ROADMAP FOR PLANETARY HEALTH AND SUSTAINABLE HEALTH SYSTEMS FOR CANADIAN MEDICAL PROFESSIONALS (VERSION 2)

November 8, 2024

Prepared for:

THE ASSOCIATION OF FACULTIES OF MEDICINE OF CANADA

Prepared by:

Dr. Courtney Howard, MD, MPP, CCFP-EM
Emergency Physician, Yellowknife, NT, Canada
Clinical Associate Professor, Cumming School of Medicine, University of Calgary
Community Research Fellow, Planetary Health, Dahdaleh Institute for Global Health Research, York University

Raissa Marks, BSc (Environment), MES
Founder and Principal Consultant, Lily Mark

With important contributions from:

Aïda Bangoura, BHSc
Melissa Shahin, BA (Poli)

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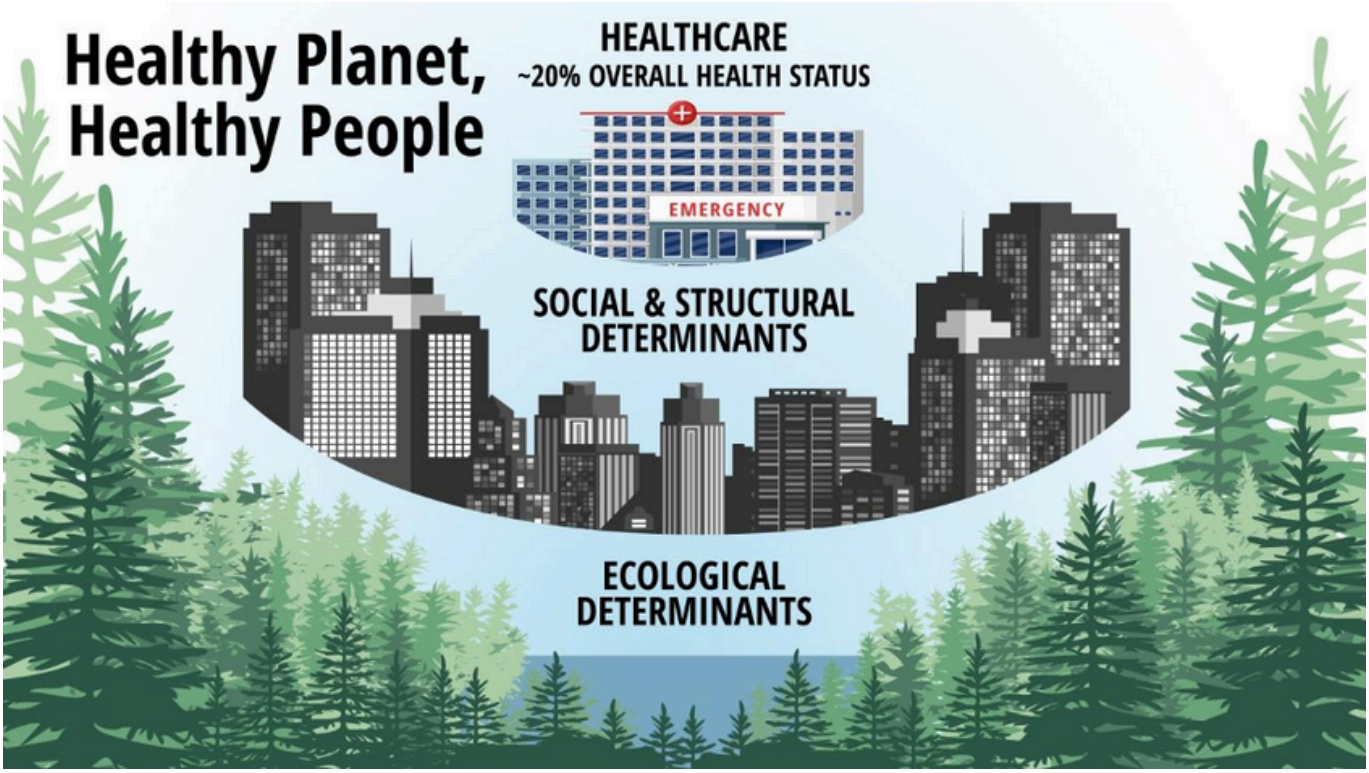
Our very ability to run healthcare systems depends on a stable ecological foundation.



The Planetary Health Nest, from Howard 2018 (appendix)[1-4]

"Practicing leadership—enabling others to achieve purpose in the face of uncertainty—requires engaging the heart, the head, and the hands: motivation, strategy, and action."

Marshall Ganz [5]

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PREFACE FROM AFMC

Dear Members and Partners,

We are proud to present the "Roadmap for Planetary Health and Sustainable Health Systems for Canadian Medical Professionals" alongside our newly developed tool, designed to guide the implementation of the Academic Health Institutions' Declaration on Planetary Health. These resources are crafted in response to the urgent need for transformation within our health systems, addressing the impacts of climate change on health today and in the future.

Our educational and health care institutions are currently facing a significant challenge: many are unprepared to address the immediate and long-term impacts of climate change on health. This Roadmap and accompanying tool do not offer a single solution but rather acknowledge the complexities and systems-based approach needed to preserve and safeguard planetary health. They are designed to help us identify system components, understand current capabilities, pinpoint leverage points for effective intervention, and foster collaboration among stakeholders.

The objectives of the Roadmap are multifaceted: to map out where we stand today, to identify effective interventions, and to enhance collaboration across all levels of medical education and health care delivery. It is crafted to be adaptable, allowing for community-based tailoring to protect health and health systems while aligning with broader strategies, such as Canada's National Adaptation Strategy and our national commitment to a climate resilient, sustainable low carbon health system under the WHO COP26 Health Program. In adopting a planetary health lens, consistent with the eco-centric worldview of Indigenous Peoples, we advance our work on reconciliation and enhance our ability to identify and address environmental drivers of disease, which disproportionately impact the most vulnerable.

We extend our deepest gratitude to all contributors, including Courtney Howard, Raissa Marks, and the AFMC Social Accountability team, whose dedication has been instrumental in shaping these steps forward.

As we distribute this Roadmap and tool, we invite you to actively engage with them—integrate them into your practices, share your progress, and hold each other accountable. This is not just a call to action; it is an invitation to lead in transforming our health systems for the betterment of planetary health.

Let's use these resources to build our collective wins, support one another, and advance our efforts in planetary health. The work we do now will impact every patient we will ever see, and all those yet to be born.

Sincerely,

Julien Poitras, Dean, Faculté de médecine, Université Laval, Chair of the Standing Committee for Social Accountability, AFMC

Melissa Shahin, Chief Strategy Officer, AFMC

Introduction

INTRODUCTION

In 2009, the Lancet stated that, "Climate change is the biggest global health threat of the 21st century,"[6] and in 2015 followed up with the comment that, "Tackling climate change could be the greatest global health opportunity."[7] The pace of integration of these realities into medical education and practice has been slow: curriculum surveys done by medical learners report scant coverage,[8-10] and practicing physicians indicate that they believe the issue is important but are not confident in their ability to counsel patients or advise decision makers.[11] Health professionals have the responsibility to prepare to manage rapidly accelerating impacts to health and health systems in Canada related to heat emergencies, wildfires, floods, shifting infectious diseases and more,[12] as well as the imperative to shift to "do no harm" health systems that reduce the harmful pollution produced from health systems themselves.[13] In 2021 over 600 organizations including the Canadian Federation of Medical Students, the Canadian Medical Association, the Canadian Nurses Association, the Canadian Public Health Association and more, representing over 46 million health professionals, called for health and equity to be centered in climate action and for the development of climate-resilient low-carbon health systems.[14]

In 2023, the Association of Faculties of Medicine of Canada (AFMC)'s Declaration on Planetary Health Development Committee published the Academic Health Institutions' Declaration on Planetary Health.[15] Launched at the International Congress on Academic Medicine, it has now been endorsed by 16 of the 17 Faculties of Medicine in Canada. This success has extended internationally, and it has now been signed by academic organizations on four continents, as well as by the World Federation of Public Health Organizations and the World Medical Association as a way of seeding a global planetary health revolution in education, research, and practice.[16]

The development of the Declaration demonstrates the recognition by academic health institutions of the crucial leadership role the healthcare community plays in addressing planetary health as a serious global issue and the unique opportunity that Faculties of Medicine have to lead the fight against climate change and biodiversity loss.[17] The Declaration states that the health of the planet is a Code Red Emergency, and includes a commitment to adopt a planetary health lens in education, research, policy, and advocacy in a manner informed by Indigenous Traditional Knowledges and ways of knowing, led by Indigenous Peoples.[15 18] Signatories pledge to collaborate with other disciplines to make our healthcare systems and communities more resilient to climate-related challenges and to decrease the greenhouse gas emissions that healthcare itself produces.[15] As with health sector work on tobacco, the Declaration also commits signatories to work to change norms around fossil fuels by divesting from companies whose primary business involves fossil fuels, and to endorse the call for a Fossil Fuel Non-proliferation Treaty.[15]

AFMC acts as secretariat for the AFMC Planetary Health Committee, which includes a representative from each signatory, as well as from the Canadian Federation of Medical Students Health and Environment Adaptive Response Taskforce (CFMS-HEART) and the International Federation of Medical Students' Associations - Quebec (IFMSA-Quebec). The AFMC is an active member of the Canadian Medical Forum (CMF), which brings together the leaders of Canada's major national medical organizations to "discuss issues of priority to physicians, their patients, and the Canadian health care system."[19]

INTRODUCTION

In February 2024, AFMC undertook a comprehensive scoping review and the development of a five-year Roadmap for the implementation of climate change and health within Canadian medical schools, in support of the AFMC response to the Climate Emergency and delivery on the commitments of the Declaration on Planetary Health.

