CLIMATE CHANGE AND HEALTH IN DURHAM REGION:
Assessing the Impacts of Extreme Heat

Durham Nuclear Health Committee

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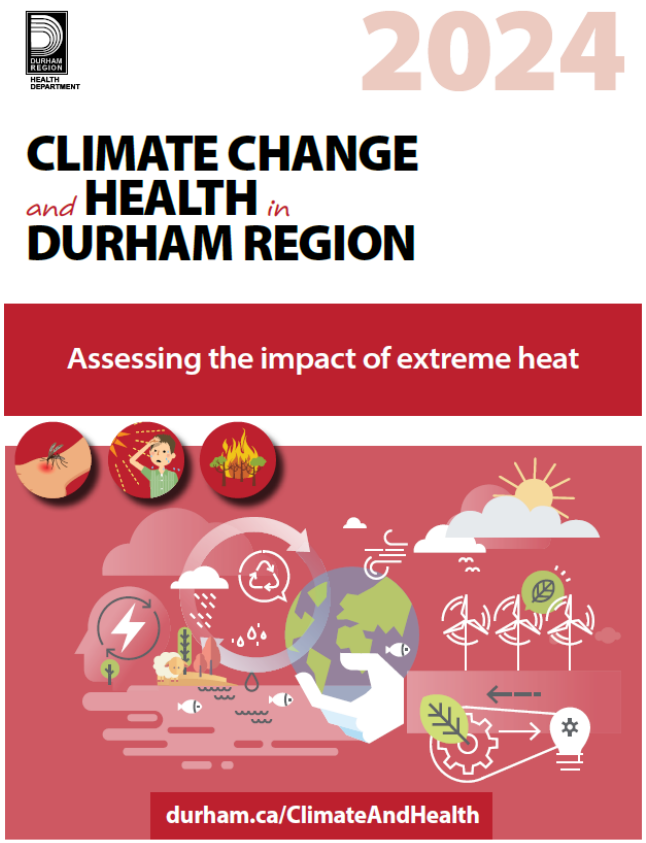
Durham Region Health Department

Presentation overview

- Assessment mandate and report series

- Extreme heat vulnerability assessment
  - Assessment framework
  - Key findings
  - Knowledge gaps
  - Regional strengths
  - Next steps



Why assess climate and health vulnerability?

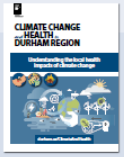
Ontario Public Health Standards mandate

Health impacts of climate change are on the rise

Many health impacts and health inequities are preventable

Report Series: 2024 -2025

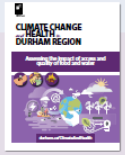
Primer



Understanding the local health impacts of climate change

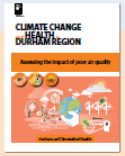
Vulnerability Assessments

Assessing the impact of extreme heat

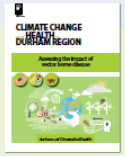


Assessing the impact of access and quality of food and water

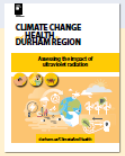
Assessing the impact of extreme weather



Assessing the impact of poor air quality



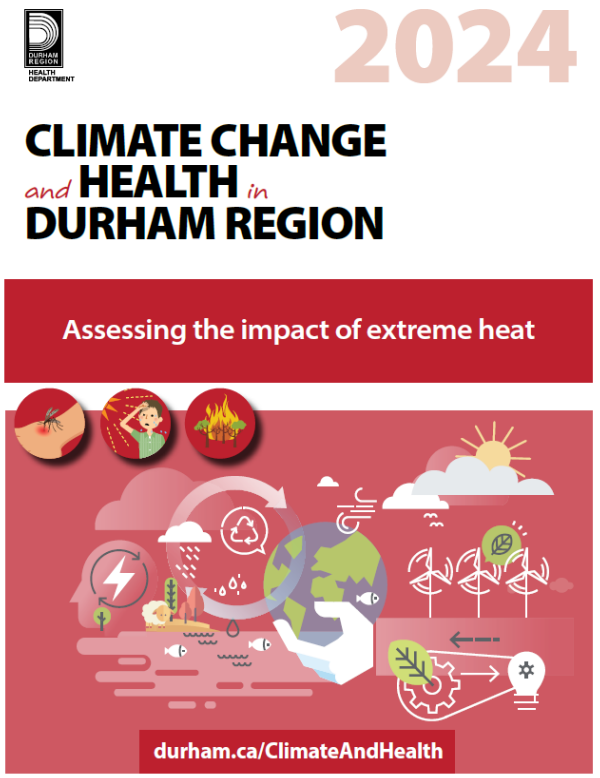
Assessing the impact of vector borne disease



