

Executive Summary



Public Health
Santé publique
SUDBURY & DISTRICTS

Climate change is impacting human health through heatwaves, wildfires, vector-borne diseases, and weather-related events such as floods, storms, and freezing rain⁵. Public Health Sudbury & Districts' service area is not immune to the health impacts of climate change. Strategies are needed to protect us all and address health inequities for populations at greatest risk.

This resource is a tool for municipalities and interested parties to assess risks and engage in climate change adaptation planning. The resource can be used on its own in many ways, but it has been specifically designed to support Climate Change and Health Vulnerability and Adaptation Assessments. Climate Change and Health Vulnerability and Adaptation Assessments are a strategic approach for municipalities and interested parties to take collaborative action and increase resilience.

The *Climate Change in Sudbury and Districts: Assessing Health Risks and Planning Adaptations Together* report includes two parts.

Part 1: Climate Change and Health Vulnerability and Adaptation Assessments, describing:

- Hazards increasing with climate change
- Health outcomes of concern
- Populations at greatest risk and factors influencing vulnerability
- Additional resources and tools
- Appendices explaining climate change models, concepts, and terms

Part 2: Climate Change Modelling Study: Temperature and Precipitation Projections specific for Each Local Community/Geographic area. The projections specific to local communities are included and covers:

- Seasonal temperatures and precipitation
- Extreme hot and cold temperatures
- Frost season
- Freezing rain
- Wildfire

Assessing vulnerability to climate change

Climate change will not affect everyone equally. Vulnerability to climate change is commonly understood as a function of three key factors: exposure, sensitivity, and adaptive capacity.

Exposure - considers the probability of a climate-related hazard impacting an individual, population, or community²⁸⁻³⁰.

Sensitivity - considers the degree to which the individual, population, or community is affected by the hazard²⁸⁻³⁰.

Adaptive capacity - considers the ability of the individual, population, or community to adjust or respond to hazards, take advantage of opportunities, and respond to consequences²⁸⁻³⁰.

In considering vulnerability to health impacts, we know that health is determined by more than access to health care services and lifestyle choices. Health is also determined by the social and economic factors that influence our lives.

In general, those with more resources are better able to adapt to climate change and take steps to protect their health. According to Statistics Canada, children, women, new immigrants, Indigenous people, and people with a disability are most likely to be low-income³³.

Historic and ongoing practices of racism, colonialism, sexism, heteronormativity, cisnormativity, and ableism contribute to population-level income inequalities and, in turn, affect an individual's ability to anticipate, resist, and recover from climate change induced events and hardships.

Adaptation measures should be planned so that people who are disproportionately affected can benefit from them. For adaptations to be inclusive and effective at improving equity, participation by individuals and communities that experience racism and marginalization is required.

Understanding health risks of climate change

Hazards are increasing with climate change. Key hazards and affected populations are detailed here.

Extreme heat

The number of days per year reaching 30°C+ will triple in the next 10 years. Those at greatest risk include older adults, people with chronic illnesses, pregnant people, infants and young children, people working in the heat, people in low-income situations, and those who are homeless.

Skin cancer risk

Warmer weather draws us outside. Without more rigorous sun-protective practices, the risk of skin cancer is expected to increase 8 per cent by the 2050s.

Intense rain

Intense, heavy rainfall events are already happening at greater frequency due to climate change and lead to costly impacts such as dangerous driving conditions, road washouts, and flooded homes.

Seasonal flooding

With warmer winters, spring flooding is a risk. When the frozen ground does not absorb the spring rainfall and snow melt, the water runs across the ground, flooding homes and rivers.

Freezing rain

Freezing rain will increase 60 per cent by the 2050s. Freezing rain causes hazardous road conditions and can lead to days-long power outages. Serious injuries occur from falls, motor vehicle collisions, carbon monoxide poisoning, and hypothermia. Health care services can be over-capacity or inaccessible. Older adults and people living with disabilities are especially vulnerable when care staff and family members can't safely travel to reach them.

Lyme disease

The geographic range of the tick vector for Lyme disease is expanding northward. Within the next couple of decades, the risk of Lyme disease will increase from low to moderate. Currently, the blacklegged tick does not commonly occur in Sudbury and districts.

Wildfire

By the year 2030, wildfires caused by lightening will increase up to 50 per cent and by human carelessness by up to 50 per cent. Wildfire impacts including evacuation, road closures, and symptoms from smoke have affected thousands of people in northeastern Ontario since 2012.

Food and water-borne illnesses

Cases of food-borne diseases tend to peak in summer months¹⁸². With climate change induced warmer temperatures being more favourable for pathogen survival, cases of food-borne illnesses are expected to increase. Likewise, intense precipitation and flooding can lead to heavier levels of stormwater runoff that can cause contamination of water sources and lead to water-borne illnesses.

Mental Health

Periods of very warm weather put individuals living with mental illnesses at greater risk of heat-related morbidity and mortality. People with lived experience of extreme weather events can face a variety of mental health impacts, including depression, post-traumatic stress disorder, substance use, and feelings of helplessness²³⁵.

Economic Impacts

Wildfire, drought, pest outbreaks, changes to tree composition, and changing temperatures will impact the forestry sector as well as sectors like tourism, manufacturing, and construction that rely on forest products and forest based recreation⁴. Extreme rainfall, freezing rain, unusually warm and dry conditions can impact mining building infrastructure and worker safety. The quantity and quality of food produced from agriculture, forests, and our freshwater food systems can be impacted by changes in pest populations, erosion, soil degradation, water issues, and growing conditions¹⁸⁸. This in turn can lead to food insecurity challenges within our communities.

Looking ahead

The impacts of climate change are already being seen and affect us all.

The actions we take now will contribute to the safety and well-being of people today and that of generations to come. With the information synthesized in this resource, we better understand the health hazards that are expected to increase as climate change continues.

Conducting a Climate Change and Health Vulnerability and Adaptation Assessment will forge collaborations with different sectors and interested parties and improve community resiliency to climate change through health-protective adaptations. Pursuing this work is essential to building our adaptive capacity to climate change and ensuring healthier communities now and for future generations.