Responding to Climate Change as Public Health Professionals

NCCEH Webinar, June 25, 2020
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Creating Healthy and Sustainable Environments (CHASE)

Creating Healthy and Sustainable Environments

- Reactivated non-profit organization
- **Executive Director, Directors & Associates** - public health professionals with long history of work on environmental & built environment issues
- **Seeking to collaborate with public health & NGOs on intersection between climate change & Health**
- Research, capacity building & advocacy
- https://chase-canada.org/

Outline of Presentation

- High level summary of health risks from Climate Change – Global & Canada
- Brief Mention of Climate Change Goals & Emission Sources in Canada
- Discuss Climate Solutions that provide Immediate Health Benefits
- Identify Intersections between Climate Change & COVID-19
- Discuss the ways in which Public Health Professionals can & do engage
- Introduce the Climate Change Toolkit for Health Professionals

Climate Change is a Global Health Crisis

- **2018 Lancet Countdown on Climate Change and Health:**
  - 41 Indicators – 196 countries – 24 academic institutions
  - 712 extreme weather events in 2017 - US$326 billion in economic losses
  - 157 million more people were exposed to heat waves than in 2000;
  - Agricultural yield potentially decreasing in 30 countries.
- Under-nutrition - largest health impact of climate change in the 21st century (Lancet 2017)

Photo: Stencil, Hurricane, Puerto Rico

Paris Agreement on Climate Change - 2015

- **Hovering around 1°C Global Warming**
- **Current emissions rates have us:**
  - >1.5°C within 10 years (IPCC, 2018)
  - 2.6 to 4.8ºC of warming by 2100 (IPCC, 2013)
- **United Nations Framework Convention on Climate Change - Paris Agreement, 2015:**
  - 195 countries agreed hold global warming well below 2°C
  - pursue efforts to limit global warming to 1.5°C

