

Climate Change and Health Vulnerability Assessment Update

To: Chair and Members of the Board of Health

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Recommendations

It is recommended that the Board of Health:

1. Receive this report for information.

Key Points

- Wellington-Dufferin-Guelph Public Health with Region of Waterloo Public Health completed a Climate Change and Health Vulnerability Assessment.
- The vulnerability assessment focuses on climate change and health impacts related to extreme temperatures, ultraviolet radiation, extreme weather, food- and water-borne illnesses, air quality, vector-borne and zoonotic diseases, and mental health.
- The information collected and synthesized in the Climate Change and Health Vulnerability Assessment supports prioritizing programming, informing policy, and guiding local climate change adaptation initiatives that are underway or planned across Wellington, Dufferin, and Guelph.

Discussion

Climate Change and Health

Climate change is already impacting the health of Canadians. ^{1,2,3} Climate change has the potential to overburden both healthcare (e.g., through increased hospitalizations) and public health systems (e.g., increased response to outbreaks, disease investigation, and other emergencies). ^{1,4}

To better understand baseline vulnerabilities to climate change and health risks under future climate scenarios, public health agencies around the world are conducting climate change and health vulnerability assessments to gather available data and evidence that will help inform policy and action through a health equity lens, with the goal of reducing climate-related health risks and impacts.

Local Approach

In 2019, Wellington-Dufferin-Guelph Public Health (WDGPH), together with the Region of Waterloo Public Health (ROWPH), jointly applied for and received funding through a federal grant program called HealthADAPT to undertake a Climate Change and Health Vulnerability Assessment (CCHVA). HealthADAPT is a capacity-building program managed by Health Canada that aims to support the health sector prepare for and respond to the impacts of climate change. The grant was used to hire ICLEI Canada (through a Request for Proposals process) to lead the development of the CCHVA. ICLEI Canada collaborated with Dr. Chris Buse from the University of British Columbia, a climate change and health equity researcher.

As a funding recipient of the HealthADAPT program, health unit project staff received guidance and support from the HealthADAPT program team and participated in a community of practice to share and learn from different HealthADAPT projects.

The approach taken to complete the local CCHVA was guided by a set of similar frameworks (with a focus on the Ontario toolkit):

- *Ontario Climate Change and Health Toolkit* ⁵
- Health Canada's *Climate Change and Health Vulnerability and Adaptation Assessment: Workbook for the Canadian Health Sector* ⁶
- World Health Organization's *Protecting Health from Climate Change Vulnerability and Adaptation Assessment* guide ⁷

The project was also guided by similar reports produced by other Ontario Public Health Units, including: *A changing climate, Assessing health impacts and vulnerabilities due to climate change within Simcoe Muskoka and York Region: Climate Change and Health Vulnerability Assessment*.^{8,9}

Goals of the CCHVA were to:

- increase public and stakeholder awareness of the health impacts of climate change in our community;
- provide recommendations on priority areas to focus adaptive measures for decision makers and stakeholders to strengthen overall resilience of local health systems to respond to the impacts of climate change; and
- collect and share local information that supports creating and strengthening policy and programming that reduces health risks and builds resiliency to current climate variability and future climate change in our communities.

Methods used to complete this assessment included literature reviews, stakeholder surveys and focus groups, as well as analyses of existing environmental and health outcome indicator data.

- Literature reviews – literature reviews were conducted for each climate-related health risk identified by the *Ontario Climate Change and Health Toolkit*.⁵
- Stakeholder engagement – surveys, focus groups, and workshops were used to collect insights from Public Health staff, sustainability and climate change teams and other departments from municipal and regional governments in the study area, Conservation Authorities, Health Canada, and local academic institutions.
- Data analysis – local environmental and health outcome datasets were identified, and indicator data is displayed both spatially (in maps) and temporally (in graphs showing baseline trends over time).

Determinants of Vulnerability

The impacts of climate change are not experienced equally by all populations. In addition to underlying vulnerabilities related to age, health conditions and degree of exposure, climate change will also interact with the social determinants of health—the social, cultural, and economic conditions that influence an individual’s adaptive capacity. Consequently, when assessing climate change impacts on health, CCHVA frameworks examine three determinants of vulnerability:

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

For example, vulnerable populations include those who (1) may be more **exposed** to climate change and its impacts due their occupation or physical location (e.g., outdoor workers); (2) populations that are physiologically **sensitive** to climate change impacts (e.g., older adults, individuals with underlying chronic conditions); as well as (3) populations who have reduced **adaptive capacity** to climate change impacts due to financial, social or cultural barriers.

