

More than a third of all cancers affecting Canadians can be prevented by combination of policymaking, health education

May 8 2019



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We know that there are many ways in which cancer can be prevented, but how many cancers can we prevent? And what do we have to do to really have an impact on reducing the burden of this disease? A [special](#)

[issue of *Preventive Medicine* responds to these questions, showcasing results from the Canadian Population Attributable Risk of Cancer \(ComPARE\) project—the most comprehensive, up-to-date estimate of the preventable burden of cancer in Canada.](#)

"In the last few years, the notion that most cancer cases are due to bad luck and thus unavoidable has become common in the medical literature," noted the issue's Guest Editor Salaheddin M. Mahmud, MD, Ph.D., Vaccine and Drug Evaluation Centre, Department of Community Health Sciences, University of Manitoba, Winnipeg, MB, Canada.

"While it is true that much progress is needed to find better treatments for cancer, studies such as that conducted by the ComPARE consortium show unequivocally that there is much that can be done to prevent cancer."

Despite significant advances in treatment and early detection, cancer is now the leading cause of death among Canadians, with one of every three deaths in 2017 attributed to cancer. Unfortunately, progress in designing and implementing effective public policies and cancer prevention programs has been hampered by the lack of current, accurate, and comprehensive information on the relative importance of the factors that drive cancer incidence in Canada.

In order to address this critical gap, ComPARE, in partnership with the Canadian Cancer Society, brought together a multidisciplinary team of Canadian experts in epidemiology, biostatistics, cancer risk factors, cancer prevention, and knowledge translation. Their goal was to estimate the burden of cancer in Canada caused by more than 20 modifiable lifestyle, environmental, and infectious agent risk factors. In a collection of 16 peer-reviewed articles, this issue provides estimates of the current (2015) number and percentage of cancers in Canada attributable to these risk factors. It also projects how changes in the prevalence of these risk factors through prevention efforts could affect cancer incidence in the

future (up to 2042). Where possible, estimates are presented by sex, age, and province/territory. No previous studies within Canada and few studies outside of Canada have examined the future preventable burden of cancer.

"Epidemiological studies backed by strong basic research have already given us much of the knowledge on modifiable risk factors. The papers in this special issue translate the technical complexity of that science into actionable targets for cancer prevention," commented *Preventive Medicine's* Editor-in-Chief, Eduardo Franco, MPH, DrPH, Ph.D. (Hon), Professor and Director, Division of Cancer Epidemiology, and Chairman, Department of Oncology, at McGill University's Faculty of Medicine, in Montreal, QC, Canada.

Key ComPARE Findings

- About 33-37 percent of cancers in Canada were caused by modifiable lifestyle, environmental, and infectious agent risk factors. This translates to approximately 62,000 to 70,000 cancer cases in 2015.
- Tobacco was the leading preventable cause of cancer, followed by physical inactivity, excess body weight, HPV, and [alcohol consumption](#).
- Cancers of the cervix, lung, and head and neck were the most preventable cancers in Canada.
- If current trends continue, about 102,000 cancers in Canada would be caused by modifiable risk factors in 2042.
- By 2042, excess body weight is projected to be the second leading preventable cause of cancer.
- Over 40,000 cancers could be prevented every year with a substantial reduction of all modifiable risk factors. Over 11,000 and 6,000 cancers could be prevented every year with a substantial reduction in smoking and excess body weight,

respectively.

Also covered are the burden of cancer attributable to exposure to occupational, radon, and particulate matter; consumption of red and processed meat; low consumption of fruits and vegetables; infections; and ultraviolet radiation.

ComPARE used an integrated knowledge translation approach to maximize the impact of the study on cancer prevention by increasing the relevance, reach, and uptake of the results to users. Population-attributable risks (PAR) and potential impact fractions (PIF) were employed to model current (attributable) and future (avoidable) cancers. All analyses were guided by a common methodological framework.

These results are expected to have an important impact on cancer prevention decision-making in Canada. They are directly relevant for guiding cancer prevention research, informing program development, influencing behavior change, and advocating for new policies and interventions aimed at decreasing the burden of cancer in Canada. They will also inform national and provincial policy makers about the risk factors and cancer sites most amenable to intervention(s) and help identify which [cancer prevention](#) policies could have the [greatest impact](#).

Beyond Canada, it is anticipated that the findings of the ComPARE project will influence other countries and jurisdictions to conduct similar analyses.

"The greatest value of this collection is that it is much greater than the sum of the parts," said Dr. Mahmud. "Each article gives enough attention with sufficient methodological detail on a particular modifiable risk factor to permit investigators in other countries to follow the same roadmap. The time has come to act on the key discoveries from [cancer](#) prevention research and turn them into measurable benefits for the

population."

Provided by Elsevier

Citation: More than a third of all cancers affecting Canadians can be prevented by combination of policymaking, health education (2019, May 8) retrieved 25 April 2024 from <https://medicalxpress.com/news/2019-05-cancers-affecting-canadians-combination-policymaking.html>

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