This report, which includes a landscape assessment, gap analysis, Roadmap, and outreach plan outlines actions that need to be taken over the next five years at the national, provincial/territorial, and institutional levels to provide medical professionals with the requisite knowledge and skills to contribute effectively to efforts to implement the Declaration on Planetary Health and contribute to climate resilient, sustainable low carbon health systems. Because the Canadian medical community has agreed to adopt a planetary health lens in its work on climate change, and align with eco-centric Indigenous ways of knowing, this report too will situate climate change within the broader framework of planetary health.

The objectives outlined in this Roadmap are designed to guide impactful initiatives within the landscape of advancing planetary health across Canadian medical schools. These objectives entail:

1. Identifying key system components, stakeholders, and avenues of influence to adeptly navigate and leverage within the healthcare education sphere.
2. Establishing a foundational understanding of current planetary health initiatives within individual medical schools, facilitating targeted interventions.
3. Implementing focused interventions to promote the integration of planetary health principles into medical education and practice.
4. Cultivating robust collaboration among stakeholders to foster shared learning and concerted action towards sustainable healthcare solutions.

This is a complex, multi-step endeavor. Only the initial stages of medical education occur in primarily didactic settings. The largest part of the education of medical professionals occurs outside of the classroom, inside healthcare institutions themselves, and is structured around practical learning-by-doing. Therefore, when discussing the education of medical professionals with regards to planetary health and work towards sustainable health systems, considerations must include the structures and processes necessary to support that work in multiple learning environments. Advocacy, a core competency for medical experts within the CanMEDS framework,[20] and one which requires practical experience for mastery,[21] will be learned through the practice of bringing some of these new elements into being.

This Roadmap is presented as an initial, integrated response by the Canadian medical community to mainstream planetary health and sustainable healthcare into our work, in service of the present and future health of people in Canada. It has been written over the course of an iterative process of contributions and review and has received input from over fifty people. It is the first map for what will doubtless be a journey that will include shared challenges and achievements—as well as the need for further maps and methods of measurement. Contributions and feedback are essential as this adventure gets underway. See you on the road—it will be a journey taken in the best of company.

Executive Summary

EXECUTIVE SUMMARY

"Climate change is the biggest global health threat of the 21st century."[6] Canadians face severe impacts, including over 600 deaths from the 2021 heat dome,[22] the spread of tick-born Lyme Disease,[23] smoke-related health costs exceeding over $1.28 billion in Ontario, [24] and wildfire evacuations in Fort McMurray[25] and Yellowknife[26]. Rising ecoanxiety, ecological grief, eco-anger, and ecological guilt, especially among youth, reflect the growing concern.[27-29]

As a circumpolar country, Canada is warming at double to triple the global rate.[30] We are not at a new normal: under all feasible scenarios Canada will continue to warm until at least mid- century.[30] Recent trends show the globe as a whole appears to be warming faster than expected: September 2023 had an average global surface temperature approximately 1.75°C warmer than 1850-1900.[31] A warm January 2024 marked the end of the first 12 month period that was over 1.5°C (1.52°C) warmer than the pre-industrial average.[32] Researchers estimate that Earth System tipping points could be triggered if global surface temperature warming is above 1.5°C on a consistent basis, leading to the potential for positive feedback cycles and the possibility of runaway climate change.[33]

Global surveys of medical school education confirm very low rates of climate change and air pollution inclusion in curricula.[10] In Canada, medical students emphasize the need for improved education on planetary health. The 2019 report by the Canadian Federation of Medical Students' Health and Environment Adaptive Response Task Force (HEART) found inadequate planetary health education across Canadian medical schools. The 2021 follow-up report shows some progress but identifies ongoing deficiencies. Medical students advocate for a curriculum that integrates planetary health with social determinants of health and emphasizes environmental sustainability in clinical practice. Surveys indicate that most practicing physicians believe that climate change is important, but do not know how to counsel patients or interact with policymakers.[11] This underscores the need for enhanced education in medical curricula and continuing medical education to prepare physicians for the health impacts of climate change.

The global health sector comprises over 43 million trusted messengers,[34] and allocates 10% of Global World Product.[35] Many measures which decrease greenhouse gas (GHG) emissions, such as reducing air pollution via a transition to cleaner energy sources for electricity, heating and transport, increasing activity levels with active transport, transitioning to plant-rich diets, and creating leafy green communities with good nature availability and community cohesion also enhance wellbeing.[36] Canada's commitment to climate resilient, sustainable low-carbon healthcare, made as part of the COP26 Health Programme[37] should align with the implementation of Canada's new National Adaptation Strategy and existing emergency and disaster management frameworks.[38]

EXECUTIVE SUMMARY

Concerns around climate change are folded into a broader framework known as planetary health, which has been chosen as the overarching lens of the Canadian medical community as a result of its alignment with eco-centric Indigenous thought traditions which envision the determinants of health of Mother Earth herself.[39] This plan has been developed in consultation with the Director of Indigenous Planetary Health at Western University, as well as in consultation with the Indigenous Physicians Association of Canada. Indigenous-led scholarship additionally informs the recommended pathway. All implementation at the community level will require partnership with traditional Indigenous stewards of those Lands and should be informed by Indigenous ways of knowing and being, led by Indigenous Peoples.

In the spring of 2023, AFMC conducted a Planetary Health Committee Survey of medical schools in Canada to ascertain current activities surrounding planetary health and/or global health and inform outcomes for its planetary health committee's work. A total of 14/17 medical schools have completed the survey.

The following common themes can be drawn from the survey responses:

- All of the responding medical schools are in the initial stages of addressing planetary health and/or global health. Examples of activities include:
  - Strategy development
  - Curriculum development / integration into curriculum (stand-alone courses or integration into existing courses)
  - Student-run community engagement projects
  - Supporting residents' projects in greening care
  - Faculty engagement in research or policy
  - Hiring related faculty positions
  - Developing a bursary program, endowment funds
  - Events and webinars
  - Connecting national and international dialogues

- Respondents are working to address challenges related to: maintaining planetary/global health as a priority, lack of faculty expertise or leadership, lack of time, lack of administrative support, lack of financial resources, and curricular time. Physicians currently charged with leadership indicate a lack of dedicated time to deliver on the elements of the Declaration on Planetary Health, inadequate resources to develop curriculum materials, a lack of a central repository of curriculum materials, and challenges with the fact that many physician peers and university leaders have never been briefed on the intersection of climate change and health, and therefore do not know what they do not know about the topic. This can make it difficult to get the topic onto the agenda at meetings and to obtain the time and material support required to do the work. These challenges are further discussed in the Gap Analysis section of this report.

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The Landscape Assessment and Gap Analysis performed as part of this project revealed similar themes, with challenges related to:

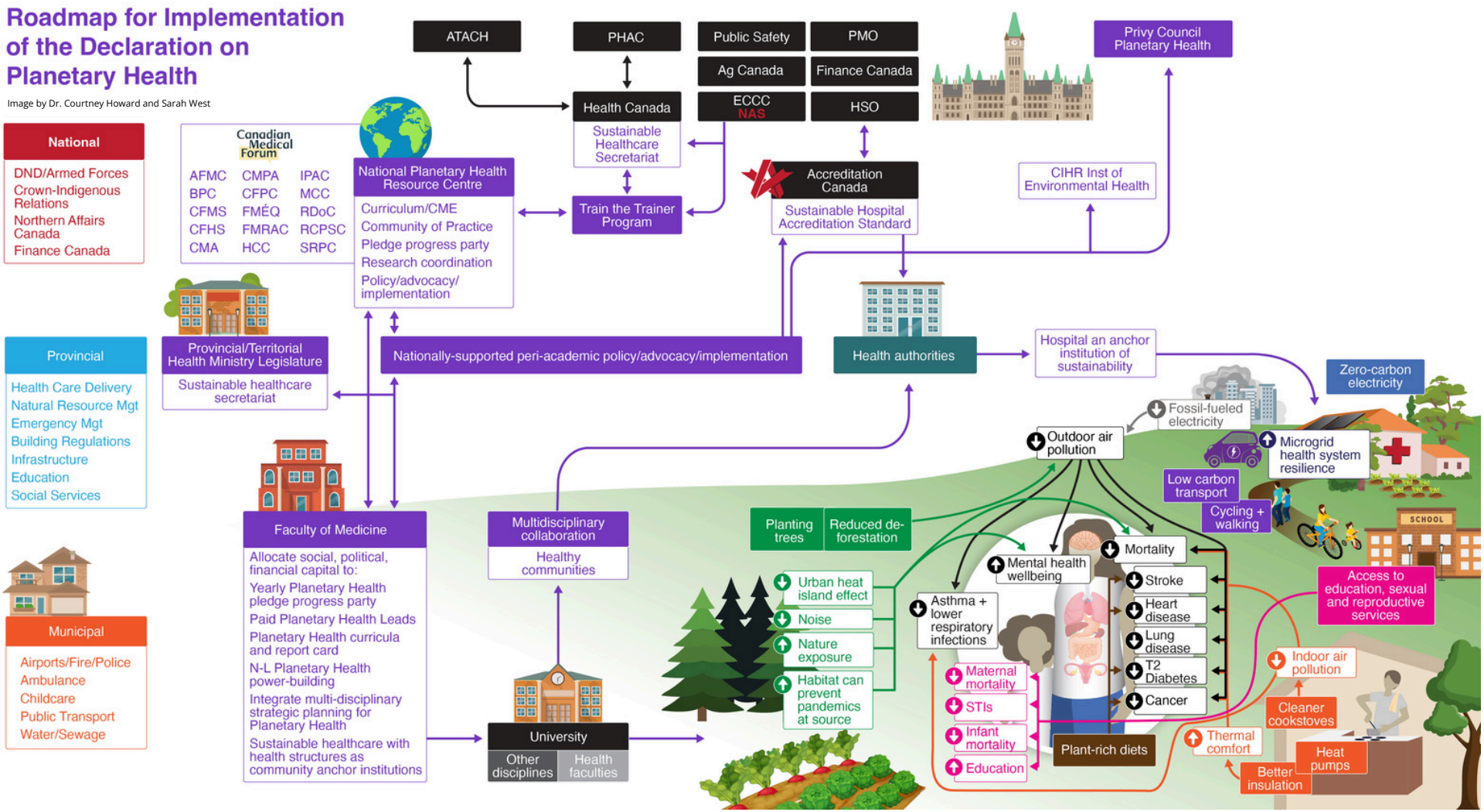
1. Low baseline level of knowledge about planetary health: particularly a problem when more junior physicians are trying to brief up across the hierarchy when senior and powerful physicians don't know what they don't know.
2. Lack of supportive educational resources across practice stages.
3. Lack of leadership:
    a. each institution needs its own institution-specific implementation plan,
    b. nationally, there is a lack of funded coordinating structures to ensure an overall cohesive approach to research, education, policy, and advocacy.
4. Lack of time and dedicated and knowledgeable staff.
5. Mental health challenges associated with learning about the ecological crisis.
6. Complexity: there are multiple decision-makers within medical schools and related institutions, and the various action items and associated challenges are interconnected, making it difficult to determine where and how to start. There is a lack of understanding among change-makers about how to navigate these complex structures and relationships.
7. Competing priorities: There is a perception that planetary health is competing with other important priorities such as Indigenization/decolonization, social accountability, equity, diversity, and inclusion, and more. In fact, these are cross-cutting themes in planetary health, and are reinforcing, as opposed to competing priorities.
8. Lack of policy, advocacy, and systems change skills and organizational structures.
9. Lack of funding.

