predisposition e.g. BRCA 1 and 2

2

Determining the carcinogenicity of alcohol in experimental animals (IARC WG, 2007)

Administration of ethanol (alcohol) in drinking water caused:

- ❖ Liver cancer in male mice
- ❖ Head and neck cancers in rats
- ❖ Forestomach cancers in rats
- ❖ Mammary (breast) cancers in rats

5

What is cancer?

The uncontrolled growth of cells, which may spread locally or to other parts of the body (metastasize)
 Carcinomas - cancers of epithelial and glandular organs
 Sarcomas - cancers of fibrous tissue and bone
 Some carcinomas are caused by alcohol

3

Determining the carcinogenicity of alcohol in experimental animals (IARC WG, 2007)

Administration of ethanol (alcohol) in drinking water caused:

- ❖ Liver cancer in male mice
- ❖ Head and neck cancers in rats
- ❖ Forestomach cancers in rats
- ❖ Mammary (breast) cancers in rats

6

Anthony Miller *continued*

Determining carcinogenicity of alcohol consumption in humans

We cannot perform experiments, we have to observe

- ❖ We compare alcohol consumption in people with cancers and people free of cancers
- ❖ We determine how much healthy people drink (if at all) and follow them for years to compare the occurrence of cancers in drinkers and non-drinkers

7

The degree of risk of alcohol consumption for Breast cancer

Women who drink on average 3 or more alcoholic drinks a day increase their risk of breast cancer by about 50%

Women who drink 1-2 alcoholic drinks a day increase their risk of breast cancer by about 10%

10

International Agency for Research on Cancer (IARC) evaluation of Alcohol consumption (2007)

26 scientists formed working group
Effects of alcohol consumption on risk of 29 cancers evaluated
Risks classified in terms of effects on humans

9

Example: Pooling project on breast cancer

- > 322,647 women followed for up to 11 years in 6 studies in Canada, the Netherlands, Sweden and the United States.
- > All completed a food frequency questionnaire, including information on alcohol consumption
- > 4335 women developed breast cancer

11

IARC evaluation of Alcohol consumption (2007)

There is *Sufficient evidence* that Alcohol consumption increases the risk of:

- Breast cancer
- Colorectal cancer
- Cancer of the esophagus
- Liver cancer
- Larynx cancer
- Mouth and pharynx cancer

8

Pooling project: risk of breast cancer per amount of alcohol consumed

Grams alcohol/day	Relative risk
None	1.0
>0-<1.5	1.07 (1.0-1.2)
1.5-<5.0	0.99 (0.9-1.1)
5.0-<15.0	1.06 (1.0-1.2)
15.0-<30.0	1.16 (1.0-1.4)
30.0-<60.0	1.41 (1.2-1.7)
≥ 60.0	1.31 (0.9-2.0)

12

Anthony Miller *continued*

The degree of risk of alcohol consumption for Colon and Rectum cancer

Women and men who drink on average 3 or more alcoholic drinks a day increase their risk of colon and rectum cancer by about 40%

13

Effect of lifetime alcohol consumption on colorectal cancer risk

This translates into an average 9% increase in risk for every drink consumed/day

The risk is higher for cancer of the rectum and distal colon (left sided) than for proximal (right sided) colon cancer

14

Example: European Prospective Investigation of Cancer (Ferrari et al, 2007)

478,732 participants (70% women) from 10 countries, completed detailed dietary questionnaire (including data on alcoholic beverage consumption) and were followed for >6 years

15

The effect of smoking upon risk from alcohol consumption

The effect of alcohol consumption on the risk of mouth, pharynx, larynx and esophagus cancers is to multiply the effect of smoking.

Heavy smoking increases the risk of these cancers by 8 to 10 fold. Heavy alcohol consumption combined with heavy smoking increase the risk of these cancers to 16 to 20-fold

16

Effect of lifetime alcohol consumption on colorectal cancer risk

Grams alcohol/day	Relative risk
None	1.0
>0-4.9	1.0 (0.7-1.3)
5.0-<15.0	1.05 (0.9-1.2)
15.0-<30.0	1.07 (0.9-1.3)
30.0-<60.0	1.23 (1.0-1.6)
≥ 60.0	1.98 (1.5-2.7)

17

Example: Risk from lifetime cigarette smoking and alcohol consumption on larynx cancer

Ounces of alcohol (thousands)	Cigarettes (thousands)			
	0 <150	150-299	≥300	
0	1	2	4	8
<10	2	4	6	11
10-25	4	6	10	16
≥ 25	8	11	16	24

18

Anthony Miller *continued*

How alcohol consumption increases the risk of liver cancer

Heavy alcohol consumption increases the risk of liver fibrosis by damaging liver cells (cirrhosis).

People with alcohol-induced cirrhosis have an increased risk of dying from liver cancer, or liver failure.

19

How much cancer does Alcohol consumption cause?

- ~ 6% breast cancer
- ~ 6% colorectal cancer (10% in men and 4% in women)
- ~ 20% head and neck cancer
- ~ 30% of liver cancer
- Approximately 3% of all cancers

22

Alcohol consumption does not increase the risk of:

- Lung cancer
- Endometrial, ovary and cervix cancer
- Bladder cancer
- Non-Hodgkins lymphoma
- Kidney cancer

20

How much cancer does Alcohol consumption cause?

- 1,338 women with breast cancer
- 1,140 men and 376 women with colorectal cancer
- 1,360 men and women (largely men) with head and neck cancer
- 405 men and women (largely men) with liver cancer

23

Are there differences according to type of Alcohol consumed?

NO!

Wine, beer and liquor consumption seem to have similar effects.

It is the amount of alcohol consumed that is important

21

Conclusions

Alcoholic beverage consumption causes cancer in humans

The risk is largely restricted to heavy drinkers; moderate alcohol consumption increases the risk of cancer much less

However, women, because of the increased risk of breast cancer, are at almost as great a risk as men

Combining heavy smoking with heavy drinking considerably increases the risk of mouth, pharynx, larynx and esophagus cancers


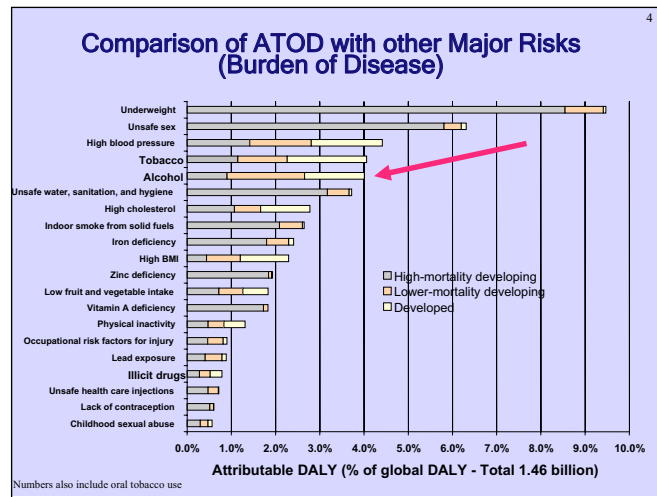
24

Jürgen Rehm

The Burden of Cancer Attributable to Alcohol Drinking in Canada 2002


Alcohol, Cancer and Public Policy, October 31

Jürgen Rehm, Jayadeep Patra, Svetlana Popova
 Centre for Addiction and Mental Health
 Toronto, Canada
 University of Toronto

The global picture: Leading risk factors for disease (WHR 2002) in emerging and established economies (% total DALYs)

