

Seven More Years:
The impact of smoking,
alcohol, diet, physical
activity and stress on
**HEALTH AND LIFE
EXPECTANCY**
in Ontario

Summary

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SEVEN MORE YEARS: THE IMPACT OF SMOKING, ALCOHOL, DIET, PHYSICAL ACTIVITY AND STRESS ON HEALTH AND LIFE EXPECTANCY IN ONTARIO

This report examines the burden of five behavioural health risks—*smoking, unhealthy alcohol consumption, poor diet, physical inactivity* and *high stress*—and their impact on **life expectancy** and **health-adjusted life expectancy** in Ontario.

The findings expand our understanding of the benefits of healthy living by quantifying the impact of the five health risks on Ontarians' overall health.

You are invited to view the full report which is available for download at www.ices.on.ca or at www.oahpp.ca.

The opinions, results and conclusions included in this report are those of the authors and are independent from the funding sources. No endorsement by the Institute for Clinical Evaluative Sciences (ICES), Public Health Ontario (PHO) or the Ontario Ministry of Health and Long-Term Care (MOHLTC) is intended or should be inferred.

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Key Findings

Ontario's population can gain seven more years in life expectancy and have a better quality of life by living healthier lives.

To become a healthier province, Ontario needs to build on its success in achieving a reduction in smoking and focus similar attention on reducing other risk factors.

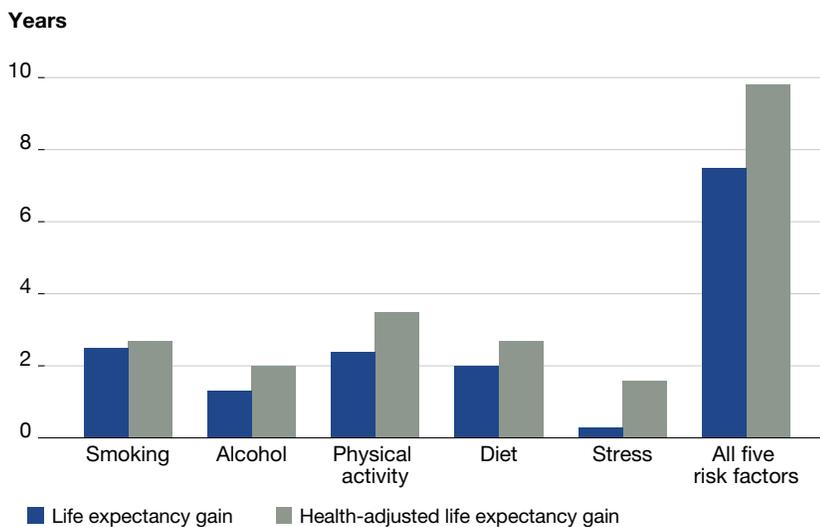
The Impact of Five Unhealthy Behaviours

- 60% of Ontario deaths in 2007 were attributable to smoking, unhealthy alcohol consumption, poor diet, physical inactivity and high stress.
- Nearly all Ontarians reported at least one of the five unhealthy behaviours. Only 1.4% had none.
- People with the unhealthiest behaviour for all five risks had much shorter life expectancy than people with none of the risks (68.5 years versus 88.6 for men; 71.5 years versus 92.5 for women).
- Collectively, the five risks reduced life expectancy in Ontario by 7.5 years (7.9 years for men and 7.1 years for

women). Ontarians lost 9.8 years of “health-adjusted life expectancy” due to the five unhealthy behaviours. By reducing these risks, Ontarians would not only live longer, but they would also increase the number of years they spend in good health.

- Current smoking, physical inactivity and unhealthy eating had the greatest impact on reduced life expectancy (2.5, 2.4 and 2.0 years, respectively).
- The population health burdens from smoking and from physical inactivity were about the same. This is because the overall impact of each behavioural risk is a combination of the number of people exposed to the risk and the individual increase in mortality associated with that risk. Even though smoking carries a much higher individual risk of death, a much higher proportion of Ontarians are inactive than smoke.
- Ontarians in the most deprived neighbourhoods had a life expectancy nearly 4.5 years lower than those in the best socioeconomic conditions. This equity gap would be almost 50% lower if behavioural risks were the same across socioeconomic position. Smoking was the biggest contributor. This suggests that reducing behavioural health risks in lower socioeconomic groups could play a large role in reducing health inequities.

