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The Voice of Public Health
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DRAFT POSITION STATEMENT

Climate Change and Human Health*

16 April 2019

FOR DISCUSSION

Climate change is identified as “the greatest health threat of the 21st century”¹ and it is recognized that “the effects of climate change are being felt today and future projections represent an unacceptably and potentially catastrophic risk to human health.”² The enormity of the challenge has been catalogued in a recent government of Canada report.³ The effects of climate change include: overall changes in temperature, increases in extreme weather events, changes in conventional patterns of disease vectors, polar ice decline, sea level rise, and changes in plant food production patterns with their subsequent effect on human health. Our response to climate change can also be “the greatest health opportunity of this century”⁴ as many of the policies needed to fight climate change could also produce health benefits, reduce health care costs, and improve social cohesion and equity in our communities.

Canada is a signatory, with 193 other countries, to the Paris Accord⁵ that provides a global response to the threat of climate change by requiring each signatory to establish carbon reduction goals aimed at keeping a global temperature rise this century to well below 2 degrees Celsius above pre-industrial levels, and to pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius. The world is currently at approximately 1 degree Celsius warming since 1880 with approximately two-thirds of that rise occurring since the mid-1950’s.⁶ Each signatory is committed to taking actions to meet their target. In Canada, provincial, territorial and Federal governments have committed to making change,⁷ and important steps have been taken by some provincial and territorial governments, and the federal government over the last several years, but our work is far from complete. The Auditor General of Canada found that climate emissions in 2020 are projected to be 111 MT (megatonnes) greater than Canada’s 2020 target of 620 MT.⁸

Climate change will affect all areas of Canada; however it will be most apparent in Canada’s Far North. The Arctic is warming at triple the global rate and is considered one of the more vulnerable regions to climate change in the world.⁹ In the Far North, frozen permafrost underlies most infrastructure, including roads, buildings, bridges, landfills, sewage lagoons and tailings ponds. Ice road networks, built on frozen seas, lakes and rivers, facilitate delivery of food and medical supplies and enable Indigenous hunting, fishing, and gathering traditions. The rapid thawing of permafrost and ice roads has profound implications for the health and safety of northern people. By altering traditional ways of life, these changes will also result in further social and economic dislocation of an already vulnerable population. With few permanent roads, frozen oceans and land provide transportation links to hunting grounds. Furthermore, the animals that make up the base of the Inuit diet (seal, caribou, arctic char, beluga whale, and narwhale) are vulnerable to climate change related conditions, presence or absence of snow or ice, and a precipitation regime that determines migration timing, abundance and health.¹⁰

* This statement is adapted from a document prepared by the Kim Perrotta, MHSc, Executive Director, Canadian Association of Physicians for the Environment (CAPE), with input from Dr. Courtney Howard, President, CAPE, and representatives of the Canadian Medical Association, the Canadian Public Health Association, the Canadian Nurses Association, and the Canadian Nurses for Health and the Environment.

The Canadian Public Health Association (CPHA) recognizes the scientific consensus that, without rapid mitigation of greenhouse gas emissions, the public health effects will only intensify.¹¹

RECOMMENDATIONS

CPHA calls on the federal government to work with provinces, territories and Indigenous peoples to:

- Develop effective, evidence-based climate action plans that demonstrate a national approach describing how Canada will achieve the emission reductions needed to do its fair share[†] to keep global warming below 1.5°C based on our commitments in the Paris Accord and the Pan-Canadian Framework. This includes:
 - Establishing scientifically sound emission reduction targets needed to meet Canada’s 2030, 2050 and 2080 commitments, as well as emissions monitoring and transparent emissions reporting mechanisms;
 - Implementing the combination of policy instruments (i.e., regulations, carbon pricing, funding programs) that are needed to support reduction of greenhouse gas emissions from all sources across Canada, including schools and healthcare institutions;
 - Integrating a health-in-all-policies approach to climate policy, identifying health co-benefits associated with climate change policy, and integrating health equity impact assessments into ongoing policy decisions;
 - Identifying the steps to be taken to reduce the emissions from the oil and gas sector, including phasing out fossil fuel subsidies, tightly regulating methane emissions, and phasing out extraction over time;
 - Identifying how emissions from the transportation sector will be slowed and reduced over time giving consideration to alternative fuels, electrification of vehicles, public transit, active modes of transportation, transit-supportive development policies and telecommuting;
 - Ensuring that coal-fired power plants in Canada are phased out by 2030, with electricity needs displaced by energy efficiency and at least two thirds of requirements replaced with non-emitting forms of electricity;
 - Developing policies to reduce greenhouse gas emissions and foster innovation in the agricultural sector, and developing a National Food Policy that incorporates the recommendations for a diet rich in plant-based protein in the 2019 Food Guide; and
 - Fostering the development and use of renewable energy sources.
- Develop and properly fund just transition policies and programs to support an equitable transition for farmers, workers, and their communities who will be affected by the transition to a low carbon economy.
- Make commitments to minimize the impact of climate change on the health of Canadians by:
 - Providing funding to undertake local and regional climate change impact assessments, developing adaptation plans, and supporting best practice information-sharing between public health units in different regions of the country;
 - Supporting pan-Canadian and inter-jurisdictional coordination to standardize surveillance and reporting of climate-related health effects, developing knowledge translation strategies to

[†] *Fair share* refers to the concept that the world’s wealthier countries should take stronger steps to address climate change than developing countries. Overall developed countries are the greatest consumers of resources and as such should pay the greatest amount to clean up.

inform the public, and generating clinical and public health response plans to minimize the health effect of climate change;

- Increasing funding for research on the mental health effects of climate change and psychosocial adaptation opportunities; and
- Providing funding to the health sector to support efforts to increase resiliency to climate change effects (i.e., risk assessments, readiness to manage disease outbreaks, sustainable practices).

CONTEXT

Climate change is defined as a long-term shift in weather conditions that are identified by changes in temperature, precipitation, winds, and other indicators. It can involve both changes in average conditions and changes in variability, including, for example, extreme events.¹² Climate change can occur naturally; however, since the beginning of the industrial revolution human activity has had the single greatest influence. Its two greatest causes are the burning of fossil fuels, and deforestation. Both activities result in the release of carbon dioxide into the environment which causes a greenhouse effect that increases temperature.

An International Perspective

The health impacts of climate change on a global scale are devastating. The 2018 *Lancet Countdown on Health and Climate Change*¹³ report found that 712 extreme weather events occurred around the world in 2017, resulting in \$326 billion (USD) in economic losses; nearly a three-fold increase in economic losses over 2015. It reported that 157 million more people were exposed to heat waves in 2017 than were exposed in 2000, and that 3.4 billion weeks of work were lost due to extreme heat. It noted an increase in insect- and water-borne diseases in some regions of the world and a decrease in agricultural yield potential in the 30 countries for which data were available.¹⁴ This report identified under-nutrition as the largest health effect of climate change in the 21st century.¹⁵

The Intergovernmental Panel on Climate Change¹⁶ has identified the effects on health resulting from climate change as:

- Increases in atmospheric temperature are projected to increase morbidity and mortality due to heat-related illnesses such as heat stroke, heat edema, heat rash, heat stress, acute cardiovascular disease and renal disease;
- Reduced air quality from GHGs will likely increase morbidity and mortality due to asthma, ischemic heart disease, stroke, acute lower respiratory infections, lung cancer and chronic obstructive pulmonary disease;
- Vector-borne diseases are increasing in prevalence and are likely to continue their advance as warming temperatures expand the geographic range of insect and other species; and
- Extreme weather events, including flooding, droughts, cyclones, hurricanes and wildfires are expected to increase in frequency and intensity. Changes to weather and extreme weather events threaten food security, housing and infrastructure and result in lost income for those affected by the event. Climatic instability is expected to undermine crop yields, Indigenous hunting and gathering practices, and fishery production.

This report also paints a bleak picture of the world's future with 2°C of warming. While it concluded that 1.5°C of warming will amplify many of the climate-related health impacts that we are already experiencing at 1°C of warming, it found that the impacts of 2°C of warming would be far greater. For example, a 1.5°C target would protect several hundred million more people from climate-related

poverty by 2050 than would a 2°C target. The World Health Organization agrees; it found that impacts from undernutrition, migration and climate-related infectious disease will be significantly less at 1.5°C of warming than with 2°C of warming.¹⁷ These reports are corroborated by Environment Canada's Report to the United Nations and The Lancet Countdown Report.