Developing countries				Developed countries	
High mortality		Low mortality			
Underweight	14.9%	Alcohol	6.2%	Tobacco	12.2%
Unsafe sex	10.2%	Blood pressure	5.0%	Blood pressure	10.9%
Unsafe water & sanitation	5.5%	Tobacco	4.0%	Alcohol	9.2%
Indoor smoke (solid fuels)	3.6%	Underweight	3.1%	Cholesterol	7.6%
Zinc deficiency	3.2%	Body mass index	2.7%	Body mass index	7.4%
Iron deficiency	3.1%	Cholesterol	2.1%	Low fruit & vegetable intake	3.9%
Vitamin A deficiency	3.0%	Low fruit & vegetable intake	1.9%	Physical inactivity	3.3%
Blood pressure	2.5%	Indoor smoke (solid fuels)	1.9%	Illicit drugs	1.8%
Tobacco	2.0%	Iron deficiency	1.8%	Unsafe sex	0.8%
Cholesterol	1.9%	Unsafe water & sanitation	1.8%	Iron deficiency	0.7%



Harmful Effects of Alcohol Consumption in Canada - Two Dimensions

- Average volume of consumption
- Patterns of drinking mainly binge drinking but including drinking that occurs outside of meals

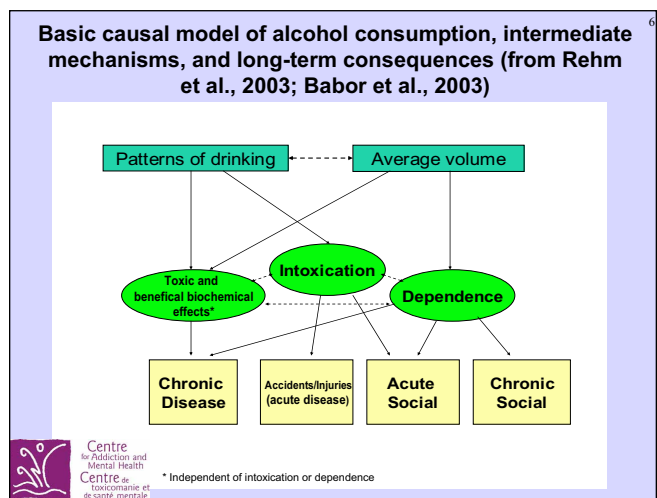


Major Burden of Disease – Selected Leading Risk Factors and Leading Diseases, Developed Countries, 2000

Risk Factor	% DALYs	Disease	% DALYs
Tobacco	12.2	Ischaemic heart disease	9.4
Blood pressure	10.9	Unipolar depressive disorder	7.2
Alcohol	9.2	Cerebrovascular disease	6.0
Cholesterol	7.6	Alcohol use disorder	3.5
Overweight	7.4	COPD	2.6
Low fruit & vegetable intake	3.9	Trachea/Bronchus/Lung cancers	2.4
Physical inactivity	3.3		
Illicit drugs	1.8		

Note: Preventative fractions due to alcohol and cardiovascular disease in some regions are not shown in this table. The selected factors cause diseases in addition to those listed here, and additional risk factors are also important in the etiology of the diseases illustrated.

Source: World Health Organization, World Health Report, 2002.

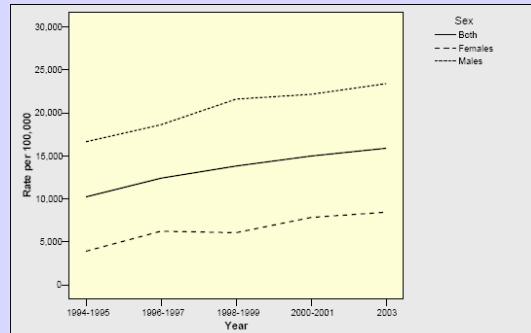


Jürgen Rehm *continued*

Drinking Patterns & Rates in Canada

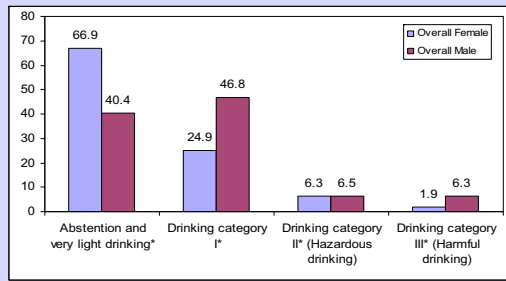
- Both high risk drinking patterns and overall consumption levels have been shown to impact chronic disease and other harm from alcohol.
- Results from the Canadian Community Health Surveys suggest that high-risk drinking has increased from 10% to 14% between 1993 and 2004.
- The 2004 Canadian Addiction Survey found that 23% of past-year drinkers exceeded the low-risk drinking guidelines.
- Also, 17% of past-year drinkers were considered to drink hazardingly (Alcohol Use Disorders Identification Test).

Age-standardized Prevalence (Canada 1991) of Heavy Drinkers (5+ Drinks on One Occasion 12 or More Times in the Past Year) 15 Years and Older, by Sex, Canada, 1994-2003



Note: This figure presents the data in a different way than published on the website of Statistics Canada as it displays the rates of heavy drinkers among the total population, not among current drinkers.
Source: Statistics Canada, National Population Health Survey and Canadian Community Health Survey

Prevalence (%) of overall alcohol consumption in Canada 2003/2004



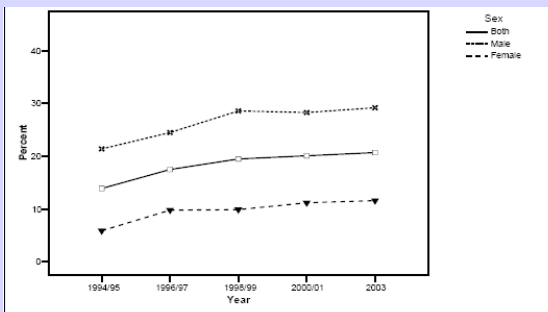
Drinking categories	Females	Males
Abstainer or very light drinker	0 to < 0.25g/day	0 to < 0.25 g/day
Drinking Category I: Moderate drinking	0.25 to < 20g/day	0.25 to < 40g/day
Drinking Category II: Hazardous drinking	20 to < 40g/day	40 to < 60g/day
Drinking Category III: Harmful drinking	40+ g/day	60+ g/day

Alcohol has been causally linked with the the following cancers

Malignant neoplasms	ICD-10
Mouth and oropharynx cancer	C00 - C14
Oesophageal cancer	C15
Colon and rectal cancer	C18-C21
Liver cancer	C22
Laryngeal cancer	C32
Breast cancer	C50



Percentage of Current Drinkers 12 Years and Over Who Had Five or More Drinks on One Occasion (More Than 12 Times a Year) by Sex, Canada, 1994 - 2003



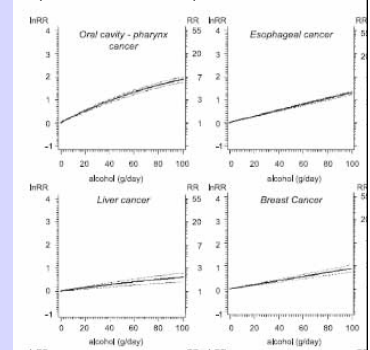
Note: Crude rate, not age-standardized
Source: Statistics Canada, National Population Health Survey and Canadian Community Health Survey

Cancers related to average volume and kind of relative risk

Cancer:

- Lip & oropharyngeal cancer, Esophageal cancer, Liver cancer, Laryngeal cancer, Colorectal cancer (IARC new), Female breast cancer
- Usual linear risk relationship between average volume of alcohol consumption and risk
- Other cancers show consistent risk relationships, but do not qualify for other

