

Briefing for Public Health Officials

HEALTH OF CANADIANS IN A CHANGING CLIMATE: SCIENCE ASSESSMENT 2022

Overview

The report *Health of Canadians in a Changing Climate: Advancing Our Knowledge for Action* assesses the latest research and knowledge about the effects of climate change on health and health systems, populations most at risk, and effective adaptation measures to protect Canadians and their communities. The report evaluates the scientific evidence related to the following topics:

- Climate change and Indigenous Peoples' health
- Natural hazards
- Mental health and well-being
- Air quality
- Infectious diseases
- Water quality, quantity, and security
- Food safety and security
- Climate change and health equity
- Adaptation and health system resilience

Who is This Report For?

This report will support actions by public health officials, such as those involved in environmental health, health communication, food inspection, emergency preparedness, travel medicine, disease prevention, healthy lifestyles, communicable diseases, healthy growth, and healthy communities, to address the health effects of climate change.



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Climate change is already affecting the health of Canadians

- Climate change has been a driver of recent health effects related to rising temperatures and extreme heat, wildfires, and the expansion of zoonotic diseases into Canada, such as Lyme disease
- Without greater adaptation efforts, projected increases in the frequency and severity of intense precipitation events, droughts, extreme heat, wildfires, and storms will directly affect health by causing more illness, injuries, and deaths
- Disruptions to food systems and water resources, worsening of air pollution, the emergence and re-emergence of climate-sensitive infectious diseases, effects on mental health, and increasing demands on health systems will continue to threaten Canadians' health

Did You Know?¹

93% of Canadians believe that climate change is having an impact on their health now or will in the future.

The number of days when the maximum temperature climbs over 30°C has increased in Canada by about one to three days annually from 1948 to 2016.

In 2021, extreme heat events in British Columbia were linked to an estimated 740 deaths.²

Warmer temperatures mean greater survival of exotic vectors once they are carried into

Canada, making it more likely that the diseases they carry are transmitted here (e.g., dengue, malaria, chikungunya, Zika). Surveillance shows an emerging population of *Aedes albopictus* mosquitoes, which are capable of transmitting dengue, in a very limited area of Southern Ontario.

The current burden of mental ill health in Canada is likely to rise as a result of climate change as mental health effects from acute hazards (e.g., post-traumatic stress disorder, psychosis, distress, suicide) increase along with longer-term more generalized effects (e.g., ecoanxiety, eco-grief).

Climate change is increasing risks of food insecurity through disruptions to food systems, rises in food prices, and negative nutritional effects. Climate change has been a significant driver of food price increases in Canada since 2016.

Wildfire smoke, which can spread over vast areas of the country, contributed to an estimated 620 to 2700 deaths annually in Canada from 2013 to 2018. The public health burden of wildfire smoke is expected to increase in the future due to climate change.