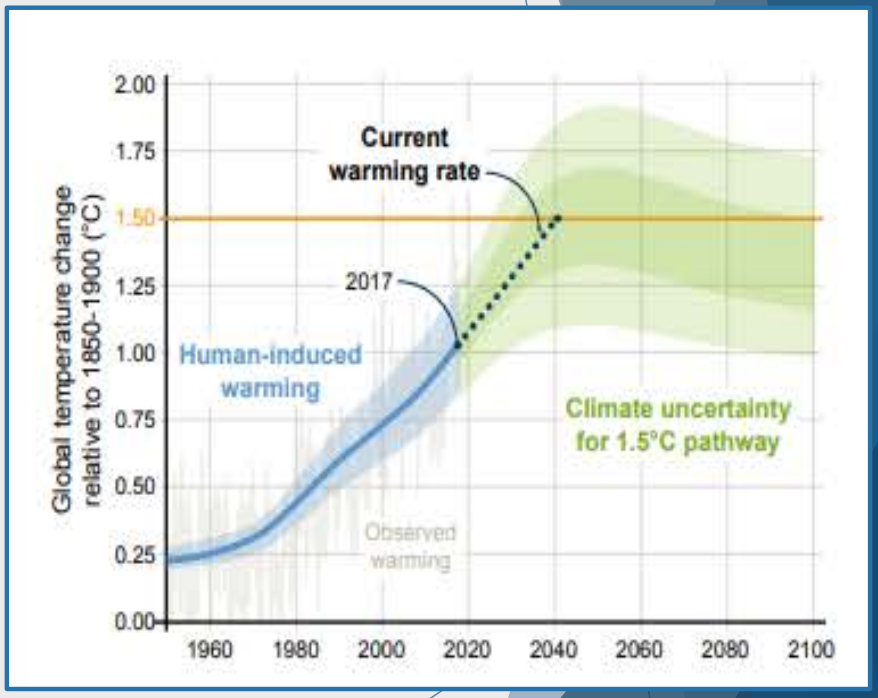


Figure: IPCC 2018 FAQ

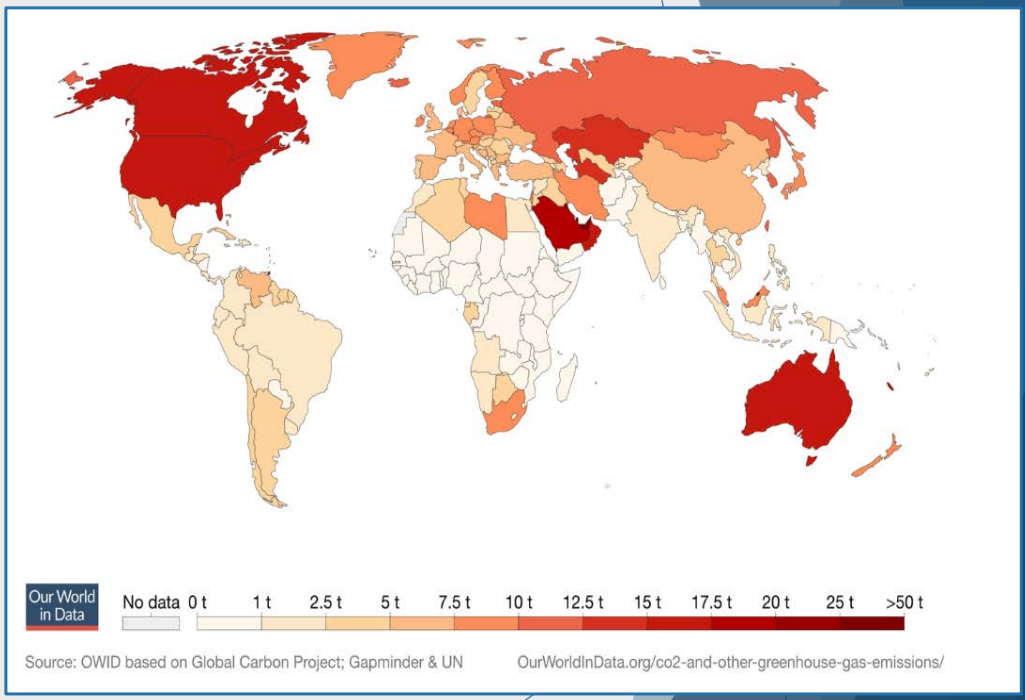
Difference between 1.5 & 2.0°C of Warming

- **Intergovernmental Panel on Climate Change (IPCC), 2018 Report:**
  - examined the impact of 1.5 & 2.0°C of warming
  - 800-page report
- 1.5°C would amplify all of the effects we are experiencing now at 1°C
- 2.0°C would be so much greater for ecological systems & human health
- **E.g. Several hundred million more people would be exposed to climate-related risks & poverty by 2050 at 2°C than 1.5°C**

Photo: 1a_Photography

Action Needed to Prevent 2°C Warming

- IPCC concluded - limit warming to 1.5°C, collectively we have to cut climate emissions by:
  - **45% by 2030 &**
  - **to net zero by 2050**
- Canada should do more because:
  - **It is 1 of the top 10 emitting countries in absolute terms**
  - 1 of top 4 emitting countries on a per person basis
  - Wealthy nation



References: Module 4, CAPE Climate Change Toolkit for Health Professionals

Reference: Ritchie and Roser, 2019

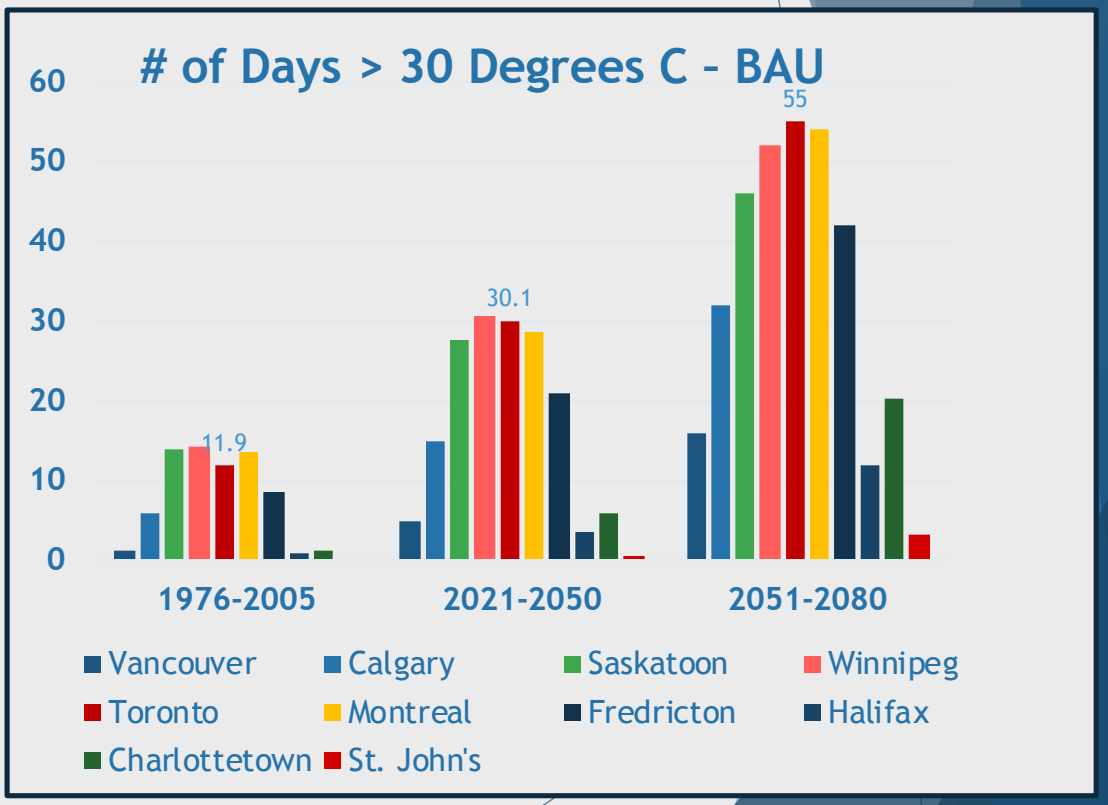
Health Risks for Canadians: Extreme Heat