Typical risk curves for cancer (Corrao et al., 2004)




Jürgen Rehm *continued*

Solution to calculate attributable fraction and RR

- Take most recent/comprehensive meta-analysis to establish RR

$$AAF = \frac{\sum_{i=0}^k P_i(RR_i - 1)}{\sum_{i=0}^k P_i(RR_i - 1) + 1}$$

- Conduct sensitivity analysis to potential alternatives (e.g. Corrao et al. series vs. English/Ridolfo/Gutjahr plus tradition) => no change in estimates




Alcohol- attributable Morbidity due to Cancer

Alcohol-attributable number of hospital days by sex and cancer category in Canada, 2002

Malignant Neoplasms	TOTAL				OVERALL	
	M	% M	F	% F	M+F	% M+F
Mouth and oropharynx cancers	7,420	30.1%	2,284	18.0%	9,704	26.0%
Oesophageal cancers	7,280	29.6%	1,962	15.5%	9,242	24.8%
Liver cancers	4,909	19.9%	2,044	16.1%	6,954	18.6%
Laryngeal cancers	4,847	19.7%	931	7.4%	5,778	15.5%
Breast cancers	--	--	4,979	39.3%	4,979	13.4%
Other neoplasms	175	0.7%	463	3.7%	638	1.7%
TOTAL	24,632	100.0%	12,663	100.0%	37,295	100.0%

3.0% of the total alcohol-attributable acute care hospital days in Canada, 2002.




Alcohol- attributable Mortality due to Cancer

Alcohol-attributable number of deaths by sex and cancer category in Canada, 2002

Malignant Neoplasms	TOTAL				OVERALL	
	M	% M	F	% F	M+F	% M+F
Mouth and oropharynx cancers	247	21.0%	61	9.4%	308	16.9%
Oesophageal cancers	407	34.7%	95	14.4%	501	27.4%
Liver cancers	285	24.3%	117	17.8%	402	22.0%
Laryngeal cancers	172	14.7%	27	4.2%	199	10.9%
Breast cancers	--	--	318	48.4%	318	17.4%
Other neoplasms	62	5.3%	38	5.8%	100	5.5%
TOTAL	1,172	100.0%	657	100.0%	1,828	100.0%

0.8% of all deaths in Canada 2002




Cost of Cancer due to Alcohol

Cancer attributable acute care costs due to alcohol by sex and Cancer category in Canada, 2002

Malignant Neoplasms	Acute care costs (\$)		
	M	F	OVERALL
Mouth and oropharynx cancers	\$ 8,229,114	\$ 2,532,532	\$ 10,761,646
Oesophageal cancers	\$ 8,073,821	\$ 2,175,343	\$ 10,249,164
Liver cancers	\$ 5,444,504	\$ 2,267,023	\$ 7,711,527
Laryngeal cancers	\$ 5,375,372	\$ 1,032,853	\$ 6,408,225
Breast cancers	--	\$ 5,522,096	\$ 5,522,096
Other neoplasms	\$ 193,714	\$ 513,430	\$ 707,143
TOTAL	\$ 27,316,525	\$ 14,043,277	\$ 41,359,802

2.8% of the total alcohol-attributable costs for acute care hospitalizations in Canada, 2002.




Alcohol- attributable Years of Life Lost due to Cancer

Alcohol-attributable number of years of lives lost (YLLs) by sex and cancer category in Canada, 2002

Malignant Neoplasms	TOTAL				OVERALL	
	M	% M	F	% F	M+F	% M+F
Mouth and oropharynx cancers	4,201	23.4%	1,068	9.5%	5,269	18.0%
Oesophageal cancers	6,171	34.3%	1,328	11.8%	7,500	25.6%
Liver cancers	4,383	24.4%	1,800	15.9%	6,183	21.1%
Laryngeal cancers	2,363	13.2%	466	4.1%	2,829	9.7%
Breast cancers	--	--	6,142	54.4%	6,142	21.0%
Other neoplasms	850	4.7%	492	4.4%	1,342	4.6%
TOTAL	17,968	100.0%	11,296	100.0%	29,265	100.0%

0.9% of all deaths in Canada 2002




Cost of Cancer due to Alcohol

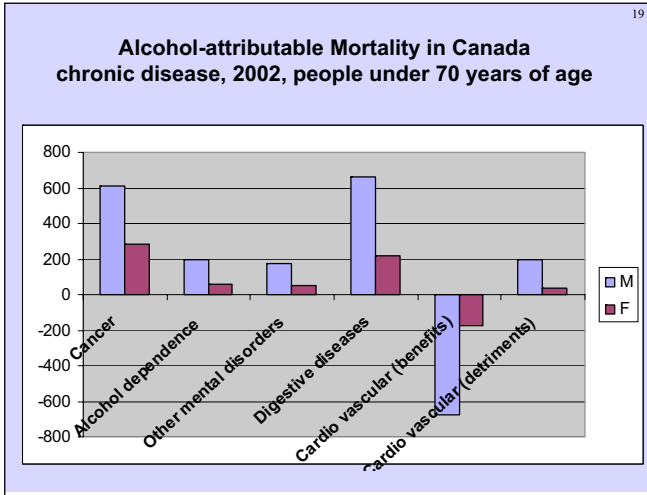
Overall costs of alcohol in Canada (Million \$)

Variables	Costs	%
Direct health care costs	\$ 3,306.2	22.7%
Overall acute care hospitalizations	\$ 1,458.6	10.0%
Direct law enforcement costs	\$ 3,072.2	21.1%
Direct costs for prevention and research	\$ 53.0	0.4%
Other direct costs	\$ 996.1	6.8%
Indirect costs: productivity losses	\$ 7,126.4	49.0%
Total costs	\$ 14,553.9	100.0%

Cancer related acute care costs to overall acute care hospitalization costs \$ 41.4 2.8%



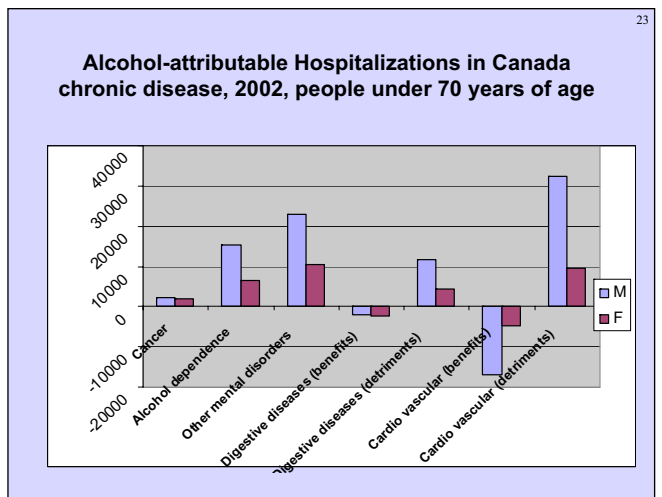
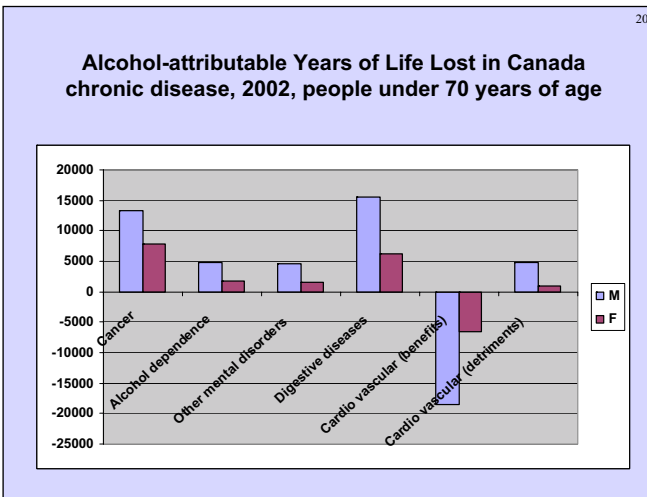
Jürgen Rehm *continued*



