

# Sustainability in Medicine: PGME Action Plan for a Climate Emergency

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Welcome to the "Sustainability in Medicine: Action Plan for a Climate Emergency" learning module.

Wild fires, atmospheric rivers, heat domes and heat islands have become common terms in Canada and throughout the world, as the world warms and CO2 levels reach concerning milestones. Climate change has far reaching implications on the health of populations.

It is essential that health care providers understand how climate change and sustainability impact their clinical practice. This course is designed to provide you with a framework to improve your understanding of the health impacts of climate change and to empower you to promote sustainability in your clinical practice. The course is arranged by specialty including: anesthesia, family medicine, radiology, psychiatry, surgery and internal medicine. Residents are encouraged to explore climate related health issues across the medicine spectrum. The course should take about 2 hours to complete. There are additional resources for you to further your knowledge and links to organizations involved in the "greening" of health care. Information tailored to most PGME specialties is provided and well as references for further reading.

The learning objective of this module and CANMEDS roles are:

1. Demonstrate an understanding of the impact of climate change on human health. (medical expert)
2. Discuss practice strategies that can promote sustainability and mitigate the effects of climate change. (leader).
3. Outline ways to advocate for environmental health promotion on an individual and societal basis. (health advocate)

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# Climate change, health, and sustainability

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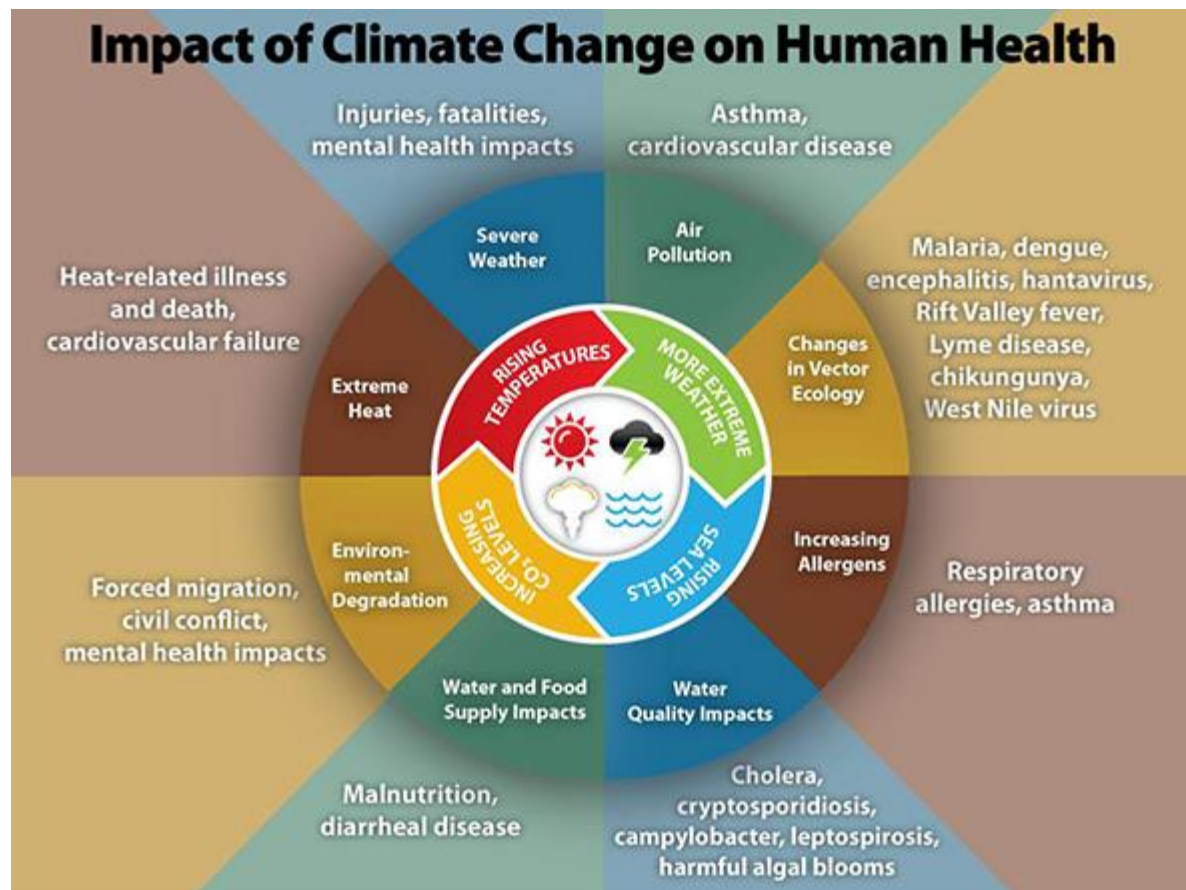
## **The Challenge:**

Climate Change 2023: Synthesis Report published in March 2023 reports that human activities, principally through emissions of greenhouse gases, have unequivocally caused global warming. Between 2011–2020, global surface temperature increased 1.1°C above 1850–1900 (pre-industrial levels). Global greenhouse gas emissions are continuing to increase, with contributions arising from unsustainable energy use, land use and land-use change, lifestyles and patterns of consumption and production across regions, between and within countries, and among individuals.

