Making the Health and Health Equity Case for Local Climate Solutions

CHASE
CANADIAN HEALTH ASSOCIATION FOR SUSTAINABILITY & EQUITY

GTA Clean Air Council
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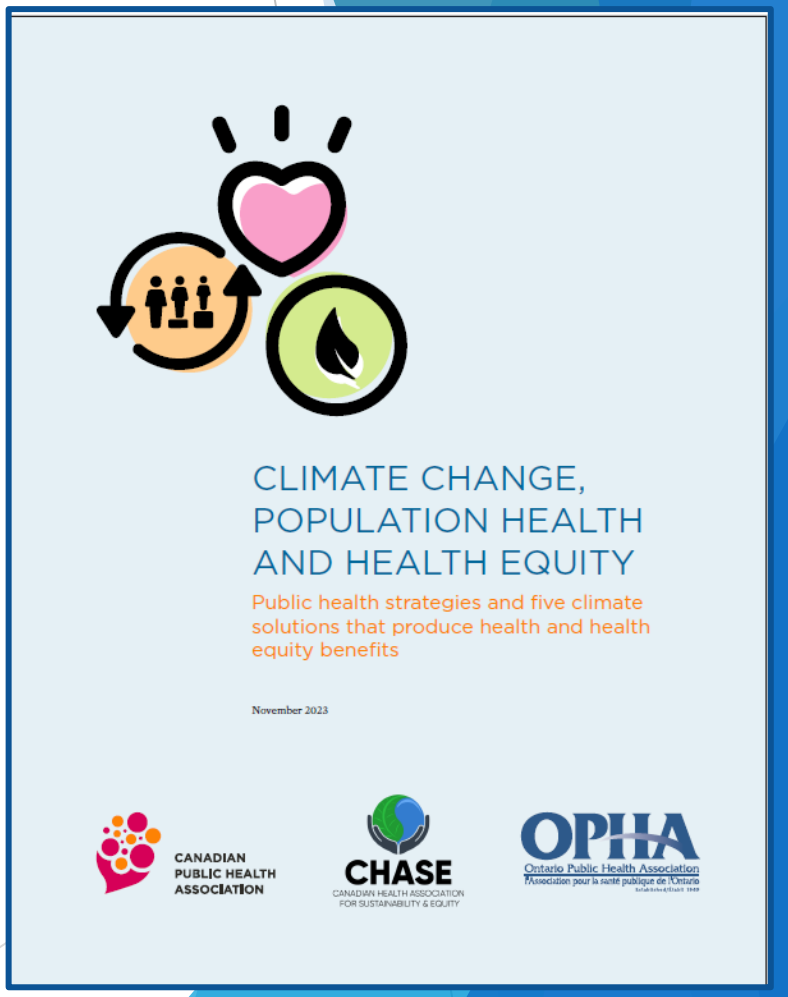
Climate Change Solutions & Immediate Health & Health Equity Benefits

- CPHA, CHASE, OPHA
- Funding – McConnell Foundation
- 14 case studies & 4 webinars
- Health & Health Equity Benefits – 5 Local Climate Change Solutions
- **Report, Bogs & Webinars:** https://chasecanada.org/public-health-addressing-health-health-equity-and-climate-change/



Project Goal #1: Encourage Public Health to Educate the Public about Climate Solutions

- One communications survey found that:
  - A large percentage of people in Canada (about 75%) are concerned or very concerned about climate change
  - But few could identify the actions needed to fight climate change.
- Need people to understand what a de-carbonized community looks like
- Public health can help with this.

Reference: CHASE/CPHA/OPHA, 2023. Climate Change, Population Health and Health Inequity; Hatch, C. What do Canadians really think about climate change? Climate Access & Climate Narratives Initiative. March 2021

Project Goal #2: Support the Use of Health Arguments for Local Climate Solutions

- We have first-hand experience with this
- **One US study found that the public can be motivated to support climate solutions when presented with:**
  - health risk associated with climate change
  - health benefits associated with climate solutions
  - clear calls to action.
  - All 3 together – can influence people across the political spectrum

Reference: CHASE/CPHA/OPHA, 2023. Climate Change, Population Health and Health Inequity; Kotcher John et al.2021.Advocacy messages about climate and health are more effective whenthey include information about risks, solutions, and a normative appeal: Evidence from a conjoint experiment *Journal of Climate Change and Health*.Vol.3.August.