22

Proportion of alcohol-attributable mortality and years of life lost (YLL) to all alcohol-attributable chronic disease mortality and YLL for people under age 70 years

Disease categories	Mortality	YLL
Cancer	34.58%	34.11%
Mental disorders	22.20%	20.81%
Digestive diseases (detriments)	34.23%	35.56%
Cardiovascular (detriments)	9.04%	9.52%
Cardiovascular (benefits)	-90.37%	-89.14%
Diabetes (benefits)	-9.52%	-10.86%



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Proportion of alcohol-attributable mortality and years of life lost within the respective disease categories for people under age 70 years

Disease categories	Mortality	YLL
Cancer	3.34%	3.08%
Mental disorders	59.24%	55.40%
Digestive diseases (detriments)	30.66%	28.89%
Cardiovascular (detriments)	1.66%	1.72%
Cardiovascular (benefits)	-6.10%	-5.25%

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Alcohol- attributable Mortality due to Cancer worldwide

- Alcohol caused an estimated 466,000 cancer related deaths worldwide in 2002 (Rehm et al., 2006)

Jürgen Rehm *continued*

Global mortality burden (deaths in 1000s) attributable to alcohol by major disease categories - 2002 ²⁵

Disease conditions	Men	Women	Total	% of all alcohol-attributable deaths
Maternal and perinatal conditions (low birth weight)	1	1	3	0.1%
Cancer	361	105	466	22.0%
Neuro-psychiatric disorders	106	25	130	6.1%
Cardiovascular diseases	361	-53	308	14.5%
Other non-communicable diseases (diabetes, liver cirrhosis)	285	73	359	16.9%
Unintentional injuries	501	96	597	28.1%
Intentional injuries	220	40	260	12.3%
Alcohol-attributable mortality burden all causes	1,836	287	2,123	100.0%
All deaths	29,891	27,138	57,029	In comparison: estimate for 2000: 3.2%
% of all deaths which are alcohol-attributable	6.1%	1.1%	3.7%	

Global burden of disease (DALYs in 1000s) attributable to alcohol by major disease categories - 2002 ²⁶

Disease conditions	Men	Women	Total	% of all alcohol-attributable DALYs
Maternal and perinatal conditions (low birth weight)	52	42	94	0.1%
Cancer	4,593	1,460	6,054	9.3%
Neuro-psychiatric conditions	19,393	3,722	23,115	35.6%
Cardiovascular diseases	4,877	-318	4,558	7.0%
Other non-communicable diseases (diabetes, liver cirrhosis)	5,190	1,402	6,592	10.2%
Unintentional injuries	14,499	2,647	17,146	26.4%
Intentional injuries	6,366	1,051	7,417	11.4%
Alcohol-attributable disease burden all causes (DALYs)	54,970	10,006	64,975	100%
All DALYs	772,912	717,213	1,490,126	In comparison: estimate for 2000: 4.0%
% of all DALYs which are alcohol-attributable	7.1%	1.4%	4.4%	

Int. J. Cancer 121, 1132–1137 (2007)
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Alcohol drinking cessation and its effect on esophageal and head and neck cancers: A pooled analysis

Jürgen Rehm^{2,3,4*}, Jayaadeep Patra¹ and Svetlana Popova¹

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The objective of this study was to conduct a pooled analysis to evaluate the strength of the evidence available in the epidemiological literature on the association between alcohol drinking cessation and reduction in esophageal and head and neck cancer risks. A search using several electronic bibliographic databases was performed for relevant epidemiological literature between 1966 and 2006. A total of 13 unique studies including over 5,000 cases were found. Categorical and third order polynomial (cubic) regression models were fitted to estimate the temporal relationship between years of drinking cessation and risk of cancer. The risk of esophageal cancer significantly increased within the first 2 yr following cessation [odds ratios (OR)_{0-2 yr}: 2.50, 95% confidence intervals (CI): 2.23–2.80], then decreased rapidly and significantly after longer periods of abstinence (OR_{20+ yr}: 0.37, 95% CI: 0.33–0.41). An elevated risk, although not strong as for esophageal cancer, was observed for head and neck cancer up to 10 yr of quitting drinking (OR_{0-10 yr}: 1.26, 95% CI: 1.18–1.35). Such risk only reduced after 10 yr of cessation (OR_{10+ yr}: 0.67, 95% CI: 0.63–0.73). After more than 20 yr of alcohol cessation, the risks for both cancers were no longer significantly different from the risk of never drinkers. Our findings demonstrate an important role of alcohol cessation on esophageal and head and neck carcinogenesis.

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Key words: alcohol consumption; cessation; esophageal cancer; head and neck cancer; pooled analysis; polynomial regression

of the oral cavity, pharynx, larynx and esophagus when someone stops drinking; however, the amount of risk reduction and the time periods after which a reduction occurred varied. The purpose of this study was to conduct a pooled analysis to evaluate the temporal sequence and strength of the association between alcohol drinking cessation and reduction in esophageal and head and neck cancer risks. Quantification of the potential beneficial effects of quitting drinking on the risk of developing cancer will have important public health implications for prevention and health promotion and provide further evidence on the causal role of alcohol developing cancer.

Material and methods

Identification of relevant studies

Search of the literature on time dependent risks after reduced drinking for esophageal cancer and head and neck cancer was performed in November–December 2006. The following key search terms were used: ("mouth cancer" OR "oral cavity cancer" OR "oropharynx cancer" OR "oropharyngeal cancer" OR "pharyngeal cancer" OR "head and neck cancer" OR "esophageal cancer") AND ("alcohol") AND ("risk" OR "association AND "cessation" OR "stopping drinking" OR "quitting drinking" OR "abstinence"). This search was performed in multiple electronic bibliographic databases including PubMed, MEDLINE

What happens to people, if alcohol consumption is stopped or reduced?

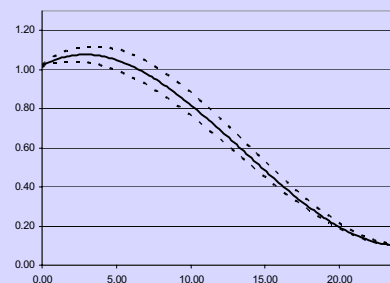
- We studied the effects of drinking cessation on the risk for head and neck and oesophagus cancers.
- A search for relevant epidemiological literature (1966–2006)
- Found 13 epidemiological studies including over 5,000 cases.
- Categorical and third order polynomial (cubic) regression models were fitted to estimate the temporal relationship between years of drinking cessation and risk of cancer.

Results

- Stopping drinking indeed reduced the risks but it took 15–20 years, before the risks were as low as for lifetime abstainers.