Scope of Vulnerability Assessment

The CCHVA included the following areas of focus: extreme temperatures, ultraviolet radiation, extreme weather, food- and water-borne illnesses, air quality, vector-borne and zoonotic diseases, and mental health. The areas of focus were selected using the *Ontario Climate Change and Health Toolkit* and Health Canada's workbook.^{5,7} Each chapter of the report opens with a summary of key findings that outline the following:

- Climate change projections
- Population-level vulnerabilities tied to exposure, sensitivity, and adaptive capacity
- Examples of existing adaptive actions (e.g., local programming and initiatives)
- Baseline health impacts

Key findings for each chapter are provided in Appendix A. The full report will be available in early April.

Identifying Priority Risks

Using the information collected as part of the vulnerability assessment, a rapid risk assessment was completed to prioritize health risks in the near term and in the future. 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 disproportionately 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 then 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 may have ranked as moderate to low at present, these risks increase both in terms of likelihood and

consequence in the future. A summary of key findings from the risk assessment is provided in Appendix A.

The results of the risk assessment provide a comparison of the relative risks between climate-related health impacts the study area and is intended to assist decision-makers in prioritizing resources and identifying gaps and potential capacity needs.

Conclusion

The information presented in the CCHVA provides a baseline collection of data, climate projections, and information related to vulnerable populations. This information will inform policy development, prioritize programming, and strengthen existing climate change adaptation initiatives that are underway or planned across Wellington County, Dufferin County and the City of Guelph.

The evidence collected, analyzed, and presented in this assessment lays a foundation for building local resilience to the health impacts of climate change. It is anticipated that the information synthesized in the report will facilitate incorporating a health equity lens when developing local adaptation strategies, as well as support the coordination and collaboration with other sectors to promote climate resilience.

Ontario Public Health Standard

According to the Healthy Environments Standard in the Ontario Public Health Standards, boards of health shall:

- assess health impacts related to climate change in accordance with the Healthy Environments and Climate Change Guideline, 2018 (or as current).

Under the Population Health Assessment Standard, boards of health shall:

- interpret and use surveillance data to communicate information on risks to relevant audiences in accordance with the Healthy Environments and Climate Change Guideline, 2018 (or as current).

Among the objectives of The Healthy Environments and Climate Change Guideline, 2018, is to identify approaches for boards of health that must be used or considered to achieve the following:

- Enhance public health capacity to address risk factors in the environment, including the impacts of climate change, using population-based activities. (e.g., Vulnerability Assessments).

The Healthy Environments and Climate Change Guideline goes on to advise that boards of health shall:

- consider the use of the Ontario Climate Change and Health Toolkit, 2016 or other equivalent tool when assessing the health vulnerability status of their communities.
- monitor the impacts of climate change within their jurisdiction to inform local vulnerability plans using indicators.

2020 WDGPH Strategic Direction(s)

Double click checkbox to change from unchecked to checked.

Service Delivery: We will provide our programs and services in a flexible, modern and accessible manner, and will ensure they reflect the immediate needs of our Clients and our role in the broader sector.

System Transformation: We will equip the Agency for change in all aspects of our work so that we are ready for transformational system change when the time comes.

Knowledge Transfer: We will ensure that our decision-making and policy development efforts are informed by meaningful health data at all times.

Health Equity

Populations vulnerable to climate risks include populations who may be more exposed to climate change and its impacts due their occupation or physical location; populations that are physiologically sensitive to climate change impacts; and populations who may have reduce adaptive capacity to respond to climate change impacts. Vulnerable populations that fall into the latter category identified in the report include individuals with low socio-economic status, socially and physically isolated individuals, recent immigrants and individuals with mental health conditions. The CCHVA report discusses these and other vulnerabilities within each chapter of the report, and vulnerability indicator data is displayed using maps or graphs.

The social determinants of health play an important role in influencing vulnerabilities to climate change impacts and climate change is expected to worsen existing health inequities. Consequently, similar to other Public Health program areas, a foundational approach that addresses the social determinants of health will also support reducing health risks resulting from climate change. Additionally, continuing to apply a health equity lens in future climate change initiatives will ensure that vulnerable populations identified in this report remain the focus of adaptation planning strategies in the future.

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Appendices

- A. Compilation of Key Findings from each chapter of the Climate Change and Health Vulnerability Assessment Report.