Goal #3: Ensure that Health & Equity are considered when Re-creating Communities

- **Our communities need to be re-designed & re-developed to transition away from fossil fuels & prepare for the changing climate.**
- Essential to consider health & health equity impacts when doing so.
- In some cases, health-related savings will actually pay for the investments needed.
- We want to maximize the benefits associated with the investments that we will be making.

Reference: CHASE/CPHA/OPHA, 2023. Climate Change, Population Health and Health Inequity.

What do we mean by Health Inequities?

Certain populations are at greater risk of adverse acute and chronic health effects from environmental stressors:

- **Physiologically sensitive populations** e.g., infants, older people
- **Structurally disadvantaged populations:**
  - Social Determinants of Health e.g., income, gender, race
  - Intersectional factors that compound one another
  - Disadvantages that result from inter-personal & systemic biases in our society e.g., sexism, racism, colonialism, classism

Reference: CHASE/CPHA/OPHA, 2023. Climate Change, Population Health and Health Inequity

Five Local Climate Solutions Selected

Transportation Sector:

- Investing in **public transit**
- Developing **walkable communities**
- Building safe & connected **active transportation infrastructure**

Buildings/Green Infrastructure:

- Creating green or greener **buildings**
- Enhancing carbon sinks with **nature-based infrastructure** such as trees, parks & forests



References: CHASE/CPHA/OPHA, 2023. Climate Change, Population Health and Health Inequity; Intergovernmental Panel on Climate Change (IPCC).2018.Summary for Policymakers of IPCC Special Report on Global Warming of 1.5°C approved by governments

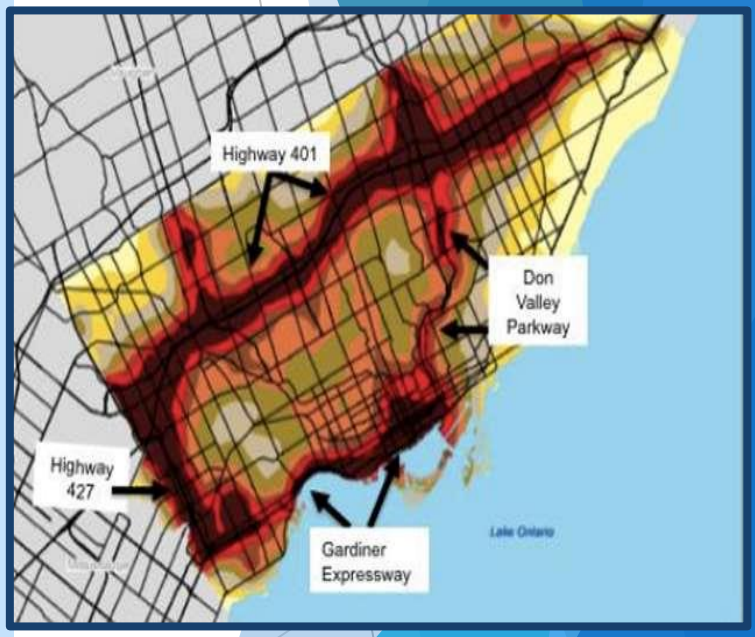
Health Risk Factor - Transportation Sector
Traffic Related Air Pollution (TRAP)

Air Pollution:

- 15,300 deaths/year - $120 Billion/year

TRAP: 100-500 meters

- 1200 deaths/year - $9.5 Billion/year
- Increases risk of asthma in children, CVD, lung cancer & premature deaths
- Likely to cause childhood leukemia & lung cancer in adults; may cause breast cancer
- Neighbourhoods with higher levels of material deprivation – more likely to be near highways