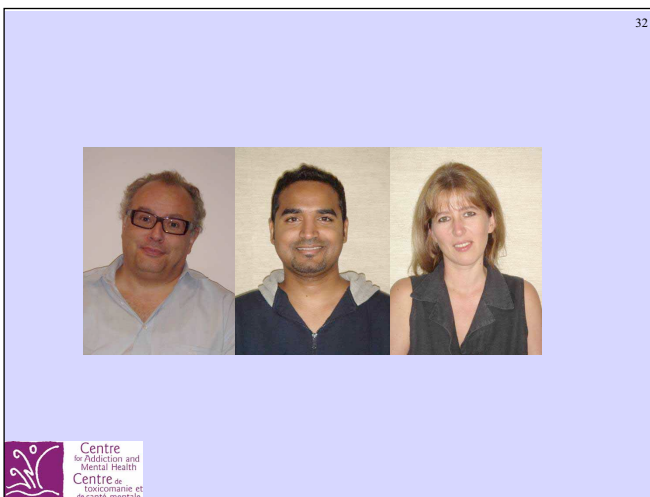
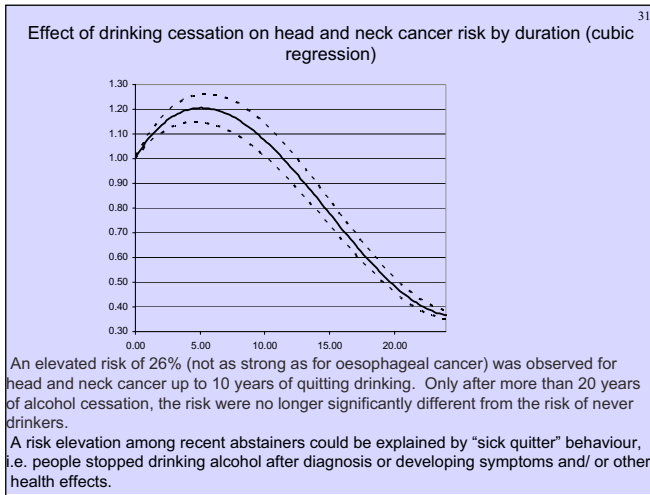


Effect of drinking cessation on oesophageal cancer risk by duration (cubic regression)



Risk of oesophageal cancer significantly increased within the first 2 years following cessation and was 2.5 times higher than that of current drinkers. Following this, the risk started decreasing rapidly and reached the risk of never drinkers after more than 15 years of abstinence. In total 63% of risk reduction was observed after 15 years of quitting drinking compared to current drinkers.

Jürgen Rehm *continued*



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Centre de toxicomanie et de santé mentale

John McLaughlin

Cancer Prevention in Ontario: Action on Alcohol

John McLaughlin

VP, Preventive Oncology, CCO
Professor, Public Health Scientist, U of T
Senior Investigator, Samuel Lunenfeld Research Institute

For Alcohol, Cancer & Public Policy Seminar
October 2007



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Preventive Oncology Goals for 2008/09

1. Develop and implement programs and strategies that lead to a decline in colorectal cancer incidence and mortality rates
2. Develop and implement an integrated, evidence-based, population-wide model for cancer screening
3. Develop and implement **better practices for cancer prevention/risk factors** reaching out to regions and communities
4. Develop a strong, internationally recognized **population-based research program** aimed at improving the impact of cancer prevention and screening

4

Outline

- Goals & Directions for CCO
- Cancer 2020 – A Prevention Framework for Ontario
- Alcohol and Cancer in Ontario
 - Prevalence of alcohol use
 - Cancer trends for alcohol-related cancers
 - Attributable fraction
- Next Steps



2

Cancer 2020 Targets (2003)

Cancer Prevention Targets

Tobacco use
Diet and nutrition
Healthy body weight
Physical activity
Alcohol consumption
Occupational/
Environmental
carcinogens
Ultraviolet exposure
Viral infections

Cancer Screening Targets

Breast cancer
Cervical cancer
Colorectal cancer

Emerging Issues

Medications and
supplements
New developments in
screening



5

CCO Vision: Working together to create the best cancer system in the world.

CCO Mission: We will improve the performance of the cancer system by *driving quality, accountability and innovation* in all cancer-related services

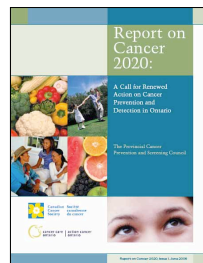
Preventive Oncology Goal: Preventing cancer together

PO Purpose: Undertake/improve activities & processes for cancer surveillance, prevention, early detection and related research



3

Report on Cancer 2020 (update in 2006)

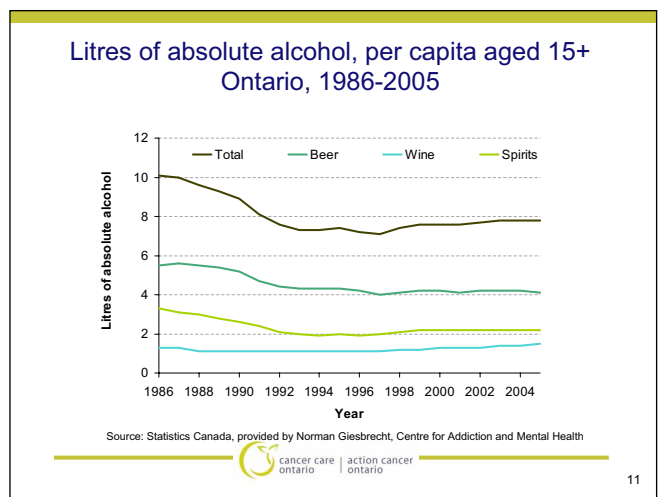
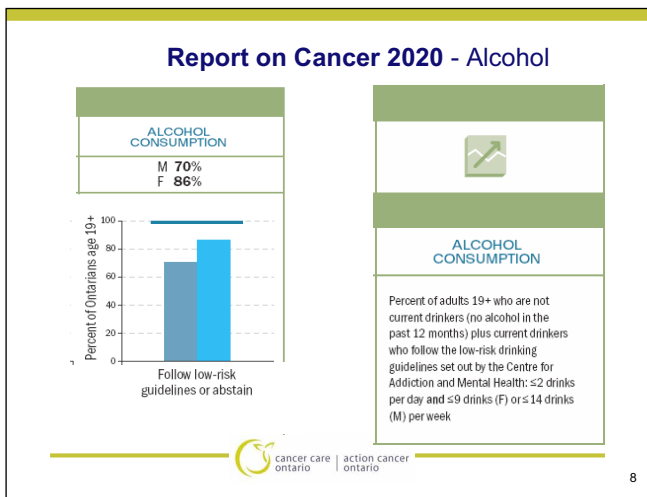
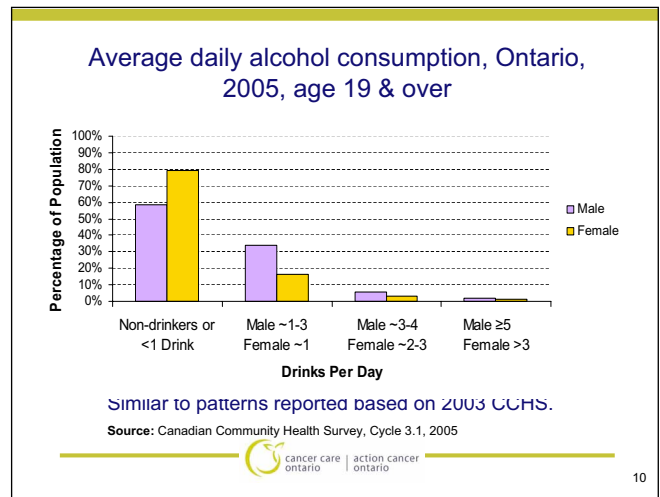
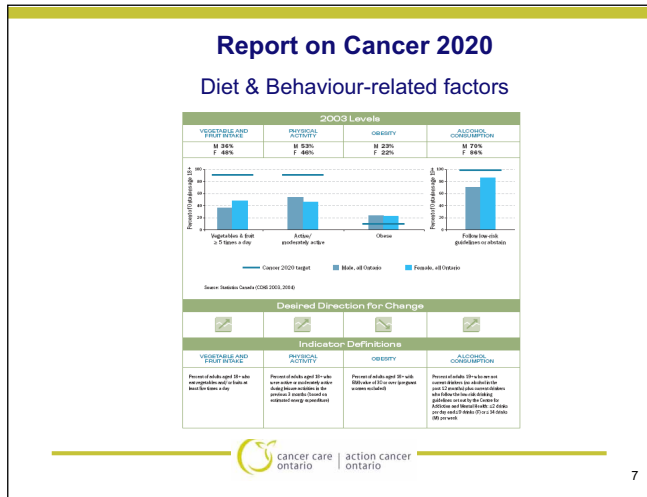