## **The Consequences:**

Climate change has resulted in profound changes to our planet leading to widespread adverse impacts and related losses and damages to nature and people. Extreme weather events (drought, atmospheric rivers, heat domes and wild fires, catastrophic flooding) have exposed millions of people to food insecurity, reduced water security, climate-related food-borne and water-borne diseases, an increased incidence of vector-borne diseases and loss of health care infrastructure. The physical and mental health effects of these are significant. Vulnerable communities who have historically contributed the least to current climate change are disproportionately affected. Increasing weather and climate extreme events. The World Health Organization (WHO) has reported that natural disasters have tripled since 1960, translating into more than 60 000 deaths annually. WHO forecasts that by 2030 this effect will increase to at least 250 000 deaths annually.

Climate change has also resulted in degraded air quality and an increase in heat related mortality in patients with chronic illnesses. Below is an illustration of the health effects of climate change.



## Sustainable solutions:

Sustainability is defined by WHO as policies, projects and investments that provide benefits today without sacrificing environmental, social and personal health in the future...including reductions in pollution- and environment-related disease, improved health outcomes and decreased stress on systems and populations.

There is a rapidly closing window of opportunity to secure a healthy and sustainable future for all. Medical leaders need to have a strong understanding of the health impacts of climate change in order to educate, advocate, research and prepare our practices and policies to keep populations safe.

## The health impacts of climate change: all areas of medicine are affected

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The World Health Organization declared climate change “the greatest threat to global health in the 21st century”. As future medical leaders, residents in all specialties require an understanding of the health effects of climate change and the tools to apply this knowledge sustainably to patient care and health care delivery.

This section outlines the particular challenges and health risks that climate change generates for each of the following medical specialties:

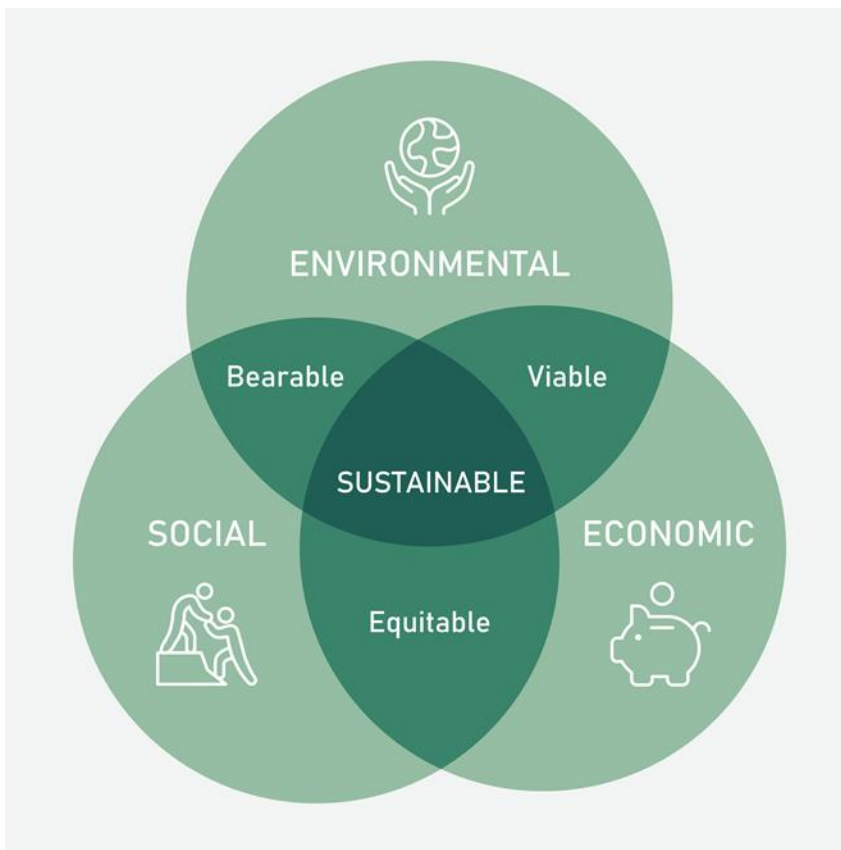
- Anesthesia and Climate Change
- Cardiology and Climate Change
- Critical Care and Climate Change
- Emergency Medicine and Climate Change
- Endocrinology and Climate Change
- Family Medicine and Climate Change
- Infectious Disease and Climate Change
- Mental Health and Climate Change
- Nephrology and Climate Change
- Obstetrics, Women’s Health and Climate Change
- Oncology and Climate Change
- Other internal Medicine subspecialties: dermatology, gastroenterology, rheumatology, hematology, endocrinology, geriatrics
- Pediatrics and Climate Change
- Radiology
- Respiriology and Climate Change
- Surgery and surgical subspecialties and Climate Change

