Highlight Report

for the Climate Change and Health Vulnerability Assessment

for Waterloo Region, Wellington County, Dufferin County, and the City of Guelph

Region of Waterloo
PUBLIC HEALTH AND EMERGENCY SERVICES

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Why conduct a Climate Change and Health Vulnerability Assessment?

Climate change is a defining Public Health challenge of the 21st century and is already impacting the health of Canadians. To better understand local vulnerabilities to climate change and health risks under a climate-adjusted future, Wellington-Dufferin-Guelph Public Health (WDGPH) and Region of Waterloo Public Health (ROWPH) conducted a Climate Change and Health Vulnerability Assessment to synthesize available data and evidence to help inform adaptation planning with the goal of reducing climate-related health risks and their impacts on vulnerable populations. This project was funded by a grant from Health Canada, through their HealthADAPT program; led by ICLEI Canada in collaboration with Dr. Chris Buse (University of British Columbia); and was developed in partnership with ROWPH and WDGPH.

What is in the report?

This Climate Change and Health Vulnerability Assessment focuses on describing patterns of climate-related vulnerability, providing baseline health information, identifying vulnerable populations, and outlining existing adaptive capacity in the local community. It also explores how climate change interacts with the social determinants of health in ways that worsen existing health inequities. The report includes the following focus areas:

- Extreme temperatures
- Ultraviolet radiation
- Extreme weather
- Food- and water-borne illnesses
- Air quality
- Vector-borne and zoonotic diseases
- Mental health

How was vulnerability assessed in the report?

When assessing climate change impacts on health, three determinants of vulnerability were considered:

1. Exposure of populations to climate-related hazards,
2. Physiological sensitivity of individuals or populations to climate-related hazards, and
3. *Adaptive capacity of individuals, populations, and/or systems to cope with climate-related hazards.

The report also considers adaptive actions that already exist in the study area to address climate-related health impacts of concern. These include Public Health-led actions and community stakeholder-driven actions.

**Adaptive capacity relates to the ability of individuals or communities to prepare for and cope with the consequences of climate change. Certain populations may have reduced adaptive capacity and increased vulnerability due to social, economic, or cultural barriers. Communities can help build adaptive capacity by implementing strategies that reduce health impacts by creating programming and supports that are designed around those most vulnerable to the impacts of climate change.*

How is the local climate changing?

The climate aroung the world is already changing. According to recent studies, Canada is warming faster than the global average. Canada is already experiencing an increase in temperatures, altered precipitation patterns, and an increase in the frequency, intensity, and duration of extreme weather events. These changes are expected to continue with implications for future vulnerability.

To prepare for climate change-related health impacts it is important to understand how the climate is expected to change locally in the immediate, short, and long-term. The climate in the study area is expected to change in congruence with the national changes outlined above. Specifically, the study area can expect local weather to become warmer, wetter, and more extreme.

Local weather is expected to become warmer, wetter, and more extreme

According to local projections, the study area may experience the following climatic trends in the coming decades:

Temperature

- Increase in average minimum, maximum, and mean temperatures across all seasons.
- Increase in the number of tropical nights (nighttime temperatures greater then 20°C) and extreme heat days (daytime temperatures greater than 30°C).
- Increase in the frequency of heat waves.
- Decrease in the frequency of extreme cold days.
- Temperature increases will be more apparent in urban areas. Air temperatures in urban areas may be 1 to 3°C higher than in rural areas.

Precipitation

- Increase in average seasonal rainfall in winter and spring, and a decrease in summer and fall.
- Increase in intense precipitation and heavy rainfall events, increasing the risk of flooding.
- Increased precipitation in the colder months, especially heavy rainfall events, is likely to increase the risk of winter floods, slippery conditions, and flash freeze events.

Extreme Weather

- Increase in the number of freezing rain events, particularly in December, January, and February.

Who is most vulnerable in our community?

The impacts of climate change are not experienced equally by all populations. While Canadians are already experiencing health impacts from climate change, Health Canada notes that the following groups are particularly vulnerable:

- Seniors
- Individuals with chronic diseases and/or compromised immune systems
- Children and infants
- People experiencing social or economic disadvantage (e.g., low-income, housing insecure)
- Indigenous Peoples
- Residents of remote communities

Across the study area, vulnerable populations include people who are physiologically sensitive to climate change impacts, those who may be more exposed to climate change and its impacts due to their occupation or physical location, as well as populations who may lack the ability to adapt to climate change impacts due to varying circumstances. More information about local vulnerable populations and how they are affected by climate change can be found throughout the report.