CanMEDS is the framework that "identifies and describes the abilities physicians require to effectively meet the health care needs of the people they serve."[20] Stewarded by the Royal College of Physicians and Surgeons of Canada, it is the most widely-applied physician competency framework in the world, and is integrated into accreditation standards, exam blueprints, and continuing medical education.[20] The integrating role,"Medical Expert," is built from overlapping competencies in the roles of Professional, Communicator, Collaborator, Leader, Health Advocate, and Scholar.[20]

EXECUTIVE SUMMARY

This set of recommendations is aligned with these roles, and takes into account three overall stages, recognizing that what is required to protect health and health systems requires greater resource and power than what is available to any isolated institution:

a - Implementation of elements that are within the immediate locus of control of individual academic health institutions.
b - Collaboration to develop the network of supporting structures that are within the shared locus of control of the **community** of academic health institutions in Canada, as organized by the Association of Faculties of Medicine of Canada in association with other members of the Canadian Medical Forum. New structures and processes are indicated in purple in the summary figure and in the table.
c - Advocacy for required structures and programs that are outside of the locus of control of academic health institutions.



Roadmap for implementation of the Declaration on Planetary Health from Howard et al.

ROADMAP SUMMARY WITH KEY PERFORMANCE INDICATORS AND TIMELINE

Throughout the plan below, all proposed new structures **are in purple.**

Elements	Inputs	Outputs	Outcomes	Key Performance Indicators and Evaluation Frequency **Year 1** = by end of 2025 med school year **Year 2** = by end of 2026 med school year **Year 3** = by end of 2027 med school year **Year 4** = by end of 2028 med school year **Year 5** = by end of 2029 med school year
Implementation within the Locus of Control of Individual Medical Faculties (recommendations 1, 2, 3, 4 & 5)				
1	Social, human and financial capital allocated by Faculty of Medicine leadership towards creating a Planetary Health Pledge opportunity.	**Recurring yearly opportunity for students to take the Planetary Health Pledge and celebrate the progress of the year.**	Commitment by individual physicians to incorporate work for healthy people on a healthy planet into their scope of practice. Shift of social norms within the community to normalize and encourage work for planetary health.	**Output KPI:** **Year 1: Identifiable Planetary Health Pledge present (Y/N)** **Target: Opportunity present at 100% of signatory schools.** **Year 2: University-affiliated hospital community invited to participate. (Y/N)** **Target: Invitation given at 100% of signatory schools.** Years 3-5: Multidisciplinary Planetary Health Pledge opportunity presented. (Y/N) Target: Opportunity present at 100% of signatory schools. Optional self-evaluation and multi-media self-report with regards to the epic nature of the celebration.

Elements	Inputs	Outputs	Outcomes	**Key Performance Indicators and Evaluation Frequency** **Year 1** = by end of 2025 med school year **Year 2** = by end of 2026 med school year Year 3 = by end of 2027 med school year Year 4 = by end of 2028 med school year Year 5 = by end of 2029 med school year
2	Financial capital allocated by Faculty of Medicine leadership to support enhanced human resources to lead work on planetary health.	**Paid Planetary Health Leads for the following functions:** A - Planetary Health Research Lead B - Planetary Health Education lead C - Planetary Health Policy, Advocacy and Implementation Lead **Annual survey of Planetary Health Leads** to ask how many FTEs are present at the school and how well-supported they feel on a scale of 0-10.	Improved scores on the Planetary Health Report Card. (See Item 4) A well-organized approach to policy and advocacy.	**Output KPI** **Year 1: At least one 0.2 FTE planetary health education and 0.2 FTE research lead reporting to senior leadership, with commensurate 0.2 FTE administrative support paid positions created and filled (Y/N)** **Target: At least one present at 100% of signatory schools.** Track Years 2-5: Number of paid FTE (full- time equivalent) planetary health leads. (Quantitative variable) Target: Increase from baseline over time until Planetary Health Leads report that they are feeling well-supported to a level of at least 8/10. Target: 100% of Planetary Health Leads feel well- supported to a level of at least 8/10.

Elements	Inputs	Outputs	Outcomes	**Key Performance Indicators and Evaluation Frequency** **Year 1** = by end of 2025 med school year **Year 2** = by end of 2026 med school year Year 3 = by end of 2027 med school year Year 4 = by end of 2028 med school year Year 5 = by end of 2029 med school year
3	Time and resources dedicated to developing a five-year strategic implementation plan for Faculty of Medicine for the Declaration on Planetary Health. This plan includes elements designed to contribute to the shared structures within the **National Resource Center for Planetary Health and Climate Resilient Sustainable Low Carbon Healthcare.**	Five-year strategic implementation plan for Faculty of Medicine for the Declaration on Planetary Health. *If it makes more sense at a given institution to move immediately to multidisciplinary, health system and community-partnered outreach and planning, that could also be a good choice. In that case, please see Item #5.	A clear Faculty of Medicine roadmap for the implementation of the Declaration on Planetary Health. Clear institutional goals with regards to issues such as: • baselining of carbon emissions for the medical faculty and associated teaching hospitals as well as targeted carbon reduction plan, in support of COP26 commitments. • approach to climate-resilient, sustainable low-carbon procurement of medical supplies, pharmaceuticals, and food. • climate change resiliency assessment on the medical school and its associated health system • institution-specific advocacy goals for needed community, provincial and national support structures such as the establishment of a provincial climate-resilient, sustainable, low-carbon health system secretariat.	**Output KPI:** **Year 1: Environmental scan of existing activities and strategic plan begun (Y/N)** **Target: Begun at 100% of signatory schools.** **Year 2: Strategic plan complete (Y/N)** **Target: Complete at 100% of schools.** Years 3-5: Reporting on delivery on Strategic plan & Declaration Commitments

Elements	Inputs	Outputs	Outcomes	Key Performance Indicators and Evaluation Frequency **Year 1** = by end of 2025 med school year **Year 2** = by end of 2026 med school year Year 3 = by end of 2027 med school year Year 4 = by end of 2028 med school year Year 5 = by end of 2029 med school year
3			• contributions to the organization and support of the **National Resource Center for Planetary Health and Climate Resilient Sustainable Low Carbon Healthcare**	
4	Increased institutional support for planetary health as expressed via the Planetary Health Pledge in #1. Increased resources dedicated to integration of Planetary Health into education, research and policy, advocacy and implementation as expressed in #2, and #3.	Improving alignment of medical education with the **Planetary Health Education Framework.** Given that Royal College Planetary Health Competencies are still in development, as is the curriculum that will flow from them, use the internationally well- known Planetary Health Report Card as a measurement with evaluation conducted by a joint faculty and learner team at each institution.	Co-ownership of planetary health work by learners, faculty lead and medical school leadership in recognition of the profound intergenerational justice consequences of a lack of progress. Continuous integration of the planetary health lens into research, education, policy, advocacy and implementation at each school.	**Output KPI:** **Year 1: Baseline Planetary Health Report Card Score if not done.** **Target:** **i- Baseline done at 100% of schools.** **In schools where a baseline has already been done.** **Target: Improved score at 100% of schools.** **ii- Meeting between medical school dean, planetary health faculty lead, and learner representatives to review results at 100% of schools.**

Elements	Inputs	Outputs	Outcomes	**Key Performance Indicators and Evaluation Frequency** **Year 1** = by end of 2025 med school year **Year 2** = by end of 2026 med school year Year 3 = by end of 2027 med school year Year 4 = by end of 2028 med school year Year 5 = by end of 2029 med school year
4				**Year 2:** **Target: Improved score from baseline at 100% of schools. ii-Meeting between medical school dean, planetary health faculty lead, and learner representatives to review results at 100% of schools.** Years 3-5: Target: Achievement of a score of “B” or better at 100% of schools. ii-Meeting between medical school dean, planetary health faculty lead, and learner representatives to review results at 100% of schools.

