To effectively address the potential impacts of climate change on the health of Canadians, adaptive actions must be taken at a number of levels. Efforts are under way in Canada to expand the knowledge base on climate change and health, and to identify policy options for adapting to anticipated impacts, for the population as a whole, as well as for vulnerable groups. This article explores the strategic directions Health Canada and its partners are taking to address the impacts of climate change on health.

The Challenge

The extent to which climate change will disrupt society, affect the economy or erode Canadians’ quality of life and health will largely depend on our willingness to plan for short- and long-term changes and our capacity to adapt. Adapting means changing individual behaviour and government policies and programs to help avoid the most severe impacts of climate change, position us to exploit its opportunities and prepare us to cope more effectively with its unavoidable consequences.

“Everybody complains about the weather, but nobody does anything about it.”
— Mark Twain

Compared to other countries, particularly those in the developing world, Canada has a greater capacity to adapt to the health impacts of climate change because of its greater financial resources, knowledge base and strong health care system. Given the breadth of these impacts, however, individual communities will face increased challenges in delivering important public health functions such as primary health care, mental health services, disease monitoring and surveillance, housing and shelter, children’s environmental health, healthy living and emergency health response.

Recent reports on Canada’s public health systems have identified some existing capacity challenges; other reports underscore the need to address these capacity issues in response to climate change. The newly created Public Health Agency of Canada and related investments in public health and emergency preparedness are helping to strengthen the ability of communities, Canadians and health professionals to respond.
Reducing Health Risks

Health authorities at the federal, provincial, territorial and municipal levels are responsible for a range of functions and services that may be affected by climate. On their own, few climate-related risks are likely to warrant new systems and infrastructures. Rather, efforts to protect Canadians from the impacts of climate change will likely entail revising, reorienting or strengthening public health policies and practices currently aimed at protecting Canadians from air pollution (e.g., smog alerts), poor water quality (e.g., boil water advisories), vector-borne and zoonotic diseases (e.g., monitoring and surveillance), extreme weather events (e.g., emergency health services) and heat waves (e.g., “cooling off” locations).

As an initial step, decision makers in the health sector and related sectors need to identify and assess their “climate-sensitive” policies and programs.1 Where significant concerns about health risks exist, assessments using future scenarios, climate models and expert knowledge can be used to determine the need for adaptive actions.4 As climate change scientists provide more information on expected impacts (e.g., community flood risk, heat wave risk, air pollution episodes), this information can be used in public health and community planning processes to guide future policy development and ensure that future risks are managed adequately. The City of Ottawa’s Air Quality and Climate Change Management Plan, which calls for more heat-island controlling measures, heat alerts, smog alerts and West Nile disease control measures, is an example of how communities are integrating information on impacts into public health planning.5

The Costs of Not Adapting

The potential costs to the health and well-being of Canadians and to communities’ quality of life of not planning adaptive responses to climate change can be substantial. Recent events, such as the 2003 heat wave in Europe or Hurricane Katrina in 2005, which devastated parts of the U.S. Gulf Coast, demonstrate that even wealthy countries with strong health and social systems may be unprepared and unable to cope with extreme climatic events. Studies suggest that Canadian communities are also vulnerable to such events; moreover, these events are likely to become more frequent and severe with climate change.6

“Our society was not prepared.”

— Hubert Falco, Secretary of State for the Elderly, France, in the aftermath of the August 2003 heat wave

Without effective planning, the costs of climate change will extend beyond the direct health impacts (e.g., increased incidence of illness, injury, disease and
Planning Our Future: Reducing the Health Impacts of Climate Change

detail) to include economic costs to health care and social systems. The impacts of climate change could further threaten the sustainability of a health care system already facing significant resource pressures. For example, air pollution, which is expected to worsen as a result of climate change, is estimated to cost Ontario’s health care system $1 billion per year. These costs will likely increase without appropriate adaptation strategies such as greenhouse gas and air contaminant reduction measures and effective outreach programs to enable people to protect themselves. However, adaptation can pay high dividends, as many European countries have witnessed in the dramatic decline in flood fatalities over the past three decades, due to better emergency preparedness, mitigation and response efforts.

Canada Responds

As noted in the interview on page 9, Canadians are moving forward with actions to reduce their greenhouse gas emissions — a key cause of climate change — and to further understand and prepare for the health impacts. In many regions of the country, scientists are starting to work with policy makers, and governments are reaching out to people in communities to plan for a changing climate. For example, a Federal/Provincial/Territorial Climate Change Impacts and Adaptation Working Group has developed a National Climate Change Adaptation Framework, which will be released later this year. The Framework is the product of almost three years of intergovernmental collaboration, with input from leading experts in the field of climate change impacts and adaptation. It provides a basis from which governments can work together to guide adaptation efforts.

In Québec, the consortium Ouranos — a joint initiative of the Government of Québec, Hydro-Québec and the Meteorological Service of Canada — builds an understanding of regional climate change and its environmental, social and economic impacts. (Visit: <http://www.ouranos.ca>.) Ouranos is developing the research tools necessary to provide decision makers with detailed climate change scenarios on a regional scale. Tools such as these will help health sector and social service professionals tailor their planning processes to incorporate climate change as an important risk that needs to be managed. Non-governmental and volunteer organizations are also playing an important role in climate change and health issues as illustrated by Pollution Probe’s Primer on Climate Change and Human Health, which is designed to enhance awareness about these issues among Canadians. (Visit: <http://www.pollutionprobe.org>.)