Assessing the impact of ultraviolet radiation

Report features

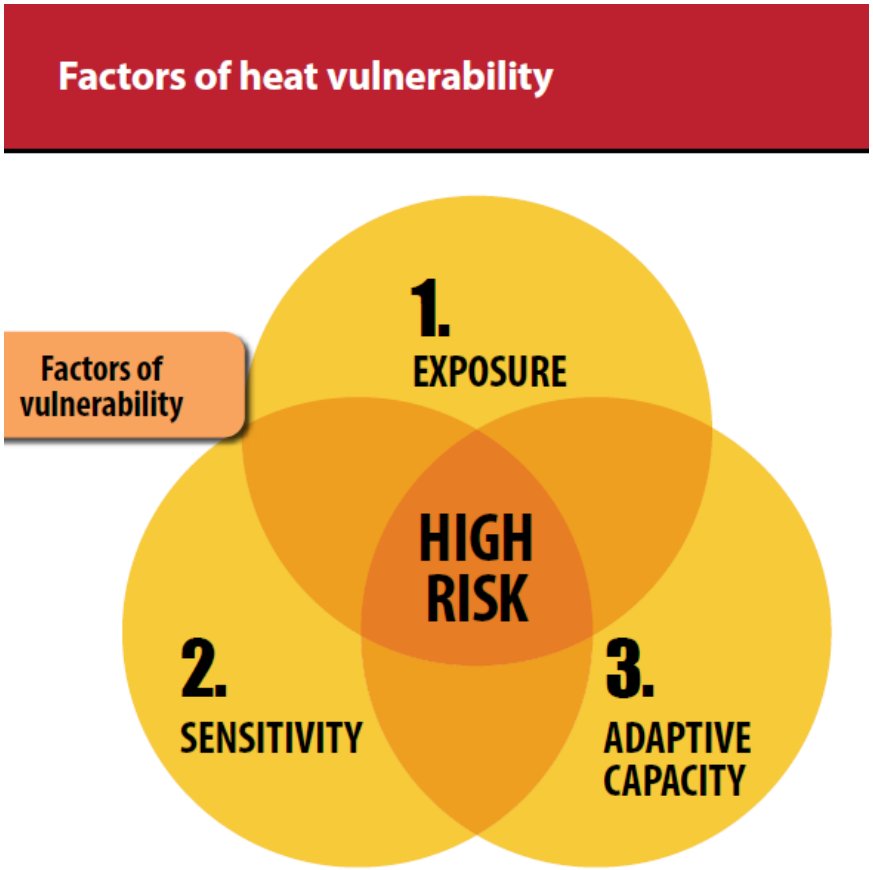
- Current and future health impacts
- Equity-focussed
- Guidance from the Mississaugas of Scugog Island First Nation



What is extreme heat vulnerability?

Priority Populations

- **Older adults,** 60 years+
- Infants and young **children**
- **Pregnant** individuals
- **Indigenous** Peoples
- **Chronic health challenges**
- Socially or materially **disadvantaged**
- **Newcomers**
- **Work** or are physically active **outdoors**



Overview of extreme heat in Durham Region

Extreme heat events in Durham Region are expected to more than double in the coming decades

	Baseline (1971 to 2000)	2050s	2080s
Extreme heat days (max >30˚C)	16	27	47
Summer days (max >25˚C)	42	78	100
Tropical nights (min >20˚C)	101	132	148

Overview of extreme heat in Durham Region

Processes such as deforestation and land-use change have contributed to local extreme heat vulnerability

Strain on natural environment points to need for heat tolerant, nature-based solutions that can cool neighborhoods and increase heat resilience

What is known about local health impacts?

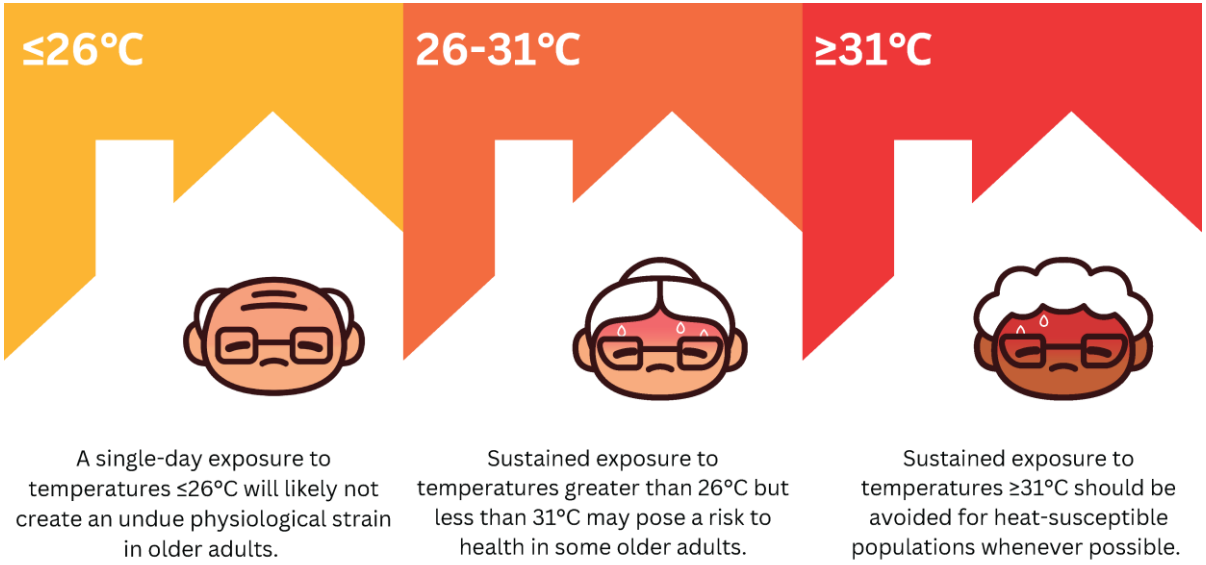


Figure used with permission from G.P. Kenny, University of Ottawa (2023)