- A call for renewed action and sustained investment in cancer prevention and detection in Ontario
- Provides baseline estimates and indicators in several key areas against which progress towards Cancer 2020 targets will be measured
- Highlights key provincial initiatives accomplished since the release of the *Action Plan*
- Sets out recommendations for action to keep us on track to achieve 2020 targets



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John McLaughlin *continued*



Cancer 2020 Report (cont)

Nutrition, Physical Activity, Obesity and Alcohol

Summary of Targets and Priorities from the Cancer 2020 Action Plan

Cancer 2020 Targets:

- 90% of Ontarians consume five or more servings of vegetables and fruit daily
- 90% of Ontarians participate in moderate to vigorous activity on most days of the week
- 10% of Ontarians are obese, as measured by a *Body Mass Index* (BMI) over 30
- 98% of Ontarians follow the low-risk drinking guidelines set out by the Centre for Addiction and Mental Health

Cancer 2020 Priorities:

- develop a comprehensive provincial nutrition and healthy body weight strategy, modeled on the Smoke-Free Ontario Strategy
- support additional investment in an active living strategy in Ontario to impact sedentary lifestyles
- support efforts to develop a comprehensive alcohol strategy for Ontario

cancer care ontario | action cancer ontario

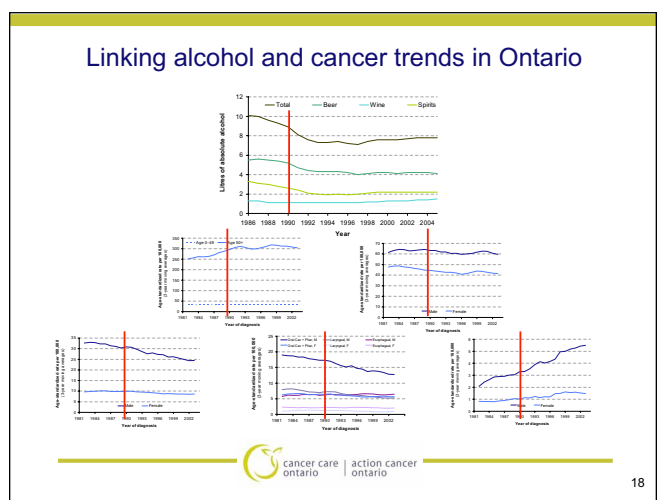
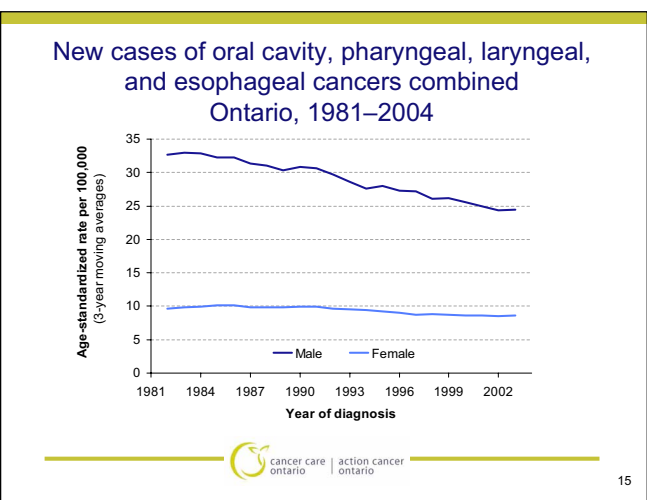
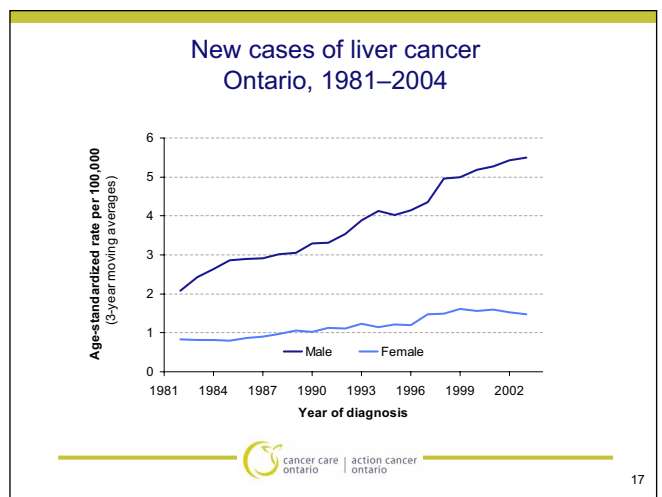
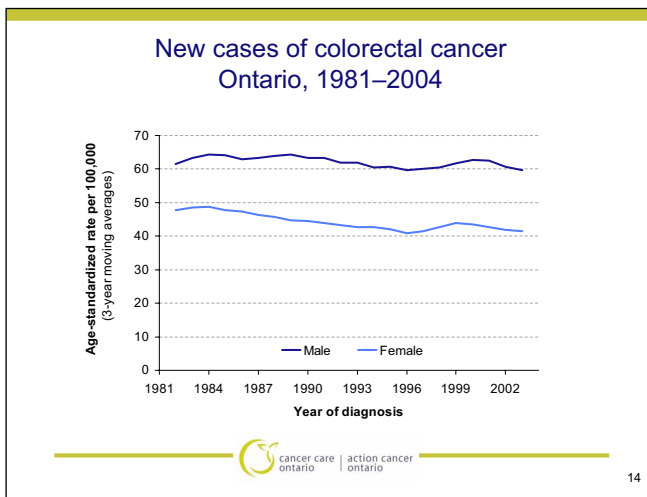
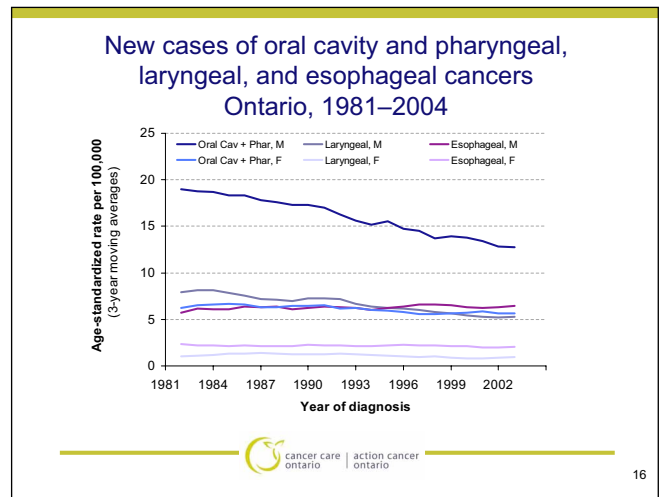
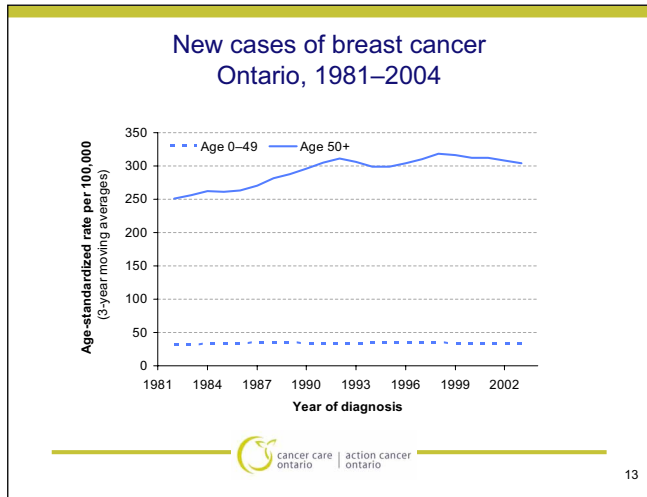
Cancer Incidence Trends for Alcohol-related Cancers in Ontario