Climate Change - increasing the frequency & intensity of Heat Waves:

- # of days > 30°C has already increased since 2005
- Expected to double or triple over the next 30 years

Extreme Heat Health Impacts:

- Premature deaths & heat stroke, aggravate heart & lung conditions, increase stress & violence



References: Module 3, CAPE Climate Change Toolkit for Health Professionals
Data: Prairie Climate Centre

Health Risks for Canadians: Air Pollution

Climate Change is increasing Air Pollution:

- Higher temperatures increase smog
- Warmer weather increases pollen & spore production
- Forest fires, wind, dust storms increase air pollution
- **E.g. Millions exposed to air pollution rated as "high risk" or "very high risk" for days at a time in 2018**

Air Pollution Health Impacts:

- Increases chronic heart & lung diseases including lung cancer
- increases premature deaths & hospital admissions
- Health Canada -**14,400 premature deaths/year**

Photos: Thinkstock, Wildfire Smoke

References: Module 3, CAPE Climate Change Toolkit for Health Professionals

Health Risks for Canadians: Vector-borne Diseases

Changing climatic conditions more conducive to emergence & spread of vector-borne diseases:

- **Lyme disease** - can lead to severe headaches, facial paralysis, arthritis, heart & neurological disorders
  - **increased – 144 cases in 2009 to 2025 cases in 2017**
- **West Nile virus** - symptoms can be mild to severe – infection of the CNS, muscle weakness, paralysis – can be fatal in vulnerable patients.
  - **over 6000 cases reported since 2002**
- Possible introduction of **exotic mosquito-borne** diseases e.g. malaria and dengue fever

Photo: Erop Kameneb, Unsplash

References: Module 3, CAPE Climate Change Toolkit for Health Professionals

Health Risks for Canadians: Extreme Weather Events

Climate change is increasing the frequency & intensity of Extreme Weather Events:

Over 10 years - 195 disaster-level extreme weather events in Canada

- **Wildfires** – resulted in the evacuation of nearly 500,000 Canadians over 40 years
- **Floods -** The most common & expensive natural disasters in Canada - NB flood – took out 150 roads, culverts & bridges
- **Droughts** - devastating impacts on farmers
- **Storms** - 2018 - winter storm left 600,000 residents in Ontario & Quebec without power - an extended period

Photo: Zippo S. Hurricane Igor's devestation, Newfound-land.

References: Module 3, CAPE Climate Change Toolkit for Health Professionals

Health Risks for Canadians: Food & Water Security

Climate change can reduce food & water security:

- Many families across Canada live with food insecurity already (8.3%)
- Many northern & First Nations communities are under drinking water advisories already
- **Melting permafrost** can reduce access to traditional foods
- **Unstable ice roads** can interrupt food supplies
- **Extreme events** can cut people off food & water supplies

Photo: Dan Tobias, Ice Fishing

References: Module 3, CAPE Climate Change Toolkit for Health Professionals

Health Risks for Canadians: Food & Water Quality

Climate change can increase Food- & Water-borne Illnesses:

- These illnesses are already responsible for significant burden of illness
- **Power outages** can result in food "going bad"
- **Floods** can contaminate drinking water & crops
- **Algal blooms** can increase the risk of shellfish poisoning
- **Heavy rainfall** can contaminate water supplies
- **Melting permafrost & droughts** can contaminate water supplies

References: Module 3, CAPE Climate Change Toolkit for Health Professionals

Photo: Chris Gallagher, Unsplash

Health Risks for Canadians: Mental Health

Climate Change is producing adverse mental health impacts:

- **Extreme weather events -** can produce post-traumatic stress disorder (PTSD), anxiety, depression & substance abuse
- **Climate variability & incremental changes -** can lead to anxiety, depression & suicidal thoughts
- **Threat of future climate-related disasters, current climate change risks & perceived threats can cause emotional distress, heightened anxiety & feelings of hopelessness.**
  - **Fort McMurray Study** – risk factors that increased anxiety symptoms e.g. witnessing event, media coverage, being relocated, perceived lack of support
  - **Nunatsiavut, Labrador Study** – stress, distress & anxiety from climate-related impacts on food security, infrastructure, weather & landscape

References: Module 3, CAPE Climate Change Toolkit for Health Professionals

Health Risks for Canadians: Health Equity & Vulnerable Populations

Climate Change Amplifies Health Inequities & Vulnerabilities:

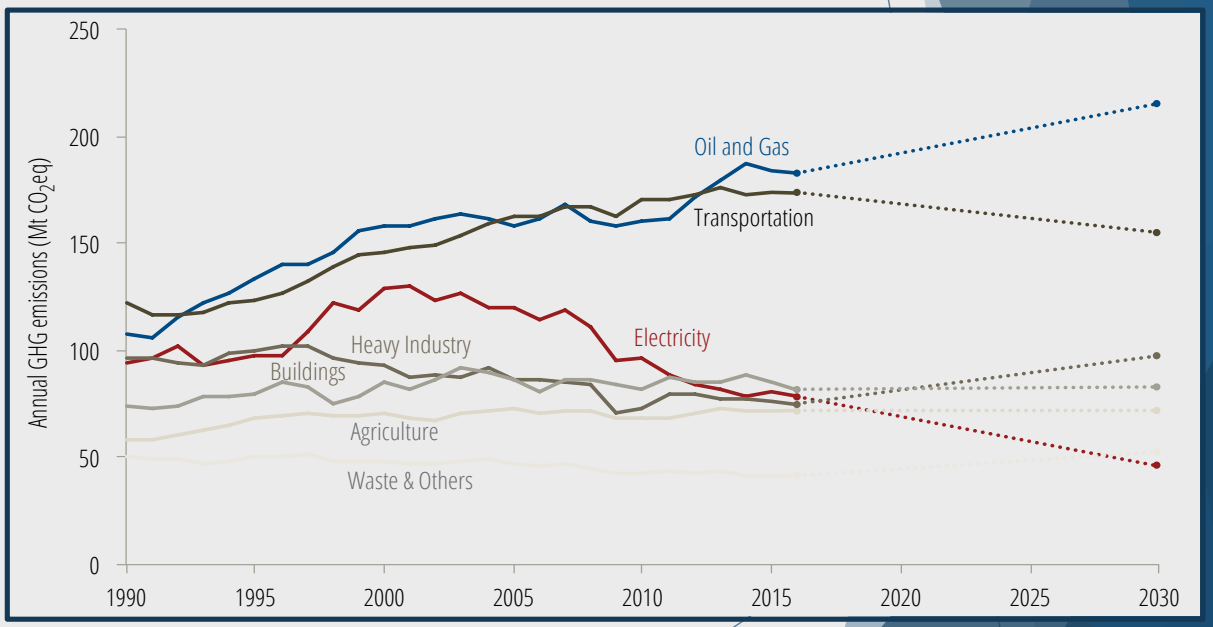
- **People with low incomes:**
  - More likely to live in high hazard zones, not to have insurance, to experience food insecurity, etcetera
  - Already at greater risk for poor health outcomes
  - Black & Indigenous People & People of Colour are likely to be disproportionately represented in this group in some communities*
- **Older people, people with pre-existing health conditions & young children**
- **Indigenous People & those in Northern Communities**

Tedward Quinn, Unsplash

References: Module 3, CAPE Climate Change Toolkit for Health Professionals;
*TPH, 2013, Racialization and Health Inequities in Toronto.

Canadian GHGs by Economic Sector, 1990-2016 with Federal Projections to 2030

- **Trendline for 26 yrs**
- **Oil & Gas Sector** blue line - **26%**
- **Transportation Sector** brown line - **25%**
- **Electricity Emissions** red line -**11%**
- **Buildings, Heavy Industry & Agriculture** - About **10%**



References: Module 4, CAPE Climate Change Toolkit for Health Professionals

Climate Change Solutions with Health Co-Benefits

- **Renewable Energy**
  - Phase out coal plants, reduce oil & gas use & development, cultivate renewables (wind, solar, hydro)
- **Sustainable Transportation**
  - Transit, Cycling, Walking, Transit Supportive & Walkable communities, Electric Vehicles
- **Energy Efficiency**
  - Building Codes, Retrofit Programs, Industry Programs
- **Sustainable Agriculture**
  - Low-meat diet, sustainable agricultural practices

Photo: Kim Perrotta, Solar Retrofit on Garage in Haliburton

References: Module 5, CAPE Climate Change Toolkit for Health Professionals

Health Benefits from Climate Solutions: Improve Air Quality

Air Pollution is responsible for:

- 14,600 premature deaths, 2.7 million asthma symptom days & 35 million acute respiratory symptom days each year.
- **Health related costs - $114 billion per year** (Health Canada, 2019).