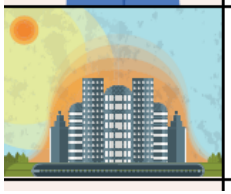
- 30°C + associated with increased emergency room visits
- Increased health risks from overnight heat
- Increased risk of illness and death at beginning of heat season
- Health burden likely underreported among older adults

Where are more severe health impacts expected?

Building characteristics associated with high indoor temperatures

- Face south (with south facing windows that increase solar heat gain) [32]

- Lack mechanical cooling: a lack of mechanical cooling is associated with:
  - Living alone [41]
  - Living in a low-income or materially deprived neighbourhoods [40]
  - Living in a rented home [41]



- Located in an urban heat island [34, 35, 36, 23]

- The seven **priority Health Neighbourhoods**
- Urban **heat islands**
- Homes at risk of **hot indoor temperatures**

> *It's super-hot, there are trails with no trees, it's not walkable.*
>
> *- Ajax SNAP Resident*

Who should be prioritized?

Durham Region has:

- A large and growing older adult population
- Higher prevalence of some chronic illnesses compared to the provincial average

High Risk: Priority populations that live alone, with a low/no income and/or dependent on caregiver(s)

What are our strengths and resources?

Existing forests, wetlands, and grasslands; crucial to mitigating extreme heat

Tree planting incentive programs

Strong shade policies

What are our strengths and resources?

DRHD's Heat Warning and Information System (HWIS)

Region-wide Durham Greener Homes Program

The Region's energy efficiency and resilience strategy for the Durham Regional Local Housing Corporation (DRLHC)

What are our knowledge gaps?

Local health burden of heat-related illness

Improved understanding of Durham Region residents living with disabilities.

Methods for identifying and reaching isolated individuals during heat wave

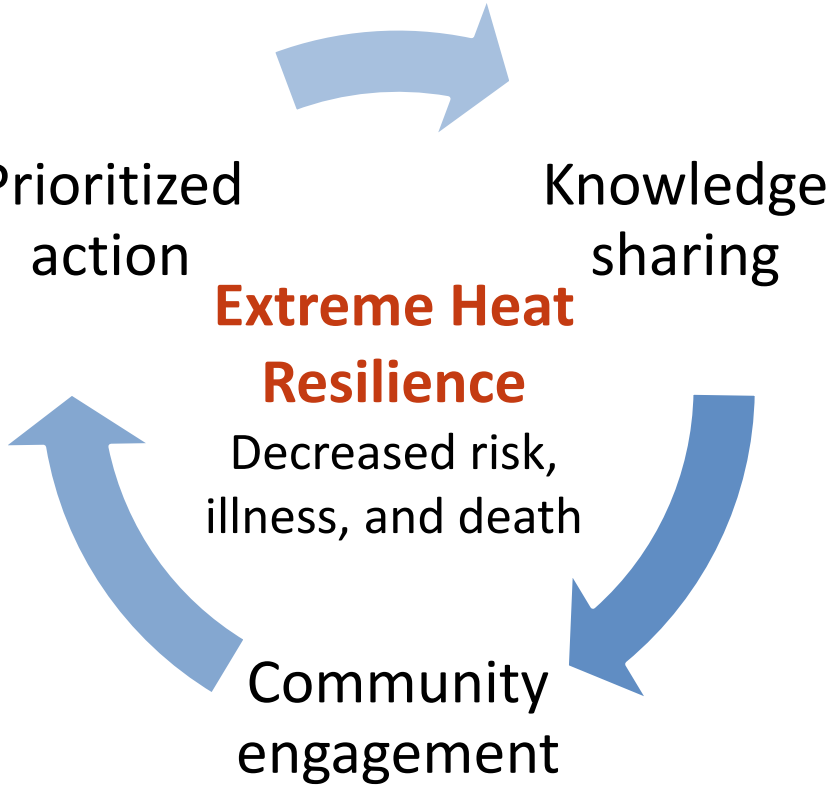
What are our knowledge gaps?

Information on residents without cooling systems and their heat coping barriers and needs

Distribution, accessibility, and use of cooling centres

Community spaces with high-need for shade, green space and/or water features

Next steps


Prioritized action
Knowledge sharing
Extreme Heat Resilience
Decreased risk, illness, and death
Community engagement

Key messages

- Durham Region should be prepared for increasing frequency and intensity of extreme heat events due to climate change
- Health impacts can overwhelm local health systems
- Need to engage with community to support prevention; especially those at risk of indoor overheating
- Health impacts are severe but often preventable

Thank you

www.durham.ca/ClimateAndHealth

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