- Breast
- Colorectal
- Oral cavity
- Pharyngeal
- Laryngeal
- Esophageal
- Liver

(Ranked by incidence)

cancer care ontario | action cancer ontario

John McLaughlin *continued*



John McLaughlin *continued*

Population Attributable Fraction

PAF% = $[(Pe \times (RR-1)) / (1 + Pe(RR-1))] \times 100$
 Where, Pe = proportion of population exposed
 RR = relative risk

Average daily alcohol consumption categories used to calculate PAF

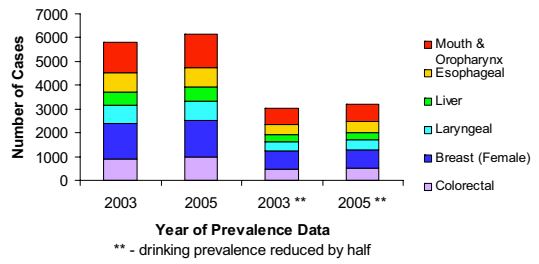
Sex	Category 1		Category 2		Category 3	
	Grams per day	# of drinks	Grams per day	# of drinks	Grams per day	# of drinks
Male	0.25-40	~ 1-3	40-60	~ 3-4	≥ 60	≥ 5
Female	0.25-20	~ 1	20-40	~ 2-3	≥ 40	> 3

➤ Canadian standard drink contains 13.6 grams of alcohol (= 12 oz / 341 mL can or bottle of beer; 5 oz glass of table wine; 1.5 oz shot of liquor (rye, rum, whiskey, vodka))



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Cumulative cases attributable to alcohol by cancer type, Ontario, 2000-2004, age 19 & over



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Relative risks for alcohol consumption and various alcohol-related cancers used to calculate PAF

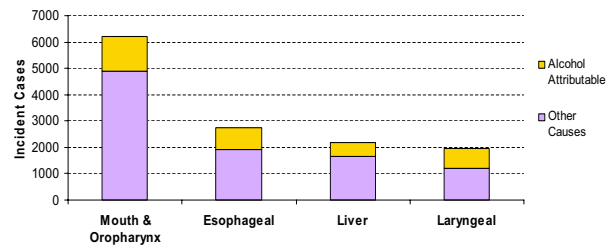
Cancer Site	Relative Risk					
	Category 1		Category 2		Category 3	
	M	F	M	F	M	F
Mouth & Oropharynx*	1.45	1.45	1.85	1.85	5.39	5.39
Esophageal*	1.80	1.80	2.38	2.38	4.36	4.36
Liver*	1.45	1.45	3.03	3.03	3.60	3.60
Laryngeal*	1.83	1.83	3.90	3.90	4.93	4.93
Breast †	---	1.14	---	1.41	---	1.59
Colorectal‡	1.04	0.99	1.41	1.11	1.41	1.41

*Gujjah et al. †Ridolfo et al. ‡Cho et al.



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Alcohol-attributable fractions for various alcohol related cancers, Ontario, 2000-2004, age 19 & over



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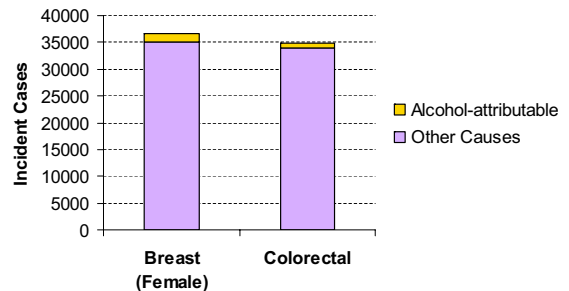
Population-attributable fractions and cumulative incident cases attributable to alcohol, Ontario, 2000-2004, age 19 & over

Cancer Site	2003 Alcohol Consumption Rates			2005 Alcohol Consumption Rates		
	PAF Male	PAF Female	Attrib. Cases 2000 - 2004	PAF Male	PAF Female	Attrib. Cases 2000 - 2004
Mouth & Oropharynx	24.6	14.3	1314	26.7	14.6	1406
Esophageal	33.5	19.3	806	35.6	19.6	851
Liver	27.2	15.5	533	29.3	15.9	570
Laryngeal	41.5	24.2	757	44.4	24.8	806
Breast	---	4.11	1502	---	4.2	1541
Colorectal	4.17	0.83	909	4.6	0.85	989
			5821			6163



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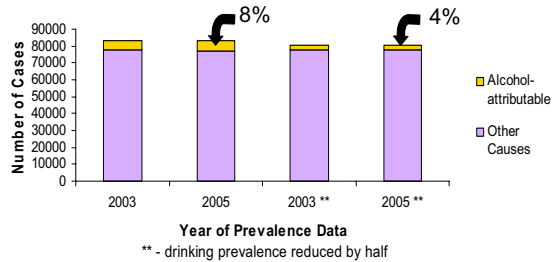
Alcohol-attributable fractions for various alcohol related cancers, Ontario, 2000-2004, age 19 & over



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John McLaughlin *continued*

Combined cases attributable to alcohol for 6 related cancers, Ontario, 2000-2004, age 19 & over



OCC - Questionnaires & Measurement

- Demographics
- Family history
- Health history
- Reproductive history
- Smoking, alcohol
- Medications
- Exercise, Diet
- Screening behavior
- Environment, residence, occupation
- Physical measures (Ht, Wt, Wst-Circ, BP)
- Biological measures
- Outcomes

Ontario Cancer Cohort
Status & Plan

- With support from OICR, OCRN, CCO, and in partnership with national (e.g., CCRA) and international partners
- **Phase I** (current): Develop methodologies and operational parameters for a population-based cohort study; produce a detailed protocol and operational plan
Completion date: March 2008
– *Submission of proposal for longer-term funding; extensive peer-review process, and if successful...*
- **Phase II**: Implement a large-scale and long-term cohort platform across Ontario
Start date: July 2008 Completion date: On-going

Next Steps
in Preventing Cancer Together


- Establish evidence-based guidelines for cancer prevention programs
- Enhance surveillance and risk factor monitoring
- Increase knowledge through research and evaluation
- Develop, implement & evaluate province-wide cancer prevention programs
- Working with partners...