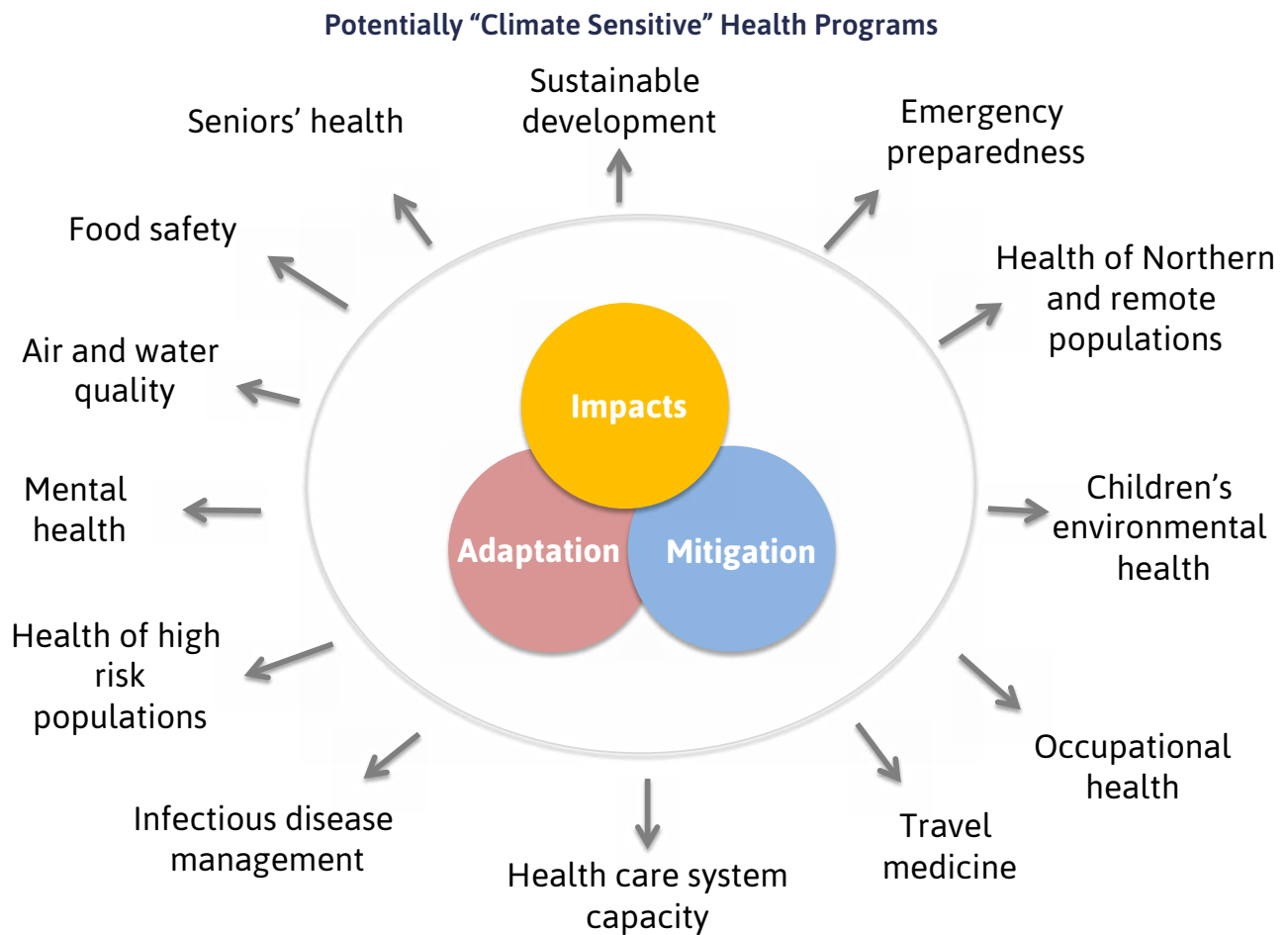
Approximately 4,500–6,500 premature deaths could be avoided in Canada annually between 2030 and 2100 with GHG emission reductions associated with an intermediate emissions scenario (Representative Concentration Pathway RCP6.0).

Climate change will threaten the effectiveness of many public health programs in the absence of adaptation measures.

¹ Please see the assessment report for a full listing of sources for this section. Berry, P., & Schnitter, R. (Eds.). (2022). *Health of Canadians in a Changing Climate: Advancing our Knowledge for Action*. Ottawa, ON: Government of Canada.

² Henderson, S.B., McLean, K.E., Lee, M., Kosatsky, T. (2021). Extreme heat events are public health emergencies. *BC Medical Journal*, 63(9), pg. 366-367. <https://bcmj.org/bccdc/extreme-heat-events-are-public-health-emergencies>





The impacts of climate change will affect Canadians differently

Some Canadians are affected more severely by climate change as exposure and sensitivity to hazards and the ability to take protective measures varies across and within populations and communities.

Some groups who may experience increased risk to the health effects of climate change include:

- First Nations, Inuit, and Métis peoples
- Racialized populations
- People of a low socio-economic status
- People experiencing homelessness

- People with pre-existing health and mental conditions
- Children, seniors, and pregnant people
- First responders, police, health care workers, and social service workers

Adaptation measures can greatly reduce negative health impacts of climate change



Adaptation measures such as assessments of risks and vulnerabilities, integrated surveillance and warning systems, training of public health professionals, and public education can help prepare Canadians and build the climate resilience of health systems.

