Briefing for Health System Planners and Administrators

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 health system planners and administrators such as health delivery planners, emergency managers, facility operators, human resource managers, and financial analysts 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?

Globally, between 2005 and 2019, an average of 412 health facilities were damaged or destroyed by climate-related disasters annually, and such impacts are increasing.

The effects of climate change on health and on health systems in Canada are already evident and will increase in the absence of efforts to address existing vulnerabilities and close the "health adaptation gap."

Examples of the impacts of climate variability and change on Canadian health facilities:

- **Hotel-Dieu of St. Joseph Hospital, Perth-Andover, NB, 2012** – Flooding of more than 1 m of water resulted in the temporary closure of the hospital and the transfer of 21 patients to other facilities
- **Interior Health, BC, 2017** – Air quality warnings associated with wildfire smoke resulted in the temporary closure of 19 health care facilities. Over 800 patients had to be evacuated to other facilities
- **Eight health regions, QC, 2010** – A heat wave resulted in a 4% increase in emergency department admissions and a 33% increase in death rates for all health regions affected
- **Regina General Hospital, Regina, SK, 2007** – Operating theatres were closed for eight days due to high heat and humidity levels
- **Northern warming** – Rising temperatures are melting permafrost, requiring additional structural support for health care facility buildings

Climate change is increasing the probability of climate hazards combining and of cascading effects on communities. Dunrobin, Ontario, was affected by record flooding in 2017, devastating tornadoes in 2018, and further severe flooding in 2019. Such events can overwhelm health systems, leading to severe health impacts among Canadians.

According to a 2019 survey, only 8% of Canadian health care facilities had acknowledged climate change in their strategic plan or had identified climate risks in specific policies.

The Canadian health sector as a whole, primarily hospitals, pharmaceuticals, and physician services, is estimated to have emitted between 4.6% and 5.1% annually (29.6–33 Mt CO_2 equivalent) of total national GHG emissions from 2009 to 2014.

Approximately 4,500–6,500 premature deaths could be avoided in Canada annually between 2030 and 2100 with GHG emission reductions associated with RCP6.0.

Initiatives to improve energy conservation and reduce GHG emissions have potentially very large savings for Canadian hospitals; one study, which is likely an underestimate, suggested a savings of a cumulative $150 million per year in utility spending with an average payback period of seven years.

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
- Certain occupational groups (e.g., agricultural workers, people working outdoors and in the heat, first responders)

The effects of climate change can cause damage and disruption to health facilities, services and operations

Health care infrastructure, operations, financing, and staff, along with public health programming, can be impacted by extreme weather shocks and by chronic stresses from longer-term warming, reducing access to and quality of care for Canadians. Health facilities and services in rural and remote areas, and health systems that have not assessed and managed risks, face the greatest threats. Combining climate change hazards that can arise, for example, when extreme heat occurs with drought and a wildfire, can pose very severe risks to individuals and the health systems they rely on.

First Nations, Inuit, and Métis peoples face unique challenges in accessing health care such as inadequate health human resources, high staff turnover, low population density, geographic remoteness, jurisdictional conflicts over health care provision, lack of health and/or transportation infrastructure, reduced political power, increased travel costs, and a deficit of information on Indigenous Peoples' health to inform evidence-based practices.

Adaptation and GHG mitigation measures can support efforts to address climate change and reduce impacts on health

Efforts to achieve health co-benefits in the health sector by reducing GHGs and increasing climate resilience through adaptation offer a triple dividend for Canadians, specifically by (1) helping to make patients, staff, and communities safer during climate-related disasters and emergencies, (2) contributing to the slowing of climate change through the reduction of GHGs, and (3) achieving economic savings at health facilities that undertake adaptation efforts.

Measures such as health workforce training, improving occupational safety, protecting infrastructure from climate shocks and stresses, energy conservation and use of renewable energy sources can help prepare Canadians and build climate resilient and environmentally sustainable health systems. 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.

Box 10.6: Health care facility resilience to climate change: Nanaimo Regional General Hospital in British Columbia

The Nanaimo Regional General Hospital in British Colombia has recognized the importance of preparing for future climate risks by renovating its 247-bed facility for resilience. The hospital, originally constructed in 1960 to 1963, underwent numerous renovations and added a new emergency department in 2012 to sustainably mitigate risk in the event of an extreme weather event, and meet the demands of serving central Vancouver Island's 160,000 residents and an additional 400,000 referrals (Canadian Coalition for Green Health Care, 2015b).

To reduce energy costs while also lowering GHG emissions, the building's design incorporates several sustainability measures. During daylight hours, the majority of the building relies extensively on the use of day lighting and natural light from windows and courtyards, even in the trauma room, while operable windows allow for natural ventilation (Canadian Coalition for Green Health Care, 2015b). This decreases the reliance on electricity and allows for redundancy in the case of an emergency to improve patient outcomes and reduce staff stress. The building's heat recovery chiller features a below-ground labyrinth for heat storage, which can be used to pre-heat domestic hot water and to provide heating to exterior zones if needed, such as during an extreme weather event. Other measures include displacement ventilation, wood products associated with lower GHG emissions, extra roof insulation, solar shading, and digital controls (Canadian Coalition for Green Health Care, 2015b).