References: : CHASE/CPHA/OPHA, 2023. Climate Change, Population Health and Health Inequity Health Canada, Air Pollution. 2021; Health Canada, TRAP. 2022; Image: TPH, May 2014

Health Risk Factor - Transportation Sector

Physical In-activity

Chronic diseases:

- 150,000 premature deaths/year
- About $200 Billion/year in health-related costs
- **Type 2 Diabetes:**
  - 10% of Canadians over a 10-year period
  - $15.36 Billion over a 10-year period

Physical Activity:

- Reduces the risk of 25 chronic diseases
- 150-200 minutes/week - reduce early deaths by to 26%

Reference: CHASE/CPHA/OPHA, 2023. Climate Change, Population Health, and Health Equity; Samitz et al. 2011; CDPA, 2017; Bilandzic and Roseela 2017/
Photo: Kim Perrotta

Health Climate, Health & Health Equity Benefits
Public Transit

Reduces GHGs:

- A number of modelling studies - VKT & GHGs can be cut significantly by investing in transit.

Increases Physical Activity:

- Montreal Study - round trip on public transit - 25% of daily physical activity recommended

Reduces Air Pollution:

- GTHA – transit-oriented plan – produce $2 billion/year health-related benefits – reducing air pollution & increasing physical activity

References: CHASE/CPHA/OPHA, 2023. Climate Change, Population Health, and Health Equity; Photo: City of Saskatoon, Saskatchewan

Climate, Health & Health Equity Benefits
Public Transit

Increases access to jobs & services:

- 20-40% of people do not drive.

Reduces living costs:

- Costs $6,000-$13,000/year – one car

Reduces vehicle-related deaths:

- 2000 vehicle-related deaths/year

Existing Health Inequities:

- 5% of population – low income – poor transit

References: CHASE/CPHA/OPHA Report Active Travel Factsheet, 2021; Litman, 2017; CAA, 2020; Canada, 2018: Beck et al., 2007; Allen & Farber, 2017;
Photos: Chad Transit, NS; Zunga Bus, Powell River, BC

Climate, Health & Health Equity Benefits
Active Transportation Infrastructure

Many studies – over 2 decades - have demonstrated that safe & connected AT infrastructure:

- Encourages walking & cycling for transportation
- Reduces GHGs & air pollution
- Increases safety of pedestrians & cyclists
- Increases levels of physical activity
- Improves health
- Particularly important for women, older populations, & those with mobility challenges

Reference: CHASE/CPHA/OPHA, 2023. Climate Change, Population Health, and Health Equity Photo: K Perrotta, Union Station, Toronto

Climate, Health & Health Equity Benefits
Active Transportation Infrastructure

A 2017 Long-Term Study that followed >250,000 people in 22 communities in the UK for 5 years found:

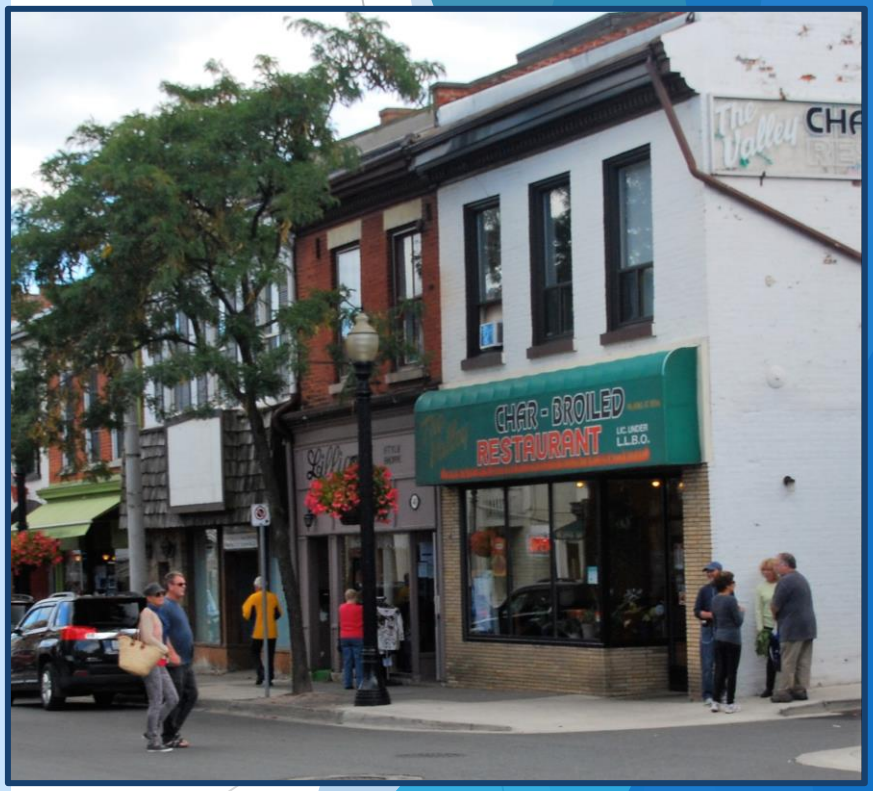
- 80-90% of Cycling Commuters & 50-54% of Walking Commuters – met physical activity guidelines
- **Commuting by cycling** – lowered the risk of CVD, cancer & premature deaths from all causes
- **Commuting by walking** - lowered risk of CVD - six miles or two hours/week

References: CHASE/CPHA/OPHA, 2023. Climate Change, Population Health, and Health Equity; Celis-Morales CA 2017. Photo: K Perrotta, Hamilton, Ontario.

Climate, Health & Health Equity Benefits
Walkable Neighbourhoods

Five Ds – Density, Diversity, Design, Destinations, Distance to Transit

- ❑ Reduce GHGs
- ❑ Increase levels of physical activity
- ❑ Reduce weight, diabetes, premature deaths
- ❑ Reduce air pollution
- ❑ Improve health equity by increasing access to essential amenities
- ❑ Greater health benefits for low-income populations



Ref: CHASE/CPHA/OPHA, 2023. Climate Change, Population Health, and Health Equity. Photo: K Perrotta, Hamilton, Ontario.

Climate, Health & Health Equity Benefits
Walkable Neighbourhoods

A 2022 Canadian study - 1.8 million adults over 15 years found that:

- Relative to those living in the least walkable neighbourhoods, those living in the most walkable neighbourhoods were:
  - **9% less likely to die prematurely from CVD**
  - **13% less likely - from Stroke**
  - **3% less likely - all causes**