Climate Solutions that Reduce Air Pollution:

- Public transit, Cycling & Walking
- Transit-Supportive & Walkable Communities
- Electrification of vehicles & Renewable energy
- Energy Efficiency Standards & Energy Retrofits
- Reduced extraction of oil & gas

Photo: Kim Perrotta, Streetcar, Toronto

References: Module 5, CAPE Climate Change Toolkit for Health Professionals

Health Benefits from Climate Solutions: Increase Physical Activity

Physical activity

- Improves mental health & fosters healthy child development & aging
- Reduces risk of CVD diseases & premature deaths
- Reduces risk of obesity, some cancers, diabetes, dementia & osteoporosis.
- **Health-related costs - physical Inactivity - $6.8 billion in 2009**

Climate Solutions that Foster Physical Activity:

- Use of Public transit
- Cycling & Walking as modes of transportation
- Walkable & Transit-Supportive Communities

References: Module 5, CAPE Climate Change Toolkit for Health Professionals

Photo: Kim Perrotta, Cyclists, Ottawa.

Health Benefits from Climate Solutions: Shift Diets towards Plant-based Proteins

Obesity:

- Increases risk of premature deaths
- Increases risk of cardiovascular disease, some cancers & diabetes
- **Health-related costs - $4.6 to $7.1 billion/year**

EAT-Lancet Commission on Food:

- Moving towards diets rich in plant-based proteins could reduce:
- Global mortality by 6 to 10%
- Food-related climate emissions by 20 to 70%.

Photo: Daniel Tobias, Myer's Farm, Dundas, Ontario

References: Module 5, CAPE Climate Change Toolkit for Health Professionals

Intersection – COVID19 & Climate Change: Health Risks & Complications for Response

HEALTH RISKS:

- **Extreme heat** likely to worsen impact of COVID19 (GHIN, 2020)
- **Air pollution** may increase the risk of contracting COVID19 (L.Setti et al, 2020)
- **Air pollution** may increase the death rates from COVID19 (X.Wu et al, 2020)
- **Wildfire smoke** will be a concern (S.Henderson, 2020)
- All can be expected to amplify impacts for vulnerable populations

COMPLICATES RESPONSE TO CLIMATE EVENTS:

- **Evacuations** for wildfires
- **Evacuations** for Floods
- **Cooling centres** for extreme heat
- **Recreational responses** to extreme heat (i.e. opening pools in urban centres)
- How do we protect clients?
- How do we protect workers/volunteers?

Intersection – COVID19 & Climate Change: Complicates or Accelerates Climate Solutions

COMPLICATES CLIMATE SOLUTIONS/COMMUNITY RESILIENCE:

- Public transit being avoided
- Access to Community Gardens affected
- Access to parks & greenspace affected
- How do we get restaurants & workplaces back on line?
- Building space requirements
- Indoor air ventilation

ACCELERATES CLIMATE SOLUTIONS/COMMUNITY RESILIENCE:

- Telecommuting now becoming acceptable
- Teleconferencing for education, meetings & medical appointments becoming acceptable
- Cities building out bike lanes
- Cities expanding space for pedestrians
- Public recognizing the need for more parks & green space

Role of Public Health on Climate Change: Educate the Public

Health Professionals are influential

- **Health messages re: Climate Change resonates with the public ***
- **Use community networks** to build awareness
- **Help the public to understand that:**
  - Climate Change is a **health issue**
  - Actions individuals can take to **protect themselves** from climate impacts
  - Policies & **programs needed** or in place to protect them
  - Actions individuals can take to **reduce their impact** on the climate
  - Collective actions needed to **reduce our impact** on the climate

References: Module 8: Climate Change Toolkit for Health Professionals
* Comeau, Louise and Eric Lachappelle. 2018. Framing the transition to renewable energy. In Panoramic Survey 2018: Analytical Briefing. Vancouver BC: EcoAnalytics

Role of Public Health on Climate Change: Collaborate with Allies on Common Goals

- The public can relate more to immediate **health co-benefits** related to climate solutions
- Decision-makers influenced by health professionals
- **Collaborate with partners on common goals such as:**
  - Bike lanes & public transit
  - Energy efficiency programs
  - Low meat diets & green space
  - Phase-out of coal plants

Photo: Kim Perrotta, Bike Lane, Toronto, 2017

Role of Public Health on Climate Change: Engage in Municipal & Provincial Processes

- **Bring health evidence & health equity concerns to:**
  - **Provincial planning processes** e.g. urban containment & transit-supportive
  - **Official Plans & Subdivision Plans** e.g. walkable & transit supportive
  - **Certificates of Approval** e.g. air pollution & climate emissions
  - **Environmental Assessments** e.g. air pollution, climate emissions & active transportation
  - **Transit plans** e.g. needs of low income communities & inter-modal connections
  - **Active Transportation Plans** e.g. foster walking & cycling
  - **Community Resiliency Plans** e.g. urban gardens, bike lanes, greenspace
  - **Energy Plans** e.g. promote renewables, energy efficiency, distributed power

References: Module 5: Climate Change Toolkit for Health Professionals

Role of Public Health on Climate Change: Assess Climate Risks & Community Resiliency