Elements	Inputs	Outputs	Outcomes	Key Performance Indicators and Evaluation Frequency **Year 1** = by end of 2025 med school year **Year 2** = by end of 2026 med school year Year 3 = by end of 2027 med school year Year 4 = by end of 2028 med school year Year 5 = by end of 2029 med school year
5	Increased institutional support for planetary health as expressed via the Planetary Health Pledge in #1. Increased resources dedicated to integration of Planetary Health into education, research and policy, advocacy and implementation as expressed in #2, and #3. Increasingly well-trained physician workforce with regards to planetary health as measured by the Planetary Health Report Card in #4.	**Five Year Healthy Community Planetary Health and Sustainable Healthcare Plan.** Multidisciplinary plan extending from Faculty of Medicine into other Health Faculties and involving university-affiliated healthcare systems and community partners. Designed to establish the hospital as an anchor institution in support of a healthy community. See Fraser Health's Planetary Health Strategy for an example.[40]	Improved performance with regards to: • baselining of carbon emissions for the medical faculty and associated teaching hospitals as well as targeted carbon reduction plan. • approach to climate-resilient, sustainable low- carbon procurement of medical supplies, pharmaceuticals and food, using institutional purchasing power to drive • climate change resiliency assessment on the medical school and its associated health system.	**Output KPI** **Year 1: Strategic plan begun (Y/N)** **Target: Begun at 100% of signatory schools.** **Year 2: Strategic plan complete (Y/N)** **Target: Complete at 100% of schools.**

Elements	Inputs	Outputs	Outcomes	Key Performance Indicators and Evaluation Frequency **Year 1** = by end of 2025 med school year **Year 2** = by end of 2026 med school year Year 3 = by end of 2027 med school year Year 4 = by end of 2028 med school year Year 5 = by end of 2029 med school year
5	Outreach to Faculties of Nursing, Faculties of Pharmacy, Faculties of Occupational and Physical Therapy, Indigenous leaders, community clinics, community decision makers and stakeholder groups etc.		• improved integration of Indigenous ways of being and knowing with regards to health and wellbeing. • institution-specific advocacy goals for needed community, provincial and national support structures such as the establishment of a provincial climate-resilient, sustainable, low- carbon health system secretariat.	Years 3-5: Reporting on delivery on Strategic plan & Declaration Commitments

Elements	Inputs	Outputs	Outcomes	Key Performance Indicators and Evaluation Frequency **Year 1** = by end of 2025 med school year **Year 2** = by end of 2026 med school year Year 3 = by end of 2027 med school year Year 4 = by end of 2028 med school year Year 5 = by end of 2029 med school year
Collaboration of Community of Medical Faculties and Medical Forum Required to Implement (recommendations 3, 4 & 5)				
6	Increased institutional support for planetary health as expressed via the Planetary Health Pledge in #1. Increased resources dedicated to integration of Planetary Health into education, research and policy, advocacy, and implementation as expressed in #2, and #3. Increasingly well-trained physician workforce with regards to planetary health as measured by the Planetary Health Report Card in #4.	**Annual national Planetary Health Pledge & Progress Party:** moment of ceremony when faculty, staff, and students can take the Planetary Health Pledge and celebrate progress in order to create community, articulate new norms, celebrate progress, and create a national positive feedback cycle of mutual inspiration.	Enhanced sense of joy within medicine. Progression towards joint achievement of Canada's national commitments to sustainable healthcare. Integration of eco-centric Indigenous ways of knowing and being into the culture of medicine, health, and healthcare. Strong group-based sense of efficacy and community related to doing hard things with friends.	**Output KPI** **Year 1: Consultation process and planning occurs.** **Target:** **100% of schools involved in consultation process around the creation of a national event.** **Year 2: First national Planetary Health Pledge & Progress Party occurs.** **Targets:** **a-100% of Schools participate in a well-defined and organized nationally coordinated moment.** **b-100% of Deans in attendance.** **Bonus points available on a per-school basis for Deans spotted dancing.**

Elements	Inputs	Outputs	Outcomes	Key Performance Indicators and Evaluation Frequency **Year 1** = by end of 2025 med school year **Year 2** = by end of 2026 med school year Year 3 = by end of 2027 med school year Year 4 = by end of 2028 med school year Year 5 = by end of 2029 med school year
6			Transformation of feelings of ecoanxiety and moral distress related to inaction on climate change in healthcare into a feeling of accomplishment and preparation for the challenges of present and future. If fun enough, this could be an excellent fundraising opportunity for the **National Resource Center for Planetary Health and Sustainable Healthcare.** Think Met Gala for Healthy People on a Healthy Planet.	Years 3-5: Iterative multidisciplinary and artistic expansion of expressed commitment, celebration of progress, and experienced joy.

Elements	Inputs	Outputs	Outcomes	Key Performance Indicators and Evaluation Frequency **Year 1** = by end of 2025 med school year **Year 2** = by end of 2026 med school year Year 3 = by end of 2027 med school year Year 4 = by end of 2028 med school year Year 5 = by end of 2029 med school year
7	Increased institutional support for planetary health as expressed via the Planetary Health Pledge in #1. Increased resources dedicated to integration of Planetary Health into education, research and policy, advocacy and implementation as expressed in #2, and #3. Increasingly well-trained physician workforce with regards to planetary health as measured by the Planetary Health Report Card in #4.	**National Resource Center for Planetary Health and Sustainable Healthcare.**	Existence of Planetary Health Resource Center adequately staffed and resourced to: A - Coordinate existing planetary health community of practice. B - Maintain a central repository of curriculum resources. C - Develop a Train-the-Trainer Program co-administered with Health Canada. D - Develop a Climate resilient sustainable low carbon health system community of practice whose work includes consideration of essential medicines and security of supply. Strengthen relations with PHAC, Health Canada E - Coordinate national-level work for Peri-academic Planetary Health Changemaking Nodes.	**Outcome KPI** **Year 1:** **KPI: National Resource Center for Planetary Health and Sustainable Healthcare Steering Committee created through outreach to members of Canadian Medical Forum conducted by Planetary Health Leads through the AFMC Planetary Health Committee.** **Year 2:** **KPI:** **a-Costed plan for the National Resource Center for Planetary Health and Sustainable Healthcare developed by the National Resource Center for Planetary Health and Sustainable Healthcare Steering Committee.**

Elements	Inputs	Outputs	Outcomes	Key Performance Indicators and Evaluation Frequency **Year 1** = by end of 2025 med school year **Year 2** = by end of 2026 med school year Year 3 = by end of 2027 med school year Year 4 = by end of 2028 med school year Year 5 = by end of 2029 med school year
7			F - Establish a National Planetary Health and Climate Resilient Sustainable Low Carbon Healthcare research community.	**b-Focused and high-level outreach by the national medical community to raise funds and form the necessary relationships to stand up the National Resource Center for Planetary Health and Sustainable Healthcare Steering Committee.** Year 3: Target: Assembly of Resource Center begins, and functions begin to be transferred from existing AFMC Planetary Health Committee to developing National Resource Center. Years 4 and 5: Target: National Resource Center for Planetary Health and Sustainable Healthcare is up and running, fulfilling functions as described in recommendation 5.4 A-F.

Elements	Inputs	Outputs	Outcomes	Key Performance Indicators and Evaluation Frequency
				Year 1 = by end of 2025 med school year **Year 2** = by end of 2026 med school year Year 3 = by end of 2027 med school year Year 4 = by end of 2028 med school year Year 5 = by end of 2029 med school year
Priority Advocacy Targets for the Medical Community to be led by the Peri-academic Planetary Health Change-making Nodes in E (recommendations 1 & 5) A suggested timeline is presented for the achievement of these goals, however faster is better. KPIs are not presented. Instead, suggested steps are listed and an electronic map of Canada will be created and placed on a central website to track progress in each province or territory to foster national collaboration and healthy competition between the medical community in different provinces and territories.				
8	National coordination for policy, advocacy and implementation. Increased institutional support for planetary health as expressed via the Planetary Health Pledge in #1. Increased resources dedicated to integration of Planetary Health into education, research and policy, advocacy and implementation as expressed in #2, and #3. Increasingly well-trained physician workforce with regards to planetary health as measured by the Planetary Health Report Card in #4.	Formalized, named, well-resourced, and adequately staffed **secretariats for sustainable healthcare at national and provincial levels.**	Government leadership on all elements of national streams of work of international Alliance for Transformative Action on Climate and Health (ATACH) work[37]: 1 - Climate resilience 2 - Low carbon sustainable 3 - Supply chain and Essential Medicines 4 - Financing 5 - Nutrition	**Years 1 and 2: National-level advocacy by members of the Canadian Medical Forum** Years 3 and 4: Making use of newly formed teams from Element #5, develop an advocacy strategy designed to bring about a secretariat in each province and territory Target Year 5: Formalized and well-resourced secretariats for climate resilient sustainable low carbon healthcare exist at national and provincial levels and are working in coordination to deliver on all streams of ATACH work.
9		New national hospital accreditation standard for **sustainable hospitals.**		

Elements	Inputs	Outputs	Outcomes	**Key Performance Indicators and Evaluation Frequency** **Year 1** = by end of 2025 med school year **Year 2** = by end of 2026 med school year Year 3 = by end of 2027 med school year Year 4 = by end of 2028 med school year Year 5 = by end of 2029 med school year
9	Competitive physician team spirit harnessed for the good of people and planet via dreams of glory at the next **Annual national Planetary Health Pledge & Progress Party.**	**Incorporate planetary health in the Committee on Accreditation of Canadian Medical Schools (CACMS) and Committee on Accreditation of Continuing Medical Education's (CACME) accreditation standards.**	New hospitals built and administered in alignment with the accreditation standard; existing hospitals retrofitted and administered in alignment with the accreditation standard. Revised accreditation standards for medical schools and continuing professional development provide organizations with accountability in preparing learners to tackle planetary health challenges.	**Year 1:** **a- Collaborate with the Health Standards Organization Accreditation Canada, and the Planetary Health Committee on advancing development of a new hospital standard: evaluate whether to create a new standard or adopt and existing one from the international community.** **b- Initiate conversations with CACMS and CACME to incorporate planetary health into medical school accreditation standards.** **Year 2: Depending on the answer in year 1, develop or implement the hospital standard (s).** **Provide feedback on modifications/additional standards to the CACMS and CACME for review.** By Year 5: National sustainable hospital accreditation standard in use across Canada, and inclusion of planetary health required for the accreditation of medical schools across Canada.