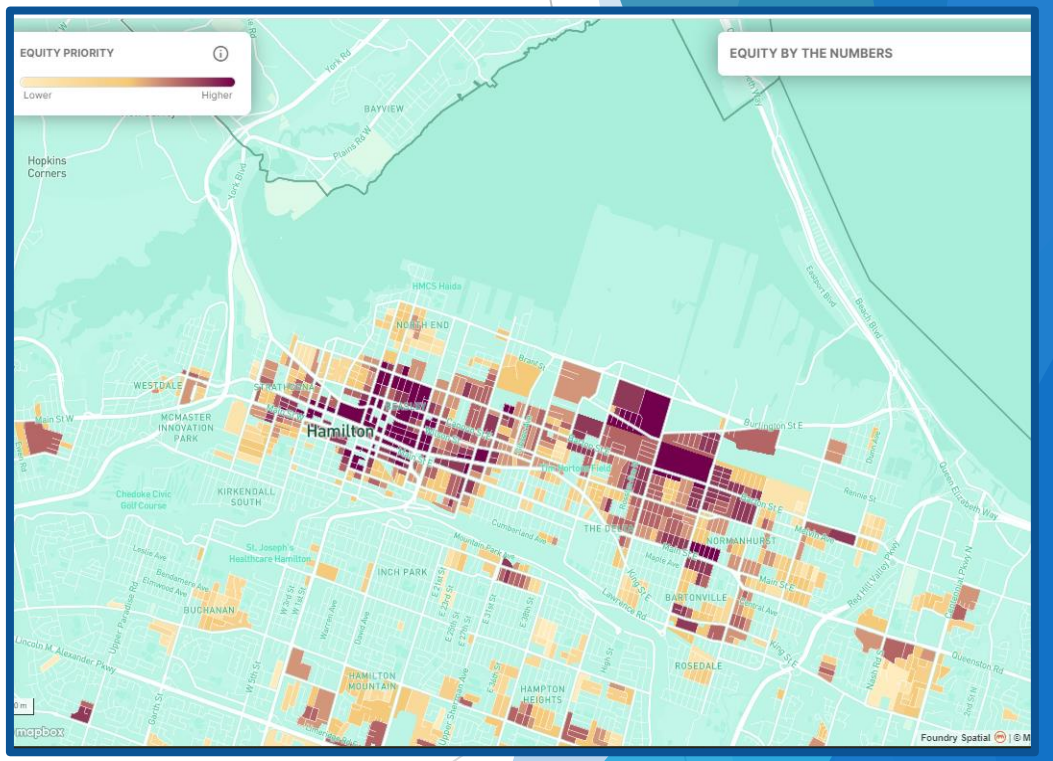
- Those living in the most walkable neighbourhoods who:
  - Had little education
  - Lived in low-income households
  - Lived in highly deprived neighbourhoods

  Were 9%, 5% & 25% less likely to die prematurely from CVD than similar populations living in the least walkable neighbourhoods

Reference: : CHASE/CPHA/OPHA, 2023. Climate Change, Population Health and Health Inequity; Lang Justin et al.2022.Neighbourhood walkability and mortality: Findings from a 15-year follow-up of a nationally representative cohort of Canadian adults in urban areas.*Environmental International*.Vol 161. 149

Health Risk Factor - Buildings & Neighbourhoods
Extreme Heat

- Associated with skin rashes, heat strokes, aggressive behaviour, adverse reproductive outcomes, ERVs, & premature deaths
  - 291 deaths in Montreal in 2010
  - 619 deaths in BC in 2021
- One study - 26 Canadian cities - found that extreme heat can increase premature deaths by 2-13%