- **HEAT**: Greening Communities to counter Urban Heat Island e.g. EcoHealth Toolkit & Greenspace & Shade & Schoolyard Oasis & Green Roofs
- **HEAT**: Heat Alert & Response Systems e.g. cooling centres, media, pools open
- **FLOODS:** Zoning Bylaws, Flood Maps & Flood Control Structures
- **WILDFIRES:** Community Wildfire Protection Plan e.g. Fire-Resistant Roofs, Spark Arrestors, Buffers
- **WILDFIRES:** Preparing for Evacuations, Smoke Education, Mental Health Impacts re: PTSD
- **COLD:** Cold Weather Alerts & Response Programs e.g. shelters for homeless, transit tokens
- **FOOD:** Building Food Systems & Security e.g. community gardens, urban agriculture, food shortage planning
- **VECTOR-BORNE DISEASES**: Surveillance Programs, Education, Prevention Policies?

References: Module 7: Climate Change Toolkit for Health Professionals

Role of Public Health on Climate Change: Resiliency & Vulnerability Assessment for Health Care Facilities

HEALTH CARE FACILITIES (HCF):

- 4.6% of Canada's Climate Emissions
- Initiate or participate in **Resiliency Assessments** – how sustainable are the operations & products?
- Initiate or participate in **Vulnerability Assessments** – how might climate-related events affect operations?
- Initiate or participate in **Adaptation Assessments and Plans** – prepare for floods, wildfires, heat waves

References: Module 6: Climate Change Toolkit for Health Professionals

Photo: Kim Perrotta, Hospital, Halifax, NS, 2015

Role of Public Health on Climate Change: Engage as Volunteers in Public Health Associations

- **Educate Peers**
- **Capacity Building** & Peer to Peer Mentoring
- **Advocate for policies needed at Municipal, Provincial & Federal Levels**
  - Conduct Research & Policy Papers
  - Prepare Submissions & Letters
  - Use Traditional Media & Social Media
- **Examples:** Coal Phase-out, Carbon Taxes, Call to Action on Climate Change

References: Module 8: Climate Change Toolkit for Health Professionals

Call to Action on Climate Change and Health

This Call to Action comes from doctors, nurses, medical officers of health and public health professionals across Canada.

We are calling on all federal political parties in Canada to see **climate change** as we, and the World Health Organization, see it, **"as the greatest health threat of the 21st century."**[i] We are asking you to see climate solutions as we, and the Lancet Commission see them, **"as the greatest global health opportunity of the 21st century"**.[ii] Many of the policies needed to fight climate change will produce immediate health benefits, reduce healthcare costs, and improve social cohesion and equity in our communities.

We are calling on each of you to make meaningful and effective action on climate change a central theme of your party's platform as you prepare for this year's federal election.

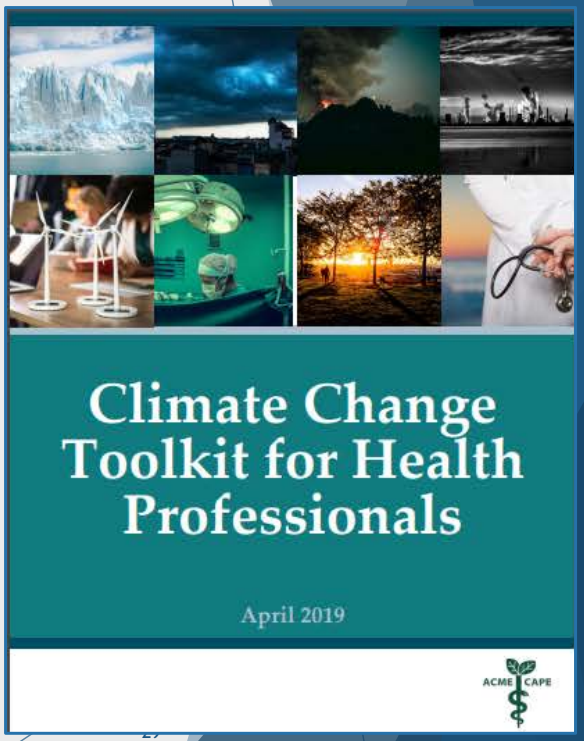
Climate change is already harming the physical and mental health of Canadians. Cardiorespiratory impacts from worsening air pollution due to wildfires left many Canadians coughing and cooped up inside in recent summers.[iii,iv] Emergency evacuations and population displacement from wildfires and floods have been associated with trauma and post-traumatic stress disorder.[v,vi] In the Canadian Arctic, where temperatures have increased by up to 3°C from the 1950s,[vii] health risks are increasing from food insecurity resulting from decreased access to traditional Indigenous foods.[viii,ix] Meanwhile, Lyme disease has spread into new regions in Canada [x] and more intense and prolonged pollen seasons have the potential to exacerbate hay fever and asthma.[xi]