OCC – Goals & Impacts

The OCC will:

- Serve as a **population laboratory for Ontario**, being an integrated platform for a wide range of studies of cancer and other chronic diseases
- launch studies to advance knowledge of the etiology, biology, population impact through prevention and early detection
- acquire data to explore complexity, discover and characterize determinants (including gene-environment-person interactions)
- explain cancer rate variation across the province
- track and evaluate risk factors, and behaviour change at individual and group levels
- harmonize with Ontario Tumour Bank and other provincial, national, and international initiatives, to characterize tumour heterogeneity and its determinants
- engage Ontarians in cancer research and health promotion


Heather Logan


 Canadian Cancer Society / Société canadienne du cancer

**Alcohol and Cancer:
Policies and Public Health Messages
from the Canadian Cancer Society**


Heather Logan
 Director, Cancer Control Policy and Information
 Canadian Cancer Society
 October 31, 2007

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Evaluating evidence: study design

- Systematic reviews and Meta-analyses
- Randomized control trials
- Non-randomized control trials
- Cohort and case-control studies
- Case study, observational studies
- Expert opinion, including consensus panels
- Individual opinion



Strength of evidence

With each study, consider:

- Size of the study population: larger = greater confidence
- Length of follow-up: longer = greater confidence
- Number of centres involved: more = greater confidence
- Ability to control for bias and confounders
- Accuracy of data analysis, conclusions and interpretation of statistical results
- Source of publication/release of results


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Agenda

- CCS process for developing policies and public health messages
- Alcohol and cancer: CCS interpretation of the evidence
- CCS strategic partnerships and directions


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Evidence: AICR/WCRF - Nutrition, Food and Cancer Prevention (1997)

- Convincing evidence that alcohol increases the risk of cancers of the:
 - mouth
 - pharynx
 - larynx
 - esophagus
- Alcohol probably increases risk of cancers of the:
 - colon and rectum
 - breast, even at very low levels of consumption
- Possibly increases risk of lung
- Tobacco accentuates risk
- Risk a function of amount of alcohol consumed


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Policy Development - Considerations

- **Informed by scientific evidence**
- **Conscious of precautionary principle - where evidence is inconsistent or inconclusive but threat of harm to human health exists**
- **Weighted heavily towards body of evidence versus single studies.**


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US National Cancer Institute (2005)

- Drinking alcohol increases the risk of cancers of the:
 - mouth
 - pharynx
 - larynx
 - esophagus
 - liver (men)
 - breast (women)
- Risk increases after one daily drink for women and two for men.
- Two drinks per day increase risk of breast cancer by 25%
- Using alcohol with tobacco is riskier than using either one alone

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US Department of Health and Human Health (2006)

- Alcoholic beverage consumption known to be a human carcinogen based on sufficient evidence from human studies
 - Mouth
 - Pharynx
 - Larynx
 - Esophagus
 } Moderate to strong association
- Liver
 - Breast
 } Weaker but probably causal association

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Alcohol and Cancer : Best Advice, CAMH (March 2007)

- One standard drink per day (12 grams) is associated with a 10 % increase in breast cancer risk compared to non-drinkers (Ellison et al, 2001)
- Each 10g (1 drink) of alcohol per day increases breast cancer risk by 7% (Hamajima et al, 2002)
- Of all of the deaths attributed to alcohol, cancer accounted for 20% of all of the disease categories
- Drinking is often accompanied by smoking
- When tobacco and alcohol are combined, the risk for certain cancers increases dramatically

http://www.toronto.ca/health/resources/tcpc/pdf/tcpc_alcohol_cancer_advice.pdf

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American Cancer Society (2006)

- Strongest associations:
 - mouth – six times more common among alcohol users
 - esophagus
 - larynx
 - pharynx
 - breast
 - liver
- Reducing the amount of alcohol a person drinks will sharply reduce cancer risk
- Quitting smoking will also reduce the effect of alcohol on cancers of the mouth, esophagus, pharynx and larynx

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Effective Policies – Alcohol and Cancer

Alcohol and Cancer - Best Advice, CAMH (March 2007)

- Put alcohol on the agenda of chronic disease and cancer prevention
- Build more effective links with mainstream cancer organizations
- Promote effective interventions
- Develop effective information dissemination strategies
- Promote monitoring, research and prevention planning

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International Agency for Research on Cancer (IARC, 2007 – full report to follow)

- Regular alcohol consumption based on studies of different design and in different populations around the world have consistently shown an association with:
 - oral cavity (mouth)
 - pharynx
 - larynx
 - esophagus
 – 50 g of alcohol increases the risk for these cancers two- to three-fold, compared with the risk in non-drinkers.
- Strong/consistent evidence for cancer of the liver, breast (>100 studies), and colon (>50 studies)
- Concurrent tobacco use multiples risk

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WHO Effective Population level interventions – Alcohol Consumption Reduction (2007)

- Pricing and taxation
- Identify and enforce minimum age requirements for legal purchase
- Restrictions on hours or days of sale


Considerations:

- Dependence of government on alcohol trade for tax income
- Patterns of alcohol use in different segments of the population
- Knowledge, attitudes and behaviors regarding alcohol use
- Political will/interest

Like most prevention efforts, the combination of population based (public policy) and individual approaches (individual action) are likely to be the most successful

<http://www.who.int/cancer/modules/Prevention%20Module.pdf>

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Heather Logan *continued*



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CCS Partnerships: Cancer 2020 - Action Plan Priorities, Targets and Recommendations

- To support efforts to develop a comprehensive alcohol strategy for Ontario
- promote policies and interventions that will curtail the current rising level in the overall rate of alcohol consumption and reduce the proportion of Ontarians who drink at high risk.
- 70% males and 86% of females either abstain or follow the low-risk drinking guidelines.
- 98% of Ontarians follow the low-risk drinking guidelines set out by the Centre for Addiction and Mental Health

http://www.cancer.ca/ccs/intermet/standard/0_3182_3543_374615_45760937_langid-en_00.html

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CCS Partnerships: Ontario Chronic Disease Prevention Alliance

- Mission: to provide collaborative leadership to support a comprehensive chronic disease prevention system for Ontario by:
 - planning and coordination
 - public policy
 - advocacy and knowledge exchange
- Resulting in the following outcomes:
 - planned and coordinated chronic disease prevention activities
 - public policies that address the prevention of chronic disease
 - effective creation and exchange of knowledge

<http://www.ocdpa.on.ca/>

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CCS Partnerships: Toronto Cancer Prevention Coalition

- prevention action plan includes alcohol reduction
- restricted access:
 - advertising
 - promotion
 - pricing
 - server training
 - partnership with public health to disseminate risk reduction messages

<http://www.toronto.ca/health/resources/tcpc/index.htm>

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CCS Partnerships: Chronic Disease Prevention Alliance of Canada (CDPAC)

- Mission: to foster and help sustain a coordinated, countrywide movement towards an integrated population health approach for prevention of chronic diseases in Canada through collaborative leadership, advocacy, and capacity building
- CCS incoming Chair

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CCS Partnerships: Ontario Ministry of Health Promotion and CAMH

- FOCUS Community Program
 - a five-year, \$12-million program to prevent alcohol and other drug abuse in 22 Ontario communities
 - children and youth
 - Funded projects include:
 - ACTION (alcohol, cannabis, and tobacco health promotion project for youth)
 - Ontario Drug Awareness partnership
 - Family and Youth information program
 - Preventative Education Programs and Information services
 - Alcohol policy network

<http://www.health.gov.on.ca/english/public/pub/hipromo/hipromo.html>

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Policy and partnerships

Existing information regarding alcohol and risk BUT:

- AICR/WCRF release will prompt review of diet, nutrition and cancer prevention messaging, including alcohol use
- Release of full IARC monograph will prompt review of alcohol and cancer specific messaging

Commitment to partnerships to advance collective efforts to control cancer and chronic disease

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Heather Logan *continued*



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Summary

- Acknowledge evidence and invest in research
- Inform Canadians
- Establish and enforce health first public policy
- Create the environment for healthy individual action
- Collaborate to share knowledge, resources, and ideas
- Measure effectiveness of interventions and programs

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