The Canadian Situation

Over the last two decades, Canada has also seen a dramatic increase in the costs of extreme weather events such as extremes in temperature, flooding, 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 2013-14.¹⁸

Climate change is harming the physical and mental health of Canadians. Cardiorespiratory impacts from worsening air pollution due to wildfires left many Canadians ill in recent summers.^{19,20} Emergency evacuations and population displacement from wildfires and floods have been associated with trauma and post-traumatic stress disorder.^{21,22} In the Canadian Arctic, where temperatures have increased by up to 3°C from the 1950s,²³ health risks are increasing from food insecurity resulting from decreased access to traditional Indigenous foods.²⁴ Meanwhile, Lyme disease has spread into new regions in Canada²⁵ and more intense and prolonged pollen seasons have the potential to exacerbate hay fever and asthma.²⁶

Climate change became a reality for many Canadians in the summer of 2018. In Ontario, temperatures exceeded 30°C for 21 days,²⁷ a significant increase over the 30-year average of 13.5 days per year that held until 2005,²⁸ while in Quebec, the only province which monitors heat-related deaths in real-time, extreme heat claimed the lives of more than 90 people.²⁹ British Columbia declared a provincial state of emergency as it fought to contain nearly 600 wildfires,³⁰ while Ontario saw the number of wildfires double from a 10-year average of 716 to 1312.³¹ 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.³² Articles on the emergence of eco-anxiety, ecological grief and solastalgia in Canada are appearing with regularity in mainstream media.^{33/34}

Looking Forward

Adaptation policies can help reduce the health effects associated with some elements of climate change, but current levels of emissions are increasing to a level where effective adaptation is potentially impossible. Current emission trajectories have the world on course for 2.6 to 4.8°C of warming by 2100.³⁵ In 2018, the *Lancet* Countdown report concluded that: "Trends in climate change impacts, exposures, and vulnerabilities demonstrate an unacceptably high level of risk for the current and future health of populations across the world," and that both human lives, and the health systems upon which people are dependent, will be at risk unless steps are taken to significantly reduce climate emissions and increase our resilience to the climate change that is now inevitable.¹⁷

To prevent global warming from reaching 2°C, the IPCC has concluded that collectively we have to reduce climate change causing emissions by 45% by 2030 and to zero by 2050.¹⁹ To do its fair share, Canada will have to double its existing pledge and cut climate emissions by at least 60% below 2005 levels by 2030.³⁶ Current and future Parliamentarians will be responsible for setting this target and establishing the policies and programs needed to realize it.

Many of the policies needed to fight climate change, however, will produce significant and immediate health benefits and potentially healthcare savings across Canada. For example, in Canada chronic exposure to fine particulate air pollution resulting from the burning of fossil fuels is responsible for 7,100 premature deaths and \$53.5 billion in health-related costs per year,³⁷ thus climate solutions directed at cars, trucks, coal plants, industry, and oil and gas extraction, would save lives, reduce rates of heart disease, asthma and lung cancer, and cut healthcare costs, while reducing climate emissions. Similarly, chronic diseases cost Canada about \$200 billion per year in treatment and lost-time.³⁸ By increasing levels of physical activity through investments in public transit, cycling and walking,³⁹ as well as the promotion of diets rich in plant-based proteins⁴⁰ it could be possible to save lives, reduce rates of heart disease, Diabetes and cancer, and cutting healthcare costs, while reducing climate emissions.

The United Kingdom reduced its climate emissions by 41% between 1990 and 2016 as a result of the *Climate Change Act* which led to long-term, legislated targets with policies subject to continuous evaluation by an independent scientific body.^{41/42/43} In Canada during the same period, emissions increase from 603 MT to 704 MT.⁴⁴ A target-based, policy-driven plan with cross-party support should provide similar response in Canada.

We are running out of time. By the time today's toddlers are in high school, our window for the most effective action will have closed. We are the last generation that has the opportunity to make the changes needed to avoid catastrophic climate change. Climate change must be treated like the public health emergency that it is.

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