Elements	Inputs	Outputs	Outcomes	Key Performance Indicators and Evaluation Frequency **Year 1** = by end of 2025 med school year **Year 2** = by end of 2026 med school year Year 3 = by end of 2027 med school year Year 4 = by end of 2028 med school year Year 5 = by end of 2029 med school year
10	*Same as #8 and #9*	**a- Privy Council-level or formal body of advisors Interministerial Planetary Health Committee.** **b- Institute on Environments and Health to the Canadian Institute of Health Research (CIHR).**	Improved interministerial coordination of work on planetary health, working towards wellbeing budgeting in alignment with Canada's Quality of Life Strategy.[41] Improved understanding of planetary health, enabling evidence-informed decision-making on planetary health and informing future medical curricula and work on sustainable healthcare.	**Year 1: Make connections with other health sectors, environmental health, and wellbeing society-oriented communities who are also advocating for these structures.** **Year 2: Develop advocacy strategy for each.** Years 3 and 4: Run a target-based advocacy program designed to bring these into being. Year 5: Both structures approved, funded, and in development.

EXECUTIVE SUMMARY

It is very unlikely, one might even say impossible, that any of the recommendations in the Roadmap will be implemented by one person alone. Rather, they will be implemented by multiple different people within many organizations, each with their own competing priorities, constraints, and organizational cultures. In order to fulfill the Roadmap, collaboration is imperative.

Importantly, the leadership of **one** person is often required to start a team and to set any given project in motion.

The more powerful the individual, the truer this is. However, persistent, strategic work, often by people with little institutional power, is what has gotten the movement for planetary health and climate resilient, sustainable low carbon healthcare this far.

One thing is absolutely certain: ***What you do matters.***

BACKGROUND ON PLANETARY HEALTH

"Climate change is the biggest global health threat of the 21st century."[6] This Lancet 2009 statement, placed on the front cover of the journal, startled health professionals who had spent years in libraries and hospital call rooms and had not learned anything about the greatest health emergency of all.[42] Global surveys of medical school education confirmed very low rates of climate change and air pollution inclusion in curricula even very recently.[10] Now, as Canadians cope with events such as the 2021 heat dome, which led to over 600 deaths,[22] the rapid geographic spread of tick-born Lyme Disease,[23] cross-Canada smoke-related impacts to health that were valued at over $1.28 billion over a five-day period in Ontario alone, [24] the wildfire-driven evacuation of 100 bed hospitals in Fort McMurray[25] and Yellowknife,[26] and more, surveys indicate that most practicing physicians believe that climate change is important, but do not know how to counsel patients or interact with policymakers.[11]

Health and Health Systems Impacts of Climate Change, from Howard et al 2023.[43]

EXECUTIVE SUMMARY

As a circumpolar country, Canada is warming at double to triple the global rate.[30] It is not at a new normal: under all feasible scenarios Canada will continue to warm until at least mid-century.[30] Recent trends show the globe as a whole appears to be warming faster than expected: September 2023 had an average global surface temperature approximately 1.75°C warmer than 1850-1900.[31] A warm January 2024 marked the end of the first 12 month period that was over 1.5°C (1.52°C) warmer than the pre-industrial average.[32]

Just as changes in human vital signs can indicate that our physiology is becoming less stable, changes in the vital signs of the Earth System, the complex, self-regulating system that we live within every day, merit re-evaluation, more frequent assessment, and rapid team-based care.

As almost all physicians learn at some point in their career, there is a point—a tipping point—beyond which human bodies are no longer able to compensate and move from semi-stable to unstable, and then "crash." Much the same applies to Earth Systems. Treatment administered after physiological tipping points does not work as well as that given prior because difficult-to- control feedback mechanisms have been set in motion.

Researchers estimate that Earth System tipping points could be triggered if global surface temperature warming is above 1.5°C on a consistent basis, leading to the potential for positive feedback cycles and the possibility of runaway climate change.[33] These tipping points include the risk of abrupt permafrost melt releasing the super-pollutant methane, a ton of which has over 80 times the impact of a ton of carbon dioxide in driving further global warming over the next twenty years.[44, 45] Each of these natural tipping points can lead to cascades of socioeconomic and health impacts.[30] For instance, irreversible die-off of coral reefs could lead to food security challenges for people who rely on protein from the oceans, the Greenland and Antarctic ice sheets tipping into melt will lead to sea-level rise and population displacement, and a disruption in ocean and atmospheric circulation patterns, including of the Atlantic Meridional Overturning Circulation, could cause half of the global area for growing wheat and maize to be lost, resulting in widespread food insecurity with attendant risks to political stability and therefore health system function.[46]

Having led through COVID-19, the Canadian health community is well aware that it will be our responsibility to keep health systems functioning as well as possible regardless of the challenge. Used to keeping our eyes on the patient in front of us, we now need to consider the patient that is not only beneath our feet, but whose systems envelop us with air and water. The trends described above are material to the speed with which we must brief health professionals and ready health systems. We have never resuscitated a planet before, and there is a range of uncertainty in estimates of exactly when each tipping point may be triggered. It would be wise to take a principle from clinical emergency care: work fast, then rest.

Responsible management of the climate and broader planetary health emergency by Canadian health professionals must therefore comprise three major endeavours. First, we must mitigate—prevent worsening of the underlying disease by doing our part to decrease the approximately 5% of Canada's overall greenhouse gas emissions generated by healthcare, and attempt to reverse the damage and restore ecosystem function.[13] Second, we must adapt - equip ourselves to treat the symptoms of climate-related disruption to health and health systems that we are already experiencing and that cannot soon be restored. As part of both of these, we must deliver on Canada's commitment to climate resilient, sustainable low carbon healthcare, made as part of the COP26 Health Programme.[37] This work should align with the implementation of Canada's new National Adaptation Strategy, as well as existing emergency and disaster management frameworks.[38] Third, we must arrange our resuscitation equipment in case the Earth System becomes unstable and tips into dysfunction, including thinking through how we would manage the critical disruptions to infrastructure, supply chains, and workforce that are likely if we continue along the high-emissions and rapidly-warming pathway we are currently on.[47]

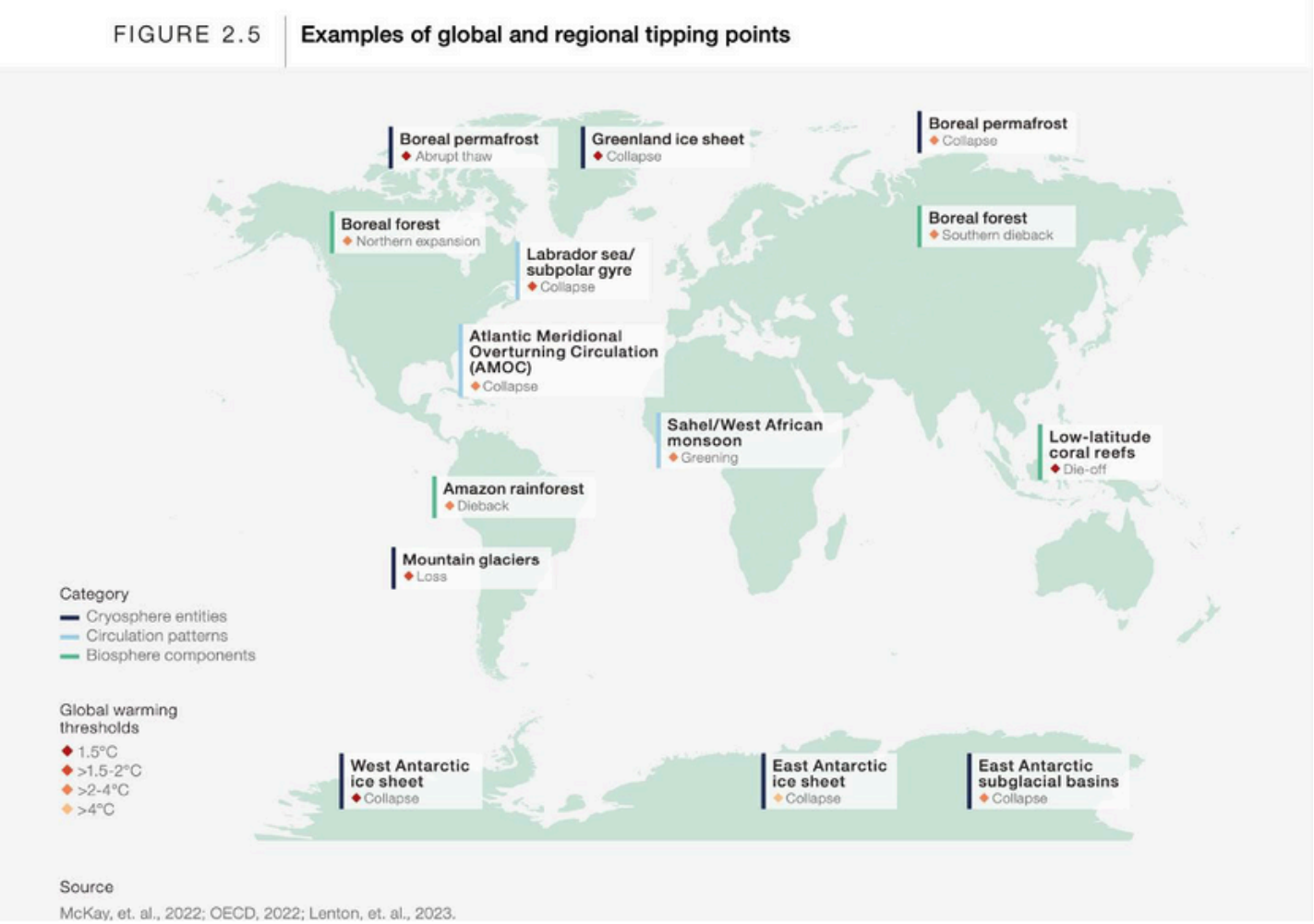
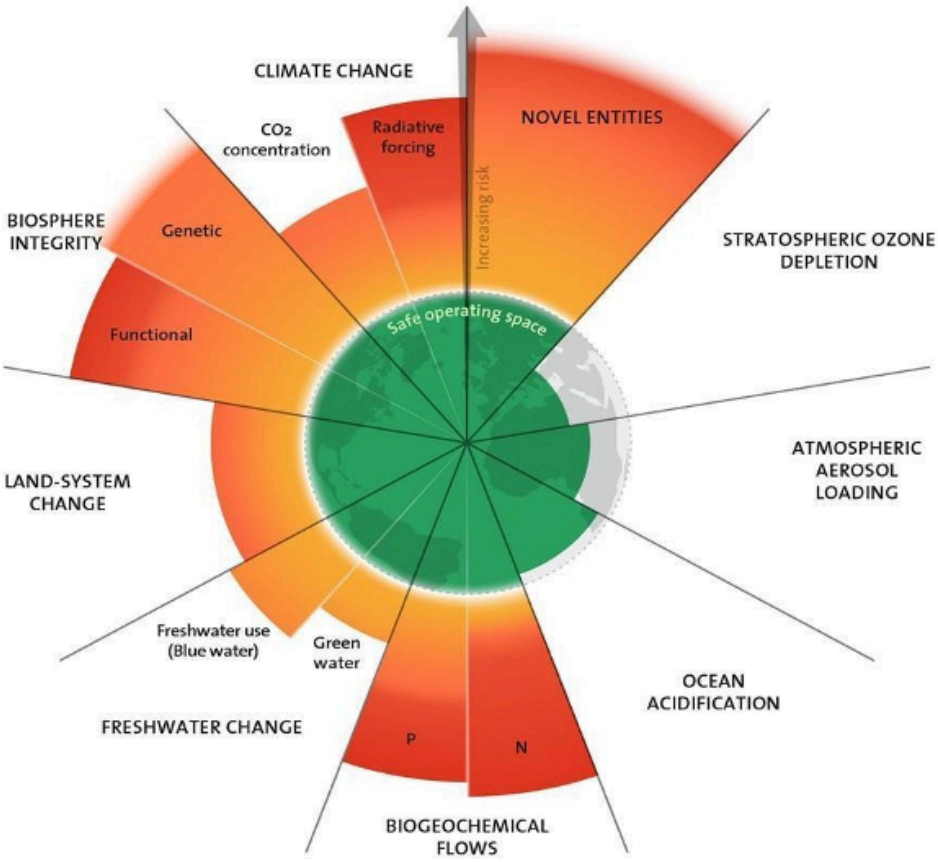