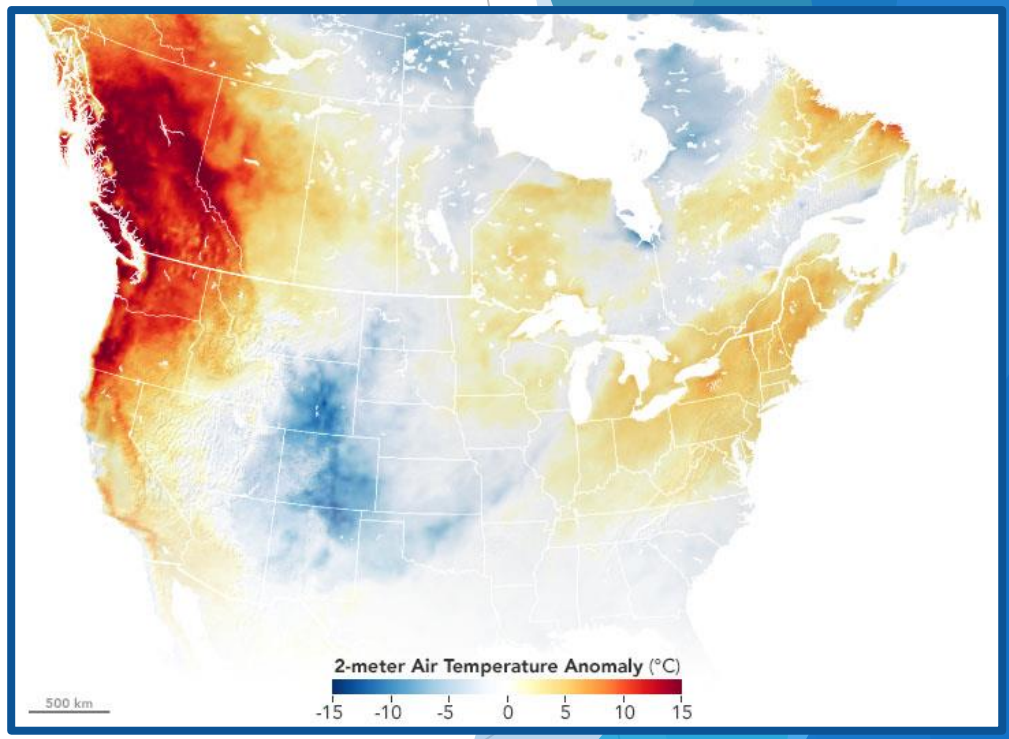


References: CHASE/CPHA/OPHA, 2023. Climate Change, Population Health and Health Inequity Health Canada. 2022; Health of Canadians in a Changing Climate - Advancing our Knowledge for Action. Image: HealthyPlan.City – Hamilton-Summer Temperature & Low income Individuals

Health Risk Factor - Buildings & Neighbourhoods
Extreme Heat

2021 BC Heat Dome:

- Deaths in community increased by 440%
- Much higher death rates:
  - 65-74 yrs
  - Low-income populations
  - Homes that lacked air conditioners
  - Neighbourhoods with less greenness & higher building densities



References: CHASE/CPHA/OPHA, 2023. Climate Change, Population Health and Health Inequity Health Canada. 2022; Health of Canadians in a Changing Climate - Advancing our Knowledge for Action. Henderson, 2022. Image: Wikipedia. 2021

Climate, Health & Health Equity Benefits
Greenspace

Carbon Sink

Cools & Cleans the air

- Captures & filters air pollutants
- Cools temperature
- At a local & community level

Health Inequities:

- Materially deprived neighbourhoods more likely to have higher levels of air pollution & less green

References: CHASE/CPHA/OPHA, 2023. Climate Change, Population Health, and Health Equity; DSF, 2015; Doiron D, 2020. Photo: Beech Street Play Area, Peel Region

Climate, Health & Health Equity Benefits
Greenspace

Improves Mental & Physical Health:

- Decreases stress, ADD/ADHD symptoms, & depression
- Associated with healthier births, healthier weights, improved cognitive function, & decreased risk of diabetes & premature deaths from all causes
- Children & low-income populations appear to benefit the most

One long-term study:

- 1.3 million Canadians – higher levels of greenness - 250-500 m
- Decreased premature deaths from 6 causes by 8-12%

References: CHASE/CPHA/OPHA, 2023. Climate Change, Population Health, and Health Equity; Zupancic, TPH, 2015; Cottageri, 2022; Villeneuve, 2022; De la Fuente, 2021; Crouse, 2017.