Over the last two decades, Canada has seen a dramatic increase in the costs of extreme weather events such as hurricanes, floods, and wildfires. The Insurance Bureau of Canada reports that claims for natural disasters such as floods and wildfires have grown from $400 million per year in previous decades to approximately $1 billion per year today, while government funding for flood damage and other disasters has increased steadily from about $100-million per year two decades ago to $2 billion per year in 2013-14.[xii]

Climate change became a reality for many Canadians in the summer of 2018. In Toronto, temperatures exceeded 30oC for 21 days, [xiii] a huge increase over the 30 year average of 12.2 days per year that held until 2005, [xiii] while in Quebec, the only province which monitors heat-related deaths in real-time, extreme heat claimed the lives of more than 90 people.[xiv] British Columbia declared a provincial state of emergency as it fought to contain nearly 600 wildfires,[xv] while Ontario saw the number of wildfires double from a 10-year average of 716 to 1312.[xvi] In addition, millions of people in Canada were exposed to levels of air pollution rated as "high risk" and "very high risk" for days or weeks because of smoke from wildfires. [xvii] Articles on eco-anxiety, ecological grief and solastalgia began appearing with reg-

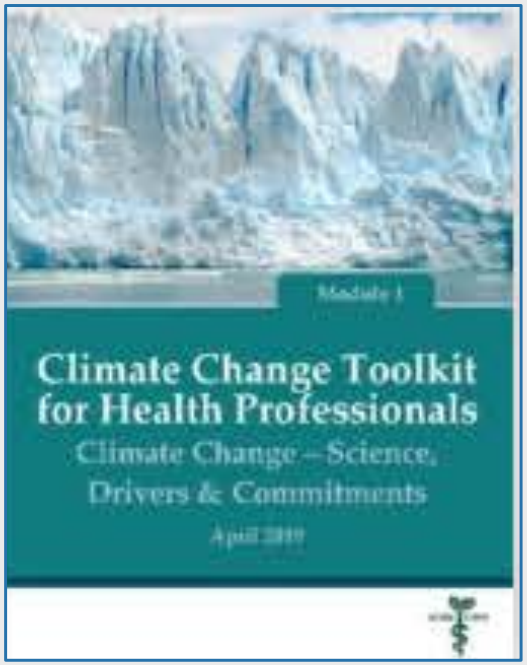
Climate Change Toolkit for Health Professionals

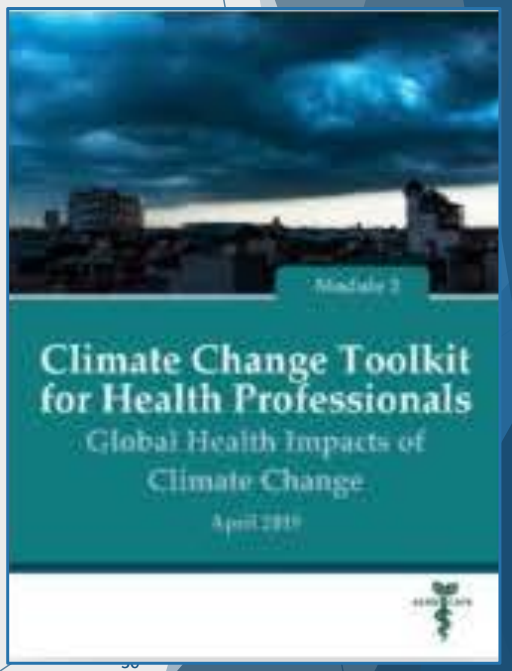
- Released in May 2019
- Produced & edited for CAPE by Kim Perrotta with Climate Action Fund – Federal Government
- 8 Stand-Alone Modules & 7 Factsheets
- Available English and French
- Open access on CAPE Website:
  - https://cape.ca/campaigns/climate-health-policy/climate-change-toolkit-for-health-professionals/
  - https://cape.ca/campaigns/climate-health-policy/boite-a-outils-sur-les-changements-climatiques-pour-les-professionnels-de-la-sante/



Module 1 - Climate Change – Science, Drivers & Commitments & Module 2 - Global Health Impacts of Climate Change

- **Prepared by Alice McGushin who works on the Lancet Countdown reports**
- https://cape.ca/wp-content/uploads/2019/04/Module-1-FINAL-TO-UPLOAD-SOLO-April-5-2019.pdf
- https://cape.ca/wp-content/uploads/2019/04/Module-2-Final-Solo-April-4-2019.pdf