## Sustainability in Health Care

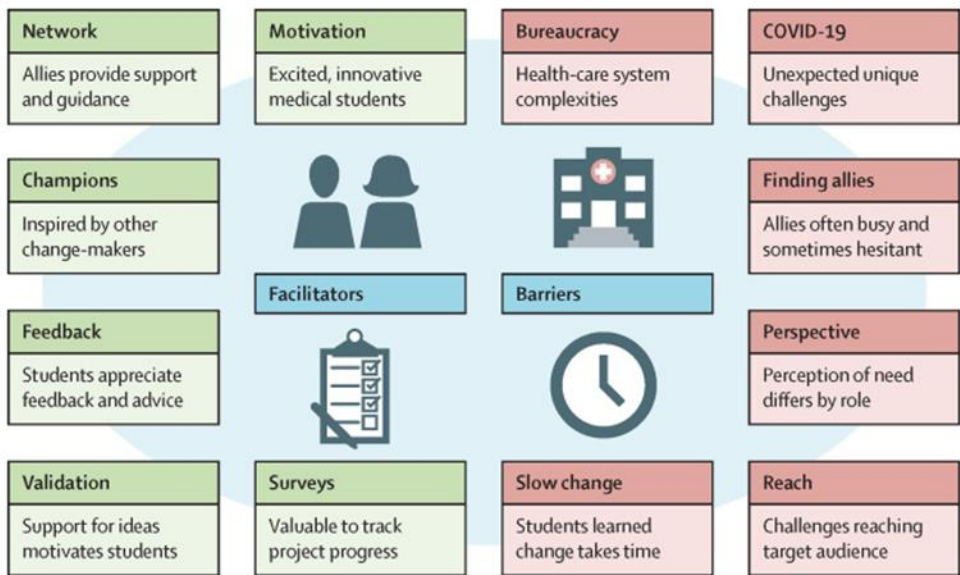
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### The WHO definition of sustainability:

Sustainable development is a broad term to describe policies, projects and investments that provide benefits today without sacrificing environmental, social and personal health in the future...including reductions in pollution- and environment-related disease, improved health outcomes and decreased stress on systems and populations.



There are three pillars of sustainability: environmental, social, and economic. This should inform the framework for sustainability in healthcare. In empowering health-care learners to take action towards embedding environmental sustainability into health-care systems )Lancet Planetary Health [VOLUME 5, ISSUE 6](#), E325-E326, JUNE 2021), authors including Dr Rosemarie Vincent break down the complexity of health care systems and suggest opportunities for health care learners to partner with Green Teams QI projects. Below is a schema of the factors faced by health care learners.



**Figure** Facilitating factors for and barriers to student-driven quality improvement projects for health-care sustainability

### *Sustainability leader*

Consider examining practices and tests in your specialty and creating a QI/QA project that contributes to sustainability in medicine.

## Climate Change and Sustainability Advocacy: Suggestions and Resources

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The Royal College of Physicians and Surgeons of Canada defines a health care advocate as "physicians who contribute their expertise and influence as they work with communities or patient populations to improve health. They work with those they serve to determine and understand needs, speak on behalf of others when required, and support the mobilization of resources to effect change".

Similarly, the College of Family Physicians of Canada defines advocacy as "family physicians who work in partnership with patients and communities, contributing their expertise and influence to improve health through an understanding of needs, as agents of change, and the mobilization of resources".

Advocacy requires action. Climate change and ensuring sustainability provides physicians with a great opportunity for advocacy by promoting health equity, adapting practice to respond to the needs of patients, communities, or populations served, working within organizations to promote climate health, mobilizing resources, and influencing health policy.

Advocacy can be achieved in many ways. Health care providers are communicators. Communicating with the public through opinion pieces, with health centres and governments are important steps in advocating for climate action and mitigation measures.

This section includes information and links from health care organizations committed to sustainability and climate action:

- Health Care Without Harm: <https://noharm-uscanada.org/>
- Canadian Association of Physicians for the Environment (CAPE/ACME): <https://cape.ca/blog-health-professionals/>
- <https://healthcareclimateaction.org/professionals>

## Health and Climate change resources

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This section provides resource links for further reading including:

- 1) The Lancet Countdown on Health and Climate Change: Policy Brief for Canada
- 2) Communicating statistics on the health effects of climate change. NEJM 07/2022
- 3) Climate Change toolkit for Health Professionals
- 4) Climate Change and the Practice of Medicine: Essentials for Resident Education
- 5) The WHO Guidance for Climate-Resilience and Environmentally Sustainable Health Care Facilities