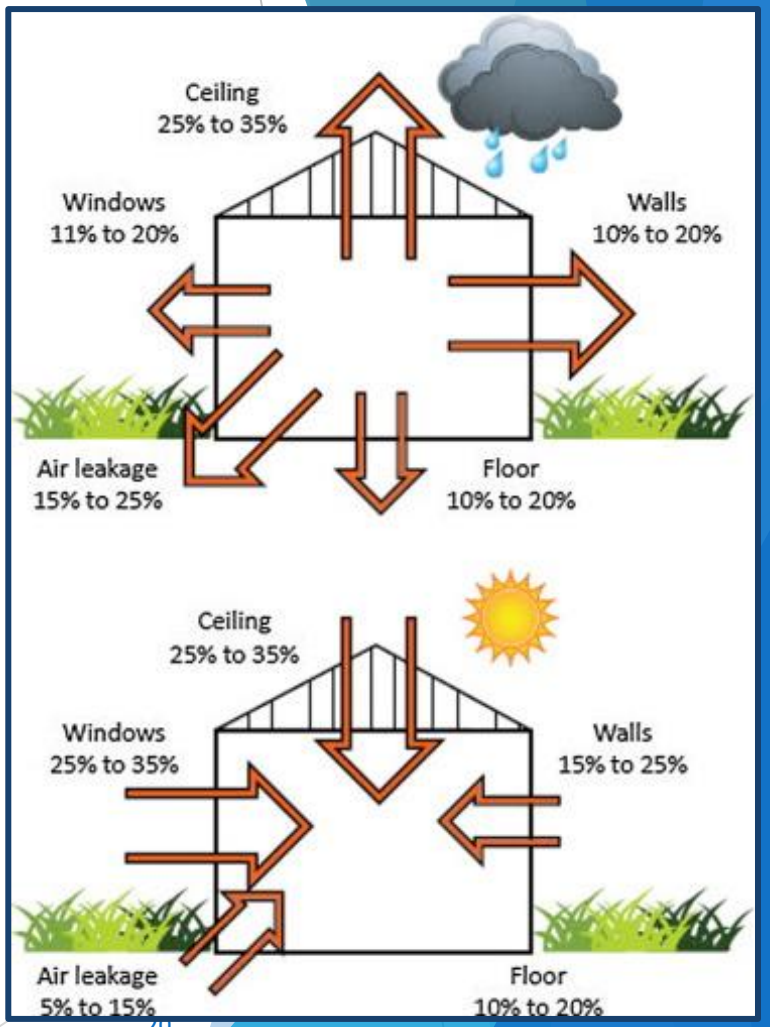
Climate, Health & Health Equity Benefits
Green Buildings & Building Retrofits

Reduce Greenhouse Gases:

- IEA has estimated that energy demand for space heating in Canada can be reduced by 85% by 2050 by improving building envelopes & heat pumps

Reduces Outdoor Air Pollution

- Oil & gas release NOx & other pollutants
- US study - $47 Billion in health-related costs – burning natural case in residential buildings



Reference: CHASE/CPHA/OPHA, 2023. Climate Change, Population Health, and Health Equity. IEA, 2019; Buonocore j et al. 2021. Graphic: https://www.sciencedirect.com/science/article/pii/S1110016817301734

Climate, Health & Health Equity Benefits
Heat Pumps

Cold Climate air-source heat pumps (ccASHP) - Operate to temperatures as low as -25°C

- Completely replace conventional oil- or natural gas-fired heating systems & air conditioning
- Use 70% less energy than conventional home heating
- When electricity is from renewable energy sources, Heat Pumps can cut GHGs from the heating & cooling of buildings by 100%

Ref: CHASE/CPHA/OPHA, 2023. Climate Change, Population Health, and Health Equity; Janssen Erik Janssen. 2023; Turner Chris. 2023. McDiarmid Climate Consulting. 2022 Photo: Heat Pump, CBC https://www.cbc.ca/news/science/heat-pump-faq-1.6824634

Climate, Health & Health Equity Benefits
Green Buildings & Building Retrofits

Poor Indoor Environmental Quality (IEQ):

- Can increase the risk of CVD, strokes, premature deaths, asthma, & respiratory diseases.
- Extreme heat & cold; Viruses & bacteria
- Mould & dampness; Air pollutants & toxics

Poor IEQ can Amplify Health Inequities:

- More likely to live in poor IEQ
- Less likely to have the resources to protect themselves

References: CHASE/CPHA/OPHA, 2023. Climate Change, Population Health, and Health Equity; Vardoulakis, 2015; Kosatsky, 2009, Belanger, 2014; Health Canada, 2022 Photo: K Perrotta, Bain Co-op, Toronto.