A healthier Ontario – the impact of reducing unhealthy behaviour



Individuals can calculate their own life expectancy with a new [Life Expectancy Calculator](http://www.rrasp-phirn.ca/risktools) (<http://www.rrasp-phirn.ca/risktools>) based on smoking, alcohol, food, exercise and stress level. This tool is also accessible from the [ICES](#) and [PHO](#) websites.

Impact of eliminating smoking, unhealthy alcohol consumption, physical inactivity, inadequate diet and high stress on life expectancy and health-adjusted life expectancy for Ontario adults aged 20 and older, 2007

2 | How can Ontario become the healthiest province in Canada?

The study explores two preventive scenarios:

1) What would happen if each Ontarian improved the unhealthy behaviour that impacts him or her the most? Where should people focus their efforts?

- Life expectancy would increase by up to 3.7 years if each Ontarian improved his or her most impactful behavioural risk.
- For most people, inactivity has the biggest impact on their health; 37% need to become physically active. Another 29% need to improve their diet and 22% would have to work on quitting smoking.

2) How can Ontario reach the healthy living targets that British Columbia (currently the healthiest province) has set? What would be the population health impact?

- Ontario lags behind British Columbia in targets for physical activity, diet and smoking.
- Collectively, 77% of Ontarians would need to reduce their unhealthy behaviours for Ontario to meet all three of British Columbia's targets.
- Life expectancy for Ontarians would increase by 3.0 years if Ontario achieved BC's healthy living targets.

Conclusions

Compared to Ontarians, people in British Columbia smoke less, are more active, drink less alcohol, eat more healthy food, and experience less stress. In large measure, this is why British Columbia has led the country in life expectancy for almost 20 years. To achieve leading status, Ontario needs to build on its successes as a leader in smoking reduction policy and focus similar attention on increasing physical activity and healthy eating.

In addition to adding years to life, improving healthy living in Ontario would also add life to years. People with healthy behaviours have consistently better health-related quality of life compared to people with poor health behaviours. As a result, Ontarians would spend more years in good health and require less support and care.

The five unhealthy behaviours are associated with more than 50 diseases. Although this study did not assess their specific impact on health care needs or development of chronic diseases, health behaviour improvements could be expected to reduce demand on both the health care system and informal family caregiving.

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ABOUT SEVEN MORE YEARS: THE IMPACT OF SMOKING, ALCOHOL, DIET, PHYSICAL ACTIVITY AND STRESS ON HEALTH AND LIFE EXPECTANCY IN ONTARIO

Objectives

1. To describe the health of Ontarians who have various levels of healthy versus unhealthy living.
2. To determine the contribution of these five behavioural health risks on Ontarians' life expectancy and health-adjusted life expectancy.
3. To calculate health gains that would be achieved in Ontario through two preventive scenarios, in order to examine policy implications of the study findings

We developed a model to estimate the risk of death associated with five health behaviours in Ontario. To create the model, we calculated the risk of death for 78,597 Ontarians who responded to surveys from 2001 to 2005 about their health behaviours, and agreed to have their responses linked to their personal health information. We tracked mortality among these respondents from the date of their survey to 2010. We then applied this model to a 2007 community health survey, the most recent available, to estimate life expectancy and health-adjusted life expectancy for all Ontarians with and without the five behavioural health risks.

Definitions

Life expectancy: a calculation of how long a person or population would be expected to live, on average, given unchanging risk of death from a specific point in time. This report estimates life expectancy for Ontarians in 2007.

Health-adjusted life expectancy: combines life expectancy with a measure of health-related quality of life, to estimate the number of years people can be expected to live in good health.