Image from World Economic Forum's 2024 Global Risk Report,[48] based on Lenton et al.[46]

EXECUTIVE SUMMARY

Planetary health has been chosen as the overarching lens of the Canadian medical community. This decision has been made in consultation with Indigenous physicians and researchers, and in alignment with international Indigenous consensus around eco-centric thought traditions that envision the determinants of health of Mother Earth herself.[39] The climate crisis is only one of several breaches in the Earth's planetary boundaries. Planetary health makes use of the well-accepted international planetary boundaries framework, which includes climate change and biosphere integrity as core boundaries, as well as land systems change, novel and inadequately tested chemical entities, air pollution, fresh water, ozone, and the nitrogen and phosphorus that are essential to our food supply.[49] Six of the nine planetary boundaries are outside of their safe operating zone and we are approaching the boundary for two others—ocean acidification and atmospheric aerosol loading.[49] This framework lends coherence to our ability to analyze local factors, such as pollution of air and water, that are relevant to the health of our patient populations.[50] The Lancet Commission on Planetary Health, published in 2015, defined planetary health as "the health of human civilization and the state of the natural systems upon which it depends."[51] A less human-centered definition is "a solutions-oriented, transdisciplinary field and social movement focused on analyzing and addressing the impacts of human disruptions to Earth's natural systems on human health and all life on Earth."[52]

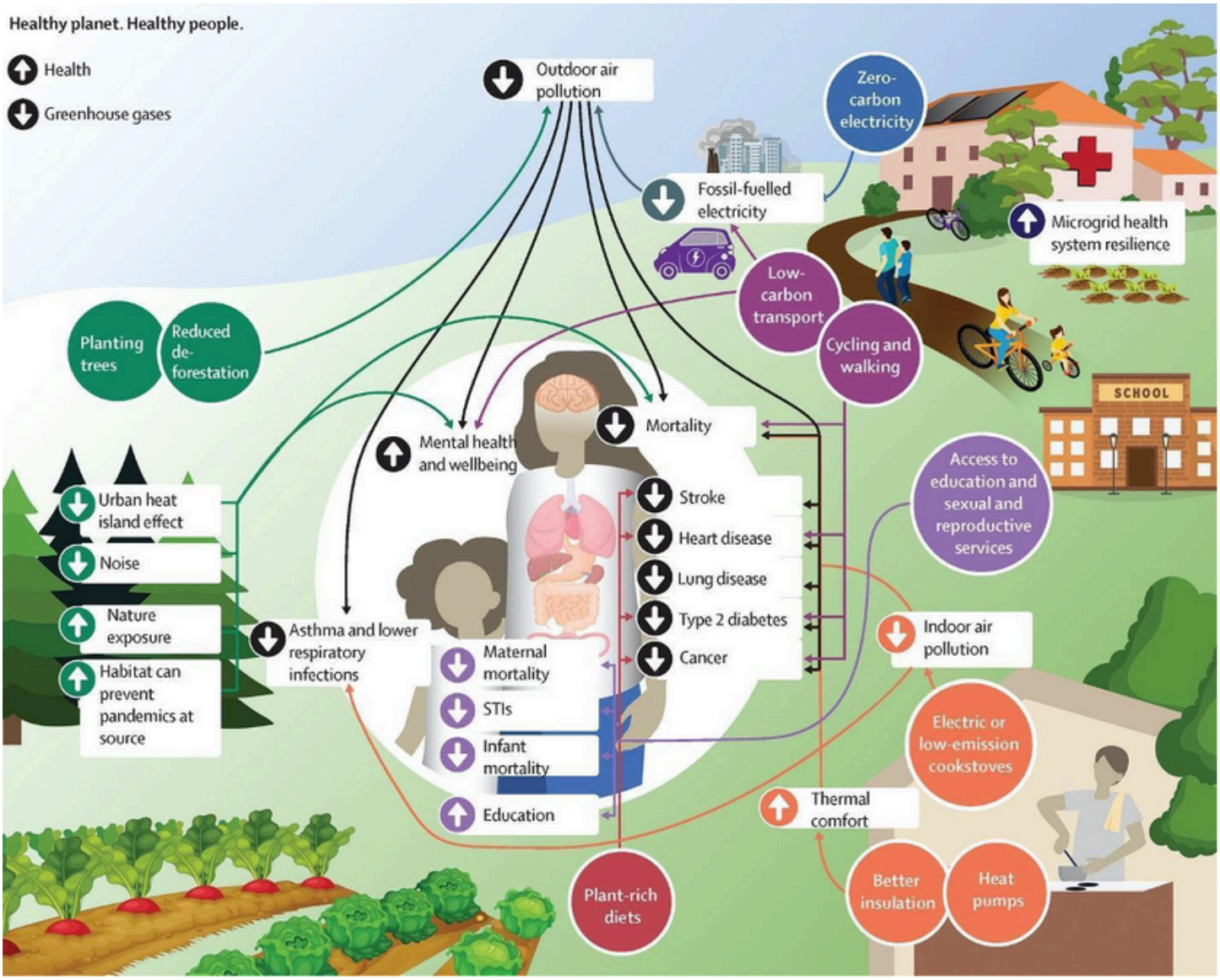


Planetary Boundaries 2023 Richardson et al[49]

EXECUTIVE SUMMARY

From a climate mitigation perspective, we are in a moment of opposing tipping points. Climate warming is leading to severe effects faster than anticipated,[53] driving health impacts from fires, floods, heat, and infectious disease,[7] and raising concerns that tipping points are being approached in the Earth system.[53] Meanwhile, clean energy technology is dropping precipitously in cost,[54] making zero-carbon electricity generation and low-carbon transport cheaper than the alternative in a growing number of jurisdictions, opening up opportunities for an accelerated transition.[46] Finally, an awareness of the interconnection between elements the health sector is committed to optimizing—health and safety—and the health of the planet, is mainstreaming globally, with over seventy countries now committed to building climate-resilient, low-carbon health systems, 49 health ministers having spoken at the first ever climate and health ministerial, held at COP28, and a declaration on climate and health having been endorsed there by 143 countries.[55] Yet our governments continue to subsidize and approve large new fossil fuel projects[56] with massive resources deployed by the fossil fuel industry in lobbying efforts.[55]

The global health sector contains over 43 million trusted messengers,[34] and allocates 10% of Global World Product.[35] It is therefore capable of generating large scale change if it coordinates efforts, not only decreasing the approximately 5% of greenhouse gas emissions for which it is responsible,[57] but also reducing its contribution to polluted air and water and toxic waste.[58] Individual behavioural change sends a signal to others, shifting social norms,[59] which can trigger positive feedback processes that encourage others to similar action.[59] Once a critical mass is reached, policy change to decrease the costs of transition becomes more likely, which, in turn, deploys increased technology, bringing with it economies of scale and positive feedback cycles.[59] Health sector buying power allows for the potential to exert impact into multiple industries[43] and trigger positive socioeconomic tipping points.[43] Given the imminence of reaching negative tipping points within the climate system, strategies involving creating positive socioeconomic tipping points are now felt to be the only realistic way to avoid points of no return.[46]