Many health authorities in Canada are increasing adaptation efforts. However, disparities in efforts exist across the country and adaptation needs to be rapidly scaled up to protect health as Canada

continues to warm. Indigenous knowledges can inform climate change and health-related decision-making at a variety of levels to benefit diverse stakeholders, including researchers, decision makers and community members.

To successfully protect all Canadians from the health impacts of climate change, adaptation actions should be inclusive and equitable and consider the needs of racialized, marginalized, and low income populations.

Box 2.9: Health system adaptations to reduce risks facing First Nations and Inuit peoples³

Arctic Climate Change Vulnerability Index

Aviation and marine transportation systems play invaluable roles in the Arctic, not only in supplying perishable goods, food, and mail, but also in accessing timely medical care (Debortoli et al., 2019). Climate change has the potential to disrupt these transportation systems, with significant impacts on health, well-being, and economic vitality in the region. Researchers have developed an Arctic Climate Change Vulnerability Index to assess the physical and social factors that influence exposure, sensitivity, and adaptive capacity to climate change that is reflective of Inuit values and sensitive to the ways in which communities are represented (Debortoli et al., 2019). The index draws on scientific indicators to assess exposure, sensitivity, and vulnerability, as well as qualitative data from Statistics Canada and ISC's Community Well-being Index to reflect adaptive capacity and resilience. This includes data on socio-economic and housing conditions, age demographics, and Indigenous knowledges. The latter was determined using data on the ability to speak Inuktitut coupled with data on the proportion of the community that consists of new immigrants, who were seen as having limited land skills or knowledge of the Arctic and no Inuit traditional knowledge. The index allows the effects of various climate change scenarios to be projected on air and marine transportation systems and may be useful for health system decision makers to inform adaptation plans.

³ Source: National Collaborating Centre for Indigenous Health (NCCIH). (2022). Climate Change and Indigenous Peoples' Health in Canada. In Berry, P., & Schnitter, R. (Eds.). (2022). [Health of Canadians in a Changing Climate: Advancing our Knowledge for Action](#). Ottawa, ON: Government of Canada.



Reducing GHG emissions can provide very large and immediate health co-benefits to Canadians

The economic value of the health co-benefits of GHG emissions reductions can help to offset the implementation costs of measures. Health co-benefits of taking actions against air pollution are estimated to include thousands of avoided premature deaths annually in Canada by the middle of the century.

Public health units can play a vital role in addressing the health risks of climate change

- Collect and disseminate information on climate change and health:
 - Conduct a climate change and health vulnerability and adaptation assessment in your jurisdiction
 - Develop communication strategies to educate people living in your community on how to protect themselves from climate change–related health risks
- Take action to prevent climate-related diseases and injuries:
 - Develop early warning and surveillance systems that incorporate climate data
 - Collaborate with health-important sectors to develop and implement effective adaptation measures
- Enhance public health preparedness activities:
 - Develop health emergency plans in collaboration with disaster management officials that address climate-related hazards
- Ensure that necessary services are provided to protect populations from climate change risks:
 - Prioritize groups who experience disproportionate health impacts of climate change
- Enhance climate change and health knowledge in your organization:
 - Develop training and education tools for public health staff

How to Use the National Assessment Report

Public health officials can use the national assessment report and supporting materials in a variety of ways:

- The findings can be used to understand and identify the health risks related to climate change as well as provide information on protective actions that Canadians can take
- The conceptual frameworks and case studies of adaptation and resilience building measures can help inform the development of local action plans
- The identified knowledge gaps can help inform development of local research agendas/projects
- The infographics and fact sheets can be shared with other health professionals and community partners to enhance understanding of climate change impacts on the health of Canadians and health systems



Helpful resources

- [Health of Canadians in a Changing Climate: Science Assessment 2022 – Factsheets and Decision maker Briefings](#)
- [Health of Canadians in a Changing Climate: Communication Products](#)
- [Canada’s Changing Climate Report](#)
- [The Ontario Climate Change and Health Vulnerability and Adaptation Assessment Guidelines: Technical Document](#)
- [Climate change and health: Vulnerability and adaptation assessment](#)

Source

Berry, P., & Schnitter, R. (Eds.). (2022). [Health of Canadians in a Changing Climate: Advancing our Knowledge for Action](#). Ottawa, ON: Government of Canada.