HEALTH BEHAVIOUR RISKS

BEHAVIOUR	CATEGORY	DEFINITION: Highest risk levels are in boldface and lowest risk levels (reference group) are in italics
Smoking	Heavy smoker	Daily current smoker (≥1 pack/day)
	Light smoker	Daily current smoker (<1 pack/day)
	Former smoker	Former daily smoker
	<i>Non-smoker</i>	<i>Former occasional smoker or never smoker</i>
Alcohol	Binge drinker	Bingeing*: >24 (men) or >17 (women) drinks/week in previous month
	Heavy drinker	10 to 24 (men) or 6 to 17 (women) drinks/week
	<i>Moderate drinker</i>	<i>5 to 9 (men) or 3 to 5 (women) drinks/week</i>
	Light drinker	0 to 4 (men) or 0 to 2 (women) drinks/week
	Occasional drinker	<1 drink/month
	Current non-drinker	No alcohol consumption in the last 12 months
Physical activity	Inactive	0 to <1.5 METs/day
	Moderately active	1.5 to <3 METs/day
	<i>Active</i>	<i>≥3 METs/day</i>
Diet	Very poor diet	Index score ≤1
	Poor diet	Index score of 2 to 3
	Fair diet	Index score of 4
	<i>Adequate diet</i>	<i>Index score of 5</i>
Stress	High stress	Self-perceived stress: 'quite a bit' or 'extremely'
	<i>Low stress</i>	<i>Self-perceived stress: 'not at all', 'not very' or 'a bit'</i>

* Bingeing was defined as ≥5 drinks/day (men) or ≥4 drinks/day (women) on any day in the previous week or weekly bingeing behaviour in the previous month.

MET = metabolic equivalent of task; a measure of calories burned by type, duration and frequency of physical activity.

Index score = the healthiness of diet based on consumption of fruit and vegetables. Index points are awarded for the average number of daily servings of fruits/vegetables consumed (1 point for 0 to <1 servings; 2 points for 1 to <2, 3 points for 2 to <3, 4 points for 3 to <4 and 5 points for 4 or more servings). The following factors can also cause loss of 1 index point each (up to 3 points) : >1 serving of potato, >1 serving of fruit juice or no weekly servings of carrots.

ABOUT PHO

Public Health Ontario (PHO) is a Crown corporation dedicated to protecting and promoting the health of all Ontarians and reducing inequities in health. As a hub organization, PHO links public health practitioners, front-line health workers and researchers to the best scientific intelligence and knowledge from around the world.

Our mission is to support health care providers, the public health system and partner ministries in making informed decisions and taking informed action. PHO provides transparent and timely expert scientific advice, technical support and practical tools related to infection prevention and control; surveillance and epidemiology; health promotion, chronic disease and injury prevention; environmental and occupational health; health emergency preparedness; public health laboratory services; research; professional development; and knowledge services.

For more information, visit www.oahpp.ca

ABOUT ICES

The Institute for Clinical Evaluative Sciences (ICES) is an independent, non-profit organization that produces knowledge to enhance the effectiveness of health care for Ontarians. Internationally recognized for its innovative use of population-based health information, ICES evidence supports health policy development and guides changes to the organization and delivery of health care services.

Key to our work is our ability to link population based health information, at the patient level, in a way that ensures the privacy and confidentiality of personal health information. Linked databases reflecting 13 million of

33 million Canadians allow us to follow patient populations through diagnosis and treatment and to evaluate outcomes. ICES brings together the best and the brightest talent across Ontario. Many of our scientists are not only internationally recognized leaders in their fields but are also practicing clinicians who understand the grassroots of health care delivery, making the knowledge produced at ICES clinically focused and useful in changing practice. Other team members have statistical training, epidemiological backgrounds, project management or communications expertise. The variety of skill sets and educational backgrounds ensures a multi-disciplinary approach to issues and creates a real-world mosaic of perspectives that is vital to shaping Ontario's future health care system.

ICES receives core funding from the Ontario Ministry of Health and Long-Term Care. In addition, our faculty and staff compete for peer-reviewed grants from federal funding agencies, such as the Canadian Institutes of Health Research, and receive project-specific funds from provincial and national organizations. These combined sources enable ICES to have a large number of projects underway, covering a broad range of topics. The knowledge that arises from these efforts is always produced independent of our funding bodies, which is critical to our success as Ontario's objective, credible source of evidence guiding health care.

ABOUT THE OTTAWA HOSPITAL RESEARCH INSTITUTE

The Ottawa Hospital Research Institute (OHRI) is the research arm of The Ottawa Hospital and is an affiliated institute of the University of Ottawa, closely associated with the University's Faculties of Medicine and Health Sciences. The OHRI includes more than 1,500 scientists, clinical investigators, graduate students, postdoctoral fellows and staff conducting research to improve the understanding, prevention, diagnosis and treatment of human disease.