Modules 3 – Climate Change Health Impacts Across Canada

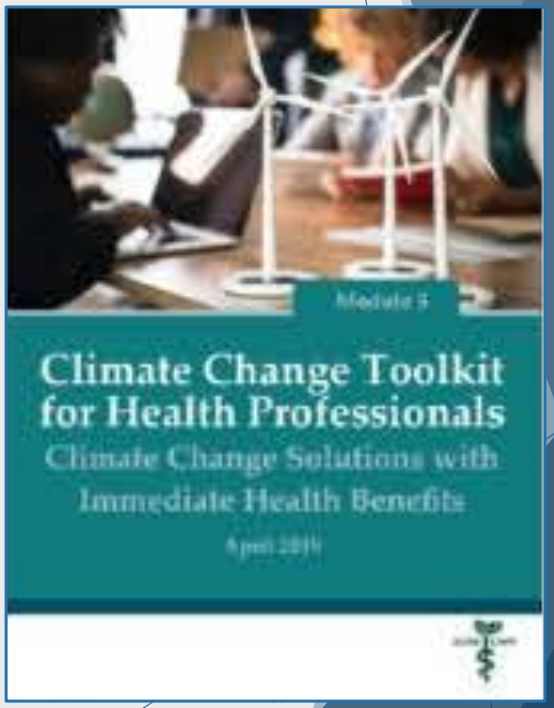
- **Prepared by Helen Doyle, Former Manager, Environmental Health, York Region Health Department**
- Discusses the health risks associated with climate change across Canada
- Reviewed by Peter Berry from Health Canada
- Identifies risks/impacts for different provinces/territories
- Provides examples for each type of impact
- https://cape.ca/wp-content/uploads/2019/04/Module-3-ready-to-upload-SOLO-April-5-2019.pdf

Module 4 - Greenhouse Gas Emissions in Canada by Sector and Region

- **Prepared by Bora Plumptre of Pembina Institute**
- Provides greenhouse gas emissions by sector for each province & territory
- Provides emissions trends over time
- Compares emissions in Canada to other countries
- Each Province/Territory has its own page or pages that can be pulled from the toolkit
- https://cape.ca/wp-content/uploads/2019/04/Module-4-NEW-.pdf

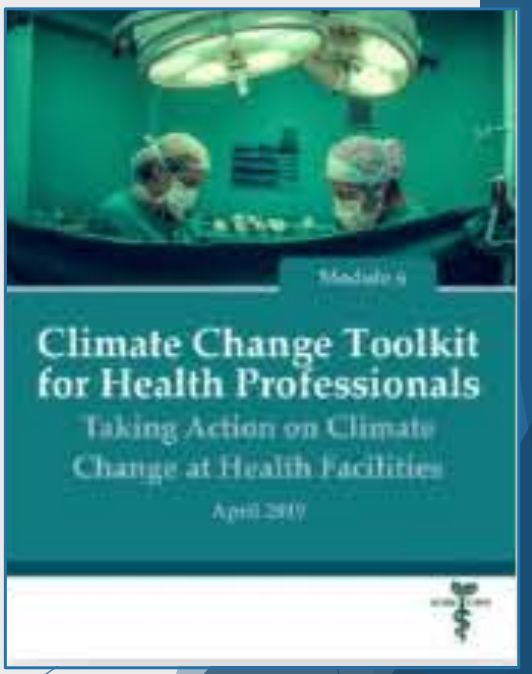
Module 5- Climate Change Solutions with Immediate Health Benefits

- **Prepared by Ronald Macfaralane, Former Manager, Healthy Public Policy Directorate, Toronto Public Health, & Kim Perrotta, Former Executive Director, CAPE**
- Discusses health benefits associated with various actions that can be taken to reduce greenhouse gases
- https://cape.ca/wp-content/uploads/2019/04/Module-5-Ready-to-upload-SOLO-UDATED.pdf



Module 6 – Taking Action on Climate Change at Health Care Facilities

- **Prepared by Linda Varangu, Former Executive Director, Canadian Coalition for Green Health Care**
- Discusses Climate Change Resiliency, Vulnerability & Adaptation Assessments for Health Care Facilities
- Discusses Sustainability and Resiliency Measures that can be taken by Health Care Facilities
- Provides case studies and resources
- https://cape.ca/wp-content/uploads/2019/04/Module-6-Final-Solo-April-2-2019.pdf



Module 7 - Preparing for Climate Change in our Communities

- **Prepared by Carol Mee, Former Manager, Healthy Public Policy Directorate, Toronto Public Health**
- Addresses programs/policies that can be used to prepare for climate-related events & changes
- Also addresses steps that can be taken to increase community resiliency
- Provides examples & tips for health professionals
- https://cape.ca/wp-content/uploads/2019/04/Module-6-Final-Solo-April-2-2019.pdf

Module 8 – Engaging in Climate Change Solutions as Health Professionals

- **Prepared by Kim Perrotta & Alice McGushin**
- Discusses why health professionals are **influential messengers**
- Identifies different ways that health professionals can engage in climate change debate
- Offers suggestions about how to work on issues
- https://cape.ca/wp-content/uploads/2019/04/Module-8-FINAL-TO-UPLOAD-SOLO-APRIL-5-2019.pdf

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