Health and Health System Co-benefits of climate adaptation and mitigation[43]

Protecting health and safety for present and future generations has been shown across countries to be the greatest motivator for work on climate change.[60] This work has the potential to affect every patient we will ever see, and every patient yet to be born. No future health community will have this opportunity: later is too late.[61] Many measures that decrease greenhouse gas emissions and improve climate-related resilience improve health and decrease the burden on healthcare systems right now.[62] Decreasing fossil fuel-related air pollution reduces drivers of heart disease, stroke, cancer, and chronic obstructive pulmonary disease as well as childhood asthma.[62] Improved active transportation increases activity levels as well as decreasing air pollution, with cycling actually reducing mortality.[62, 63] Plant-based diets have been associated with reductions in cerebrovascular disease, cardiovascular disease, and gastrointestinal cancers.[64, 65]

EXECUTIVE SUMMARY

Empowering women and girls through access to education and the sexual and reproductive healthcare that they tell us that they want improves the health of the entire family.[66] Though narratives emphasizing the health benefits of a sustainable, low-carbon transition are often the most persuasive and are well-articulated by health professionals,[60] bringing to life many elements of a sustainable, low-carbon transition requires collaboration with engineers, architects, urban planners, energy planners, and more.[67]

It is normal to find consideration of the ecological crisis disquieting. Expressions of ecoanxiety, ecological grief, eco-anger, and ecological guilt are skyrocketing, particularly amongst youth.[27- 29] The good news is that learning about a diagnosis is the first step to treating it. Considering the interplay between motivation and action, an interdisciplinary team of physicians and researchers concluded, "Recognizing that emotions are often what lead people to act, it is possible that feelings of ecological anxiety and grief, although uncomfortable, are in fact the crucible through which humanity must pass to harness the energy and conviction that are needed for the lifesaving changes now required."[68]

Commitments under the Academic Health Institutions' Declaration on Planetary Health[15]

COMMITMENTS UNDER THE ACADEMIC HEALTH INSTITUTIONS' DECLARATION ON PLANETARY HEALTH[15]

Academic Health Institutions will:

- Provide opportunities for faculty, staff, and students to take the Planetary Health Pledge, incorporating work for a healthy planet into our duty of care.
- Immediately work to align our healthcare schools with the Planetary Health Education Framework, providing common foundational principles, competencies, and language to prepare future healthcare professionals to both mitigate further environmental degradation and to lead and contribute to adaptation and resilience strategies.
- Provide healthcare professionals and learners with value- and evidence-based training to reduce over diagnosis and unnecessary investigations and treatment, to both improve the quality of care and reduce unnecessary healthcare-related environmental impacts, including greenhouse gas emissions.
- Ensure that fiscal resources are allocated to planetary health research, including mitigation, adaptation, co-benefits, and resilience.
- Ensure that research, policy, and advocacy on planetary health is formally recognized in the academic health institution, for example in the academic promotion process, the appointment of dedicated planetary health leadership positions, and the granting of awards.
- Recognize that optimizing human health is one of the most persuasive motivators for change and collaborate with other disciplines such as engineering, agriculture, architecture, urban planning, communications, behavioural sciences, and art to de-silo efforts and lead planetary health research, policy, and advocacy aimed at real-world implementation of solutions.
- Reduce emissions associated with travel by transitioning to virtual meetings when possible, including for student interviews, resident interviews, and conferences, choosing lower-emissions modes of travel (train, and bus rather than air travel) and offsetting travel-related greenhouse gas emissions.
- Divest from fossil fuels and other extractive industries and instead invest in a sustainable and healthy future for all.
- Endorse the Fossil Fuel Non-proliferation Treaty, which calls for a global phase out of oil, gas, and coal and a complete transition to renewable energies.

Academic Health Institutions will advocate for:

- Healthcare institutions committing to climate-resilient, net zero emissions healthcare by 2040 for the emissions controlled directly by healthcare, with an ambition to reach an 80% reduction by 2028-2032. For the emissions healthcare can influence, including travel to institutions and supply chain, reach net zero by 2045, with an ambition to reach an 80% reduction by 2036-2039.
- Healthcare institutions to become anchor institutions of sustainability for communities through integration into active transport networks, local agriculture programs, zero- carbon energy production, and circular economy practices emphasizing the responsible disposal of products and equipment, the recovery of valuable materials, and use of reusable supplies.
- Healthcare institutions to divest from fossil fuels and other extractive industries and reinvest in a sustainable and healthy future for all.
- Healthcare institutions to endorse the Fossil Fuel Non-proliferation Treaty, which calls for a global phase out of oil, gas, and coal and a complete transition to renewable energies.
- Research granting agencies to invest in planetary health research.

Methodology Overview

METHODOLOGY OVERVIEW

Through a structured approach grounded in rigorous research methods and stakeholder engagement, we sought to elucidate the current landscape of planetary health initiatives, identify key gaps and challenges, devise a strategic Roadmap for future action, and establish a collaborative framework for implementation. The subsequent subsections provide detailed insights into each facet of our methodology, underscoring the commitment to evidence-based decision-making and inclusive partnership.

LANDSCAPE ASSESSMENT

Beginning with information gathered by the Association of Faculties of Medicine of Canada as part of their engagement on Planetary Health over the past several years, the authors collated reports and surveys associated with progress in planetary health education and curriculum development in Canada, supplemented with key information from the academic literature. Subsequent to this, invitations were sent out to all members of the Canadian Medical Forum for a structured interview with regards to their organizational engagement with the commitments in the Declaration on Planetary Health including work on climate resilient, sustainable low carbon healthcare. Additional invitations were sent out to leaders in planetary health and climate resilient sustainable low carbon healthcare as they were identified during information gathering. Sixteen interviews were held. To get a sense of parallel work in peer countries, interviews were also held with leaders in planetary health education and sustainable healthcare practice in the United Kingdom, a recognized leader internationally, as well as in Germany, chosen for its similar high-income country status and federated model of healthcare delivery, and with Brazil, another country with a substantial Indigenous population and a federated model of healthcare delivery. Notes taken during these interactions were analyzed by both authors and common themes were extracted and included in the Landscape Assessment.

GAP ANALYSIS

The AFMC has been convening a Planetary Health Committee since 2023 which includes representatives from each school that has signed the Declaration on Planetary Health. Representatives to this Committee were contacted and invited to a planetary health workshop where the initial findings from the Landscape Assessment were presented to them. They were then engaged in two interactive exercises designed to identify and prioritize the gaps and challenges in implementing the commitments under the Declaration from their perspective, which informed the Gap Analysis, as well as to explore their ideas about the next steps needed to make significant progress on implementing the Declaration over the next five years, which informed the Roadmap. The Gap Analysis was also informed by the same reports, survey results, and interviews mentioned above.

METHODOLOGY OVERVIEW

ROADMAP AND KEY PERFORMANCE INDICATORS

Using information gathered during the Landscape Assessment and major gaps identified during the Gap Analysis, key themes and priorities were identified for the Roadmap. Recognizing the need for the creation of new organizational structures and bodies in order to be able to deliver on the Declaration on Planetary Health, including climate resilient, sustainable low carbon healthcare, a staged approach has been described where initial action items make use of existing structures and relationships, and include work required to bring into being new structures and institutions. A draft Roadmap was shared with many contributors for comment, including AFMC, interviewees, members of the Planetary Health Committee, members of the Canadian Medical Forum, and multidisciplinary partners. Their feedback has been incorporated into this report.

Collaboration will be required for the medical community to deliver in a cohesive manner that makes the most efficient use of resources including human, social, financial, and political capital: key elements are emphasized and included in Key Performance Indicators (KPIs).

COLLABORATION AND OUTREACH STRATEGY

The outreach strategy builds from the Roadmap and timelines identified in association with the achievement of an iteratively more networked and organized approach at both the local and national levels. In alignment with the principle of "learning by doing" which is predominant in planetary health educational literature, as well as the political science concept of "band wagoning," and movement-building principles, a target-based approach where teams are built through the achievement of ever more ambitious goals as recommended in the Roadmap is described. In alignment with the emerging evidence base on climate change and health communications, materials to guide communications and messaging are recommended.

Throughout the document, when the word "plan" is used, it refers to the Roadmap including KPIs, collaboration and outreach strategy.

Landscape Assessment

LANDSCAPE ASSESSMENT

The Landscape Assessment, provides an overview of current activities related to delivery on the Declaration on Planetary Health including climate resilient, sustainable low carbon healthcare at each Canadian medical school as well as in select areas internationally, organized as follows:

- Current activities by members of the Canadian Medical Forum,
- Current activities by medical schools, framed around the commitments in the Declaration, and
- Activities in selected countries internationally.

What follows is an assessment of where Canada is currently at in delivering a healthy response to climate change.

Because work at medical schools occurs in an ecosystem that interacts with many different actors, both domestically and internationally, this landscape assessment includes a description of work of key members of those communities. Domestic work is addressed first, followed by international comparators. Overall, work is uneven, with progress to this point having been largely dependent on organizational capacity in the context of other urgent bodies of work, as well as on the presence or absence of a high-level champion within the organization.

MEMBERS OF THE CANADIAN MEDICAL FORUM AND OTHER MEDICAL ORGANIZATIONS

"The Canadian Medical Forum brings together leaders of Canada's major national medical organizations to discuss issues of priority to physicians, their patients, and the Canadian health care system." This summary includes most members of the Forum as well as some other medical organizations: Climate Wise Slides, Collège de médecins du Québec, Fédération des médecins omnipraticiens du Québec, Fédération des médecins spécialistes du Québec, and Project Green Healthcare / Projet vert la santé.