Climate, Health & Health Equity Benefits
Green Buildings & Building Retrofits

Several studies - green buildings & retrofits have improved health & climate resilience:

- Stabilizing temperatures; Reducing mould; Improving indoor air quality

Can Reduce Health Inequities:

- By reducing energy costs
- 1 in 10 households spend >6% on energy

Care is needed:

- Need to consider indoor air pollutants

Reference: CHASE/CPHA/OPHA, 2023. Climate Change, Population Health, and Health Equity; Torrie, 2020; MacNaughton, 2018; Chatterjee, 2021; Das & Martiskainen, 2022. Photo: Kim Perrotta, Student Housing, Hamilton

Public Health Agencies in Canada

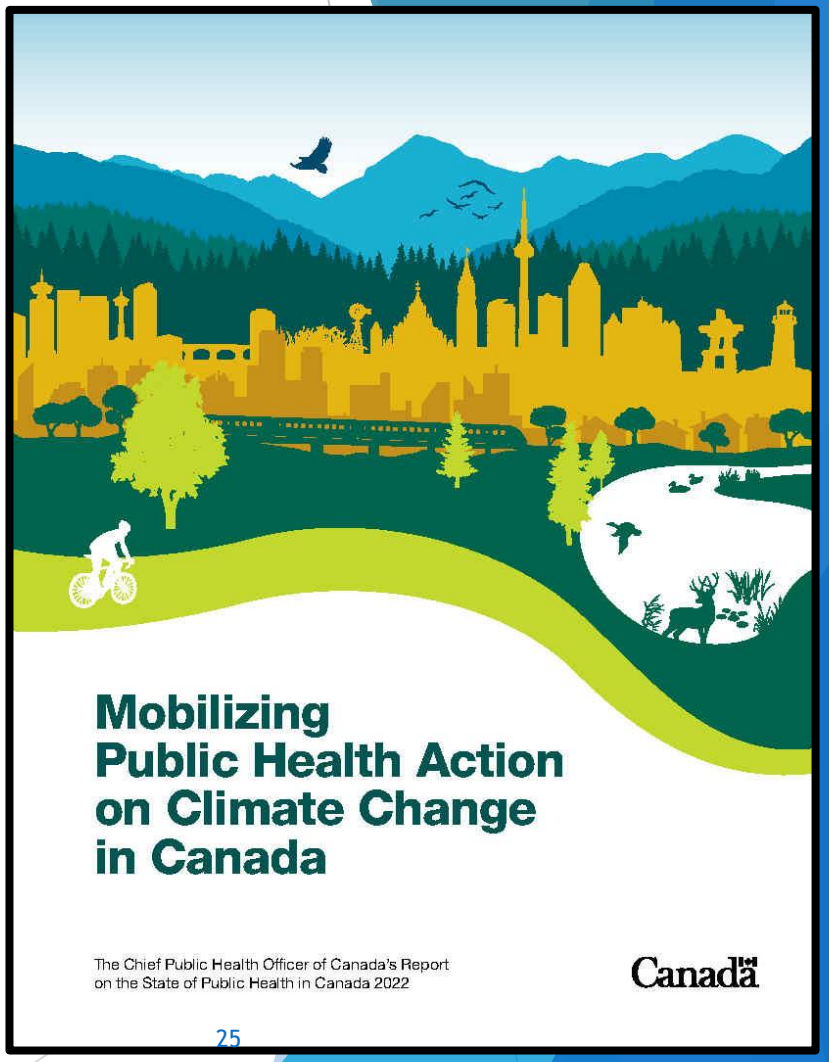
- **Most of Canada**
  - Arms-length agencies of the province
- **Ontario**
  - Funded by the Province primarily
  - Departments of Cities – Toronto, Hamilton, Ottawa
  - Departments of Regional Municipalities – Halton Region, Durham Region, Peel Region
  - Independent Boards – Simcoe Muskoka District Health Unit

Chief Public Health Officer - 2022

"We must continue to bring climate considerations into public health work to prepare for, and respond to, the now inevitable health impacts. This means supporting communities to adapt to the climate risks they will face."

"But we also need to put health at the centre of climate action and focus on efforts that will lead to significant and near immediate health and environmental benefits…It is clear, climate action is good for our health and public health systems have a critical role to play."

Link to CPHO Report



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