Health Canada: Doing Its Part

Health Canada is working with the Public Health Agency of Canada, other federal departments and internationally to bring the health and well-being “voice” to greenhouse gas mitigation discussions and to support researchers and decision makers in addressing the health impacts of climate change. For example, the jointly produced report, Methods of Assessing Human Health Vulnerability and Public Health Adaptation to Climate Change, which was developed by Health Canada in collaboration with the World Health Organization and other international partners, outlines methods and tools that health decision makers and planners can use to conduct vulnerability assessments. This document, along with the results of research funded by the Health Policy Research Program at

Adapting to New Vector-Borne or Zoonotic Disease Outbreaks

As a physician or public health practitioner, here is what you can do:

- Stay informed about the evolution of infectious diseases around the world.
- Ask about the travel history of patients who present clinical symptoms compatible with diseases that are exotic to Canada.
-Educate the public, especially members of vulnerable groups, about these diseases and strategies for minimizing the risk of exposure.
- Take note of extreme weather events and climate trends that can presage disease outbreaks.
- Work with the public health community to develop local and regional health plans for adapting to climate change.
Health Canada, will contribute to the *Canadian Climate Change and Health Vulnerability Assessment 2007*, which the Department is leading. This initiative will contribute to a better understanding of the vulnerability of Canadians to climate change, assess Canada’s capacity to minimize the risks of climate change on health and provide policy direction for the years to come. Health Canada is also developing a document entitled *Your Health and a Changing Climate: Information for Health Professionals*, which will help public health practitioners and policy makers better understand the health-related implications of climate change and identify potential adaptation actions.

**A Global Concern**

Outside of Canada, some developed countries and regions that are at risk from climate change have recognized the threats to health and have conducted impact assessments that also evaluate possible adaptation measures. For example, the European Union recently completed the Climate Change and Adaptation Strategies for Human Health (cCASHh) project, a comprehensive review of the health effects of climate change and a policy review of adaptation measures. Additionally, at the Fourth Ministerial Conference on Environment and Health, held in Budapest, Hungary, in June 2004, participants from around the world adopted a declaration to “take action to reduce the current burden of disease from extreme weather and climate events and report on progress in 2007.”

**Moving Forward**

As this article has argued, now is the time to move forward with research and policy initiatives that address the projected health impacts of climate change. Putting in place adaptation processes and plans will require collaborative and sustained efforts on the part of governments, health agencies and individuals. For its part, Health Canada will continue working with its partners to improve the health and quality of life of Canadians in the face of a changing climate.

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**False**

Without measures to reduce emissions of smog-causing pollutants, we can expect climate change to increase the number of days in which weather conditions are conducive to smog formation. Scientists expect that the higher temperatures accompanying climate change will stimulate the production of smog in urban centres. Photochemical smog is a mixture of vapours, gases and particles that usually appears as a yellowish-brown haze in the air over many cities. Two of the principal components of smog are ground level ozone (O₃) and particulate matter (PM). Smog forms most readily on hot, dry sunny days with little wind, and can remain in an area for days or weeks until a new weather system clears it away, or rain washes it out of the air.

A smog alert is issued when the Air Quality Index (AQI) reaches or exceeds 50, indicating that smog conditions are reaching dangerous levels. The AQI is based on hourly pollutant measurements of some or all of the six most common air pollutants: sulphur dioxide, O₃, nitrogen dioxide, total reduced sulphur compounds, carbon monoxide and fine PM. Whenever smog conditions rise to dangerous levels in Ontario, for example, the Ministry of the Environment issues a provincial smog alert to notify local public health offices and the general public, and to urge them to take appropriate action.
References for Extreme Weather Events: Facing the Challenges in Health Emergency Management (p. 31)


6. Public Health Agency of Canada, Office of the Voluntary Sector, voluntary sector definition. Retrieved May 2, 2005, from: <http://www.phac-aspc.gc.ca/vs-sb/voluntarysector/index.html>. The voluntary sector consists of private, non-profit organizations, devoted to the public good, whose activities are carried out by volunteers and paid staff, and whose existence depends on the engagement of citizens to donate their time, knowledge, skills, energy and resources to assist fellow citizens. Voluntary sector organizations are involved in activities designed to provide help to individuals, families, groups and communities.


References for Planning Our Future: Reducing the Health Impacts of Climate Change (p. 35)


6. Public Health Agency of Canada, Office of the Voluntary Sector, voluntary sector definition. Retrieved May 2, 2005, from: <http://www.phac-aspc.gc.ca/vs-sb/voluntarysector/index.html>. The voluntary sector consists of private, non-profit organizations, devoted to the public good, whose activities are carried out by volunteers and paid staff, and whose existence depends on the engagement of citizens to donate their time, knowledge, skills, energy and resources to assist fellow citizens. Voluntary sector organizations are involved in activities designed to provide help to individuals, families, groups and communities.


References


Additional References


References for Using Canada’s Health Data (p. 41)