What should we focus on now, and into the future?

Using the findings of the vulnerability assessment, a rapid risk assessment was carried out to prioritize health risks in the near term (within the next five years) and in the future (by 2050).

The results indicate that now and into the future, extreme heat is a key issue of concern with broad population exposure, and consequently increased likelihood to disproportionally affect vulnerable populations. Moreover, findings indicate that health risks resulting from extreme heat are and will continue to be the highest priority risk into the future, followed by health risks posed by poor air quality, and risks posed by flooding. The risk assessment also projected that while risks related to food- and water-borne illnesses, Lyme disease, West Nile virus, and exotic zoonoses ranked as moderate to low at present, these risks increase both in terms of likelihood and consequence in the future.

Results of the Rapid Risk Assessment as related to the health impacts of climate change can support the prioritization of programming and actions to reduce risks now and into the future.

What is currently being done to address climate change and health impacts locally?

In addition to identifying vulnerable populations of concern, this report also summarizes key existing adaptive actions within the study area that address climate-related health outcomes. These actions range from extreme heat and cold notification systems, to supporting municipal and regional partners in strategic planning, to maintaining surveillance systems to track illnesses and injuries. Together, such initiatives contribute to the study area's adaptive capacity, and its ability to reduce harm from climate-related impacts. Recognizing existing actions is important to help identify new actions or interventions to address climate-related health risks and opportunities for integrating climate considerations into ongoing initiatives.

What's next?

This report is an initial step in understanding baseline vulnerabilities to climate change in the study area. It is anticipated that the information synthesized in this report will be used to support a variety of adaptation planning and initiatives in the future.

Wellington-Dufferin-Guelph Public Health and Region of Waterloo Public Health are well-positioned to support their local partners in developing strategies to address health impacts of climate change with opportunities to apply a health equity lens to planning initiatives. The evidence collected, analyzed, and presented in this assessment lays a foundation for building resilience to both acute and long-term climate-related impacts locally.

The health risks associated with climate change highlight the growing need for effective action on climate change adaptation across Canada. Adaptation can help to protect against these risks through informed action and decision-making that builds climate resilience, or the ability to thrive under new climate conditions. Climate change adaptation is a shared responsibility and cross-sector collaboration at all levels is crucial. Community stakeholders must work together to continue efforts to address the future health impacts of climate change and support creating more resilient communities.

The Climate Change and Health Vulnerability Assessment is a baseline collection of climate change and health data that can be used to inform adaptation planning and policy development, prioritize programming, and stimulate new research questions.

Climate Change-related Health Impacts in Wellington-Dufferin-Guelph and Waterloo Region

Extreme Temperatures
Increased heat-related illnesses and deaths.

Ultraviolet Radiation
Potential increase in sunburns and skin damage, skin and eye cancers, and cataracts due to people spending more time outdoors during extended warm seasons.

Extreme Weather
Increase in injuries, and secondary impacts (including mental health impacts) from storms, flooding, and ice.

Food- and Water-borne Illnesses
Increased risk of exposure to pathogens in water due to flooding and storm events, and increased risk of exposure to pathogens in food due to increasing temperatures, driving growth and survival of pathogens.

Air Quality
Increased respiratory and cardiovascular diseases, and premature death resulting from decreasing air quality and more frequent air health advisories.

Vector-borne and Zoonotic Diseases
Increased risk of vector-borne diseases such as West Nile virus and Lyme disease resulting from increasing temperatures and changing precipitation patterns.

Mental Health
The consequences of climate change may lead to decreased mental health and aggravation of the root causes of mental illness.




To view the full report or to request an alternate format of this document, please contact:

Region of Waterloo Public Health

99 Regina St S
Waterloo, ON
N2J 4V3

Telephone: 519-575-4400
TTY: 519-575-4608

www.regionofwaterloo.ca @ROWPublicHealth

Wellington-Dufferin-Guelph Public Health

160 Chancellors Way
Guelph, ON
N1G 0E1

Telephone: 519-822-2715

www.wdgpublichealth.ca @WDGPublicHealth

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