Health administrators can play a vital role in addressing the health risks of climate change

- Assess the vulnerability of health facilities and health services to the impacts of climate variability and future climate change
- Implement measures to ensure that medical facilities are climate-resilient and environmentally sustainable to prevent damage and injuries during climate disasters and ensure continuity of services and operations
- Improve the effectiveness of service delivery during and after climate-related hazards like severe storms, and prepare for combined or cascading events (e.g., flooding following a wildfire):
    - Develop contingency plans for the deployment of sufficient health personnel in case of acute shocks
    - Secure access to critical backup supplies
- Integrate climate change risk considerations into actions to maintain, upgrade or build and site new health infrastructure, such as hospitals and clinics
- Implement measures to reduce GHG emissions associated with service delivery and operations of health care facilities
- Equip the workforce with needed information and tools to prevent health impacts, and treat impacts when they occur
- Equip the workforce with needed information and tools to protect their own health when climate-related disasters occur
- Ensure that medical staff have access to mental health services following a climate-related disaster

How to Use the National Assessment Report

Health care administrators and health system decision makers can use the national assessment report and supporting materials in a variety of ways:

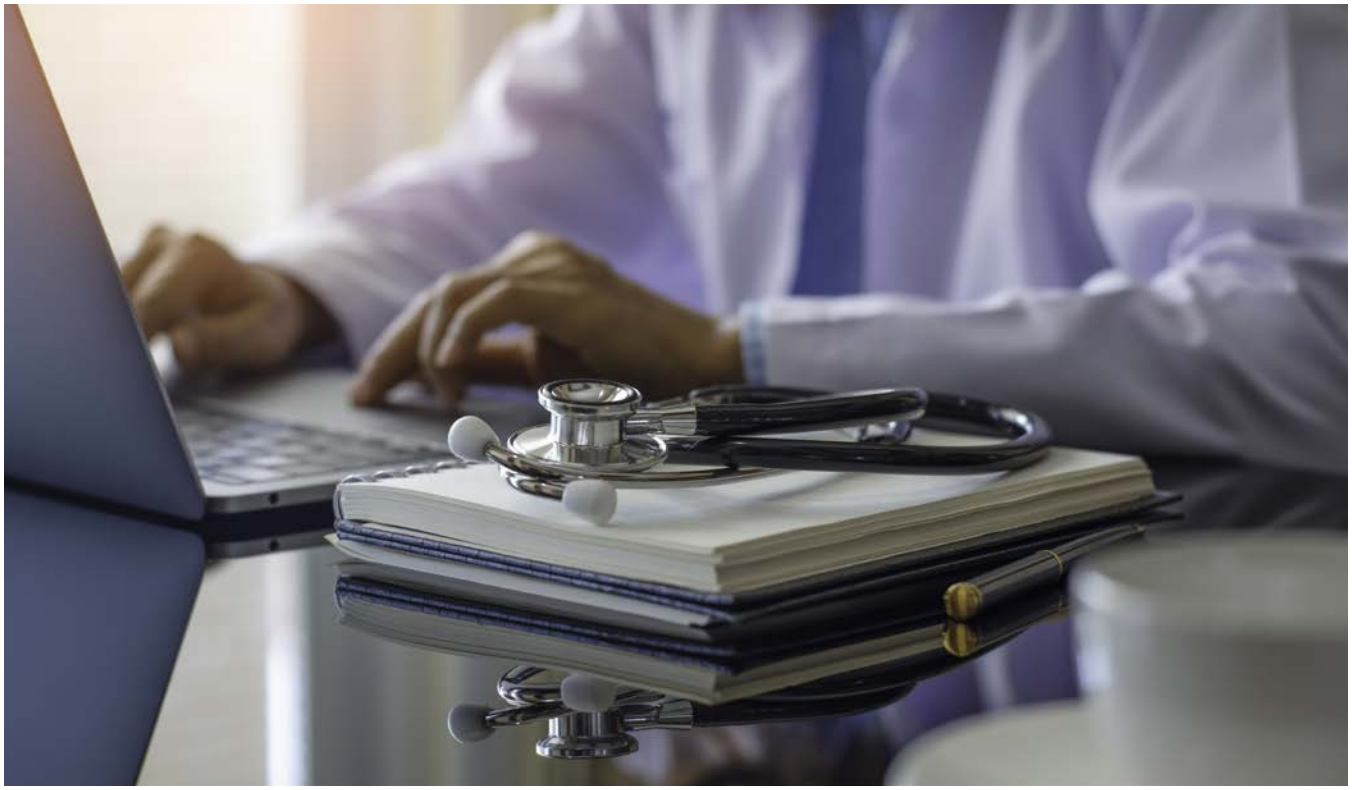
- The findings can be used to understand and identify the impacts on local and regional health systems from the impacts of climate variability and future climate change, and identify possible measures and strategies to build climate resilient and environmentally sustainable health systems
- The conceptual frameworks and case studies of health system adaptation can help inform the development of health sector and health facility action plans that promote health equity and achieve multiple co-benefits for the population
- The identified knowledge gaps can help inform identification of collaborations to acquire needed information to prepare for future impacts
- The infographics and fact sheets can be shared with staff and key 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
- WHO Guidance for Climate-Resilient and Environmentally Sustainable Health Care Facilities
- Checklist to Assess Vulnerabilities in Health Care Facilities in the Context of Climate Change
- Green Hospital Procurement Policy and Procedure Manual, and Implementation Guide

Source

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



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