Association of Faculties of Medicine of Canada (AFMC)

- Acts as the secretariat for the Canadian Medical Forum and is leading the Declaration on Planetary Health Project.
- Convenes the Planetary Health Committee which has subcommittees for Governance/ Accountability, Research, and Curriculum Change.
- Has offered web space to collate planetary health educational resources if that would be helpful, though dedicated resources are not to this point allocated for this.
- In 2023, the annual AFMC Board Invitational event (held during ICAM - the International Congress on Academic Medicine - 2023) focused on planetary health. The event included small-group breakout discussions on the topics of education, research, and institutional behavior as they relate to planetary health within academic medicine. Challenges and barriers to advancing planetary health within academic medicine were discussed, and a number of recommendations emerged.

Black Physicians of Canada

- Engaged on an ongoing basis at the national table; planetary health engagement in progress.

College of Family Physicians of Canada

- Maintains an environmental health resource group and gives a yearly award for environmental health.
- Currently redoing their strategic plan, so their upcoming approach to planetary health is yet to be determined.
- Participating in the RCPSC-led renewal of CanMEDS.
- Divested from fossil fuels.
- Eliminated single use plastics, decreasing paper publications, staff are working remotely thereby decreasing their carbon footprint, and most meetings held virtually.
- Published a resident-led Guide to Integrating Planetary Health in Family Medicine Training. Each year, residents from family medicine residency programs representing every medical school in the country select a topic they believe warrants development and improvement in family medicine training. Typically, the Guide for Improvement of Family Medicine Training (GIFT) provides recommendations to family residency programs for enhancing current aspects of the curriculum. Exceptionally, GIFT 2020 addresses climate change and planetary health in family medicine education while also offering a conceptual framework for residents and practitioners alike.
- Family practice educators from universities around the country are beginning to meet informally to support one another in implementing planetary health curriculum. Zero programs currently have established curricula, but eight are working on curriculum.

Canadian Federation of Medical Students (CFMS)

- Several years ago, a group of students at the Canadian Federation of Medical Students (CFMS) established the Health and Environmental Adaptive Response Taskforce (HEART), a group of students dedicated to protecting health and health systems from ecological degradation. In 2021, CFMS-HEART released a report, CFMS HEART: National Report on Planetary Health Education, which detailed progress made by Canadian medical schools in response to their 2019 report with the same title. At the time of writing this report, a 2023 report was in development. The 2021 report notes, "This year's survey demonstrates progress since the publication of its previous iteration. While planetary health is not yet adequately represented in Canadian medical education, it must be acknowledged that the changes that have been made in the midst of a global pandemic are a testament to the dedication of key student advocates and faculty stakeholders in identifying the deficits and implementing steps in achieving progress." The report includes recommendations in the following areas:

    - Problem based learning & simulations,
    - Indigenous justice, traditional knowledge & environmental racism,
    - Intersectional integration,
    - Strategic planning,
    - Collaboration,
    - Faculty and community leadership,
    - Develop learning objectives, and
    - Need for faculty leadership.

Canadian Forces Health Services Group

New initiative of the Canadian Forces that responds to the effects of climate change on individual's health.

Canadian Medical Association

- Strategic plan includes a commitment to climate-resilient, net-zero emissions healthcare as a strategic priority.
- Comprehensive new policy on environmentally sustainable health systems in Canada lays out priorities.
- Divested from stakes in energy companies whose primary business relies on fossil fuels; on track for a net-zero GHG investment portfolio by 2050.
- Participated in the development of Canada's National Adaptation Strategy.
- Partners yearly with the Lancet Countdown on Health and Climate Change, nursing colleagues, and the Canadian Public Health Association to produce a report with targeted policy recommendations to improve climate and health in Canada. Report 2023 focuses on the need for a secretariat to coordinate climate-resilient low-carbon healthcare (Eng/Fra).

Climate-Wise Slides

- The Climate Wise team is a group of medical students across Canada who are passionate about connecting the dots between climate change and health in medical education. The Climate Wise Slides website provides evidence-based educational material, allowing individual students to engage with planetary health teaching in topics of their interest, and medical schools to utilize the material for longitudinal curriculum implementation. They are working on an advocacy package for students to bring these materials into their medical schools.

Collège de médecins du Québec

- Sustainability is the fourth pillar of their strategic plan. Launched a committee on social accountability and sustainability.
- Loi 15, adopted in Quebec in December 2023, increases sustainability commitments of healthcare.

Fédération des médecins omnipraticiens du Québec

- Long-standing interest in the effects of environmental contaminants and pollutants on human health.
- Hosted a conference on « Les saines habitudes de vie et l'environnement » in February 2022.
- Planetary health plans in development.

Fédération des médecins spécialistes du Québec

- The Winter 2023-24 issue of their publication, Magazine le spécialiste, focused on planetary health under the title, « Santé et environnement sont indissociables | Des médecins spécialistes carburent aux idées vertes »
- Additional planetary health plans in development.

Fédération médicale étudiante du Québec

- Has an interest in environmental health and are supporting work in planetary health at medical schools in Quebec.

Indigenous Physicians Association of Canada (IPAC)

- Provided the opportunity for its board to take the Planetary Health Pledge and is working to ensure Indigenous Traditional Knowledge is taken into account in policy processes including the renewal of the Canadian Environmental Protection Act.
- Reducing emissions associated with travel while being mindful of the need for relationship-building.
- Invests mindfully.
- Members are leading work on land-based learning in support of planetary health education.

Medical Council of Canada (MCC)

- In March 2022, the MCC updated its qualifying examination, which candidates must pass to complete their medical degree, to include a new objective, "Health and the climate crisis." This part of the exam will measure how physicians address the physical, psychological, and social effects of climate change on population health in small- and large-scale settings.

Project Green Healthcare / Projet vert la santé

- This student-led community of practice is associated with the Canadian Coalition for Green Healthcare and the Canadian Association of Physicians for the Environment. They recently produced a Primer on Greening Healthcare.

Resident Doctors of Canada (RDoC)

- RDoC's new governance model means that provincial resident doctors' organizations are members of RDoC, as opposed to members directly; this means that outreach to residents likely needs to happen at the provincial level.
- Strategic Objective related to "Championing optimal, equitable, and sustainable health and wellness for all Canadians, including physicians," intersects with the need to ensure rising levels of ecoanxiety in youth are addressed, partly through a reduction in moral injury related to working in highly wasteful medical systems that operate in a manner inconsistent with residents' individual values as well as with intergenerational justice.

Royal College of Physicians and Surgeons of Canada

- Most recent strategic plan includes planetary health as one of three pillars.
- Organizes a Coalition on Planetary Health, which first met in the spring of 2023.
- Acts as a Continuing Education Repository and Education body.
- Allocates institutional resources to physician time to work on planetary health.
- Leading a revision to the CanMEDS framework. CanMEDS is a framework for improving patient care by enhancing physician training. Developed by the Royal College of Physicians and Surgeons of Canada in the 1990s, its main purpose is to define the necessary competencies for all areas of medical practice and provide a comprehensive foundation for medical education and practice in Canada. For the current CanMEDS review, a Planetary Health expert panel has submitted suggested revised competencies. These are now being reviewed by the central committee with a draft expected in late 2024.
- Including planetary health in some of their research grants.

Society of Rural Physicians of Canada (SRPC)

- Engaged in planetary health in support of rural and remote health, with the Rural Health Services Research Network of BC playing a particularly active contributory role.
- Presenting workshops at conferences including a "heat dome scenario" where participants will be asked to come up with a plan for their community.
- Developing case-based learning in association with medical schools
- Are developing a film in association with a UBC student to appeal to younger audiences.

MEDICAL SCHOOLS: DELIVERY ON THE COMMITMENTS IN THE DECLARATION ON PLANETARY HEALTH

Declaration on Planetary Health Commitment A: "Provide opportunities for faculty, staff, and students to take the Planetary Health Pledge, incorporating work for a healthy planet into our duty of care."

Although groups have undertaken this initiative,[69] there is no current regular ceremony associated with the Planetary Health Pledge.

Declaration on Planetary Health Commitment B: "Immediately work to align our healthcare schools with the Planetary Health Education Framework,[70] providing common foundational principles, competencies, and language to prepare future healthcare professionals to both mitigate further environmental degradation and to lead and contribute to adaptation and resilience strategies."

AFMC Planetary and Global Health Committee Survey

In the spring of 2023, AFMC conducted a Planetary Health Committee Survey of medical schools in Canada to ascertain current activities surrounding planetary health and/or global health and aspiring outcomes for its planetary health committee's work. At that time, 12 out of 17 medical schools completed the survey. In January 2024, medical schools were provided with another opportunity to complete the survey (for those who had not yet done so) or update their responses. This yielded an additional two responses for a total of 14 out of 17, and updates (or confirmation that the previous information had not changed) from six of the schools that had previously completed the survey. The survey can be found in Appendix A. The following common themes can be drawn from the survey responses:

- All of the responding medical schools are in the initial stages of addressing planetary health and/or global health. Examples of activities include:
  - Strategy development
  - Curriculum development / integration into curriculum (stand-alone courses or integration into existing courses)
  - Student-run community engagement projects
  - Supporting residents' projects in greening care
  - Faculty engagement in research or policy
  - Hiring related faculty positions
  - Developing a bursary program, endowment funds
  - Events and webinars
  - Connecting national and international dialogues

- Respondents are working to address challenges related to maintaining planetary/global health as a priority, lack of faculty expertise or leadership, lack of time, lack of administrative support, lack of financial resources, and curricular time. Interviews conducted as part of this landscape scan with planetary health leads from several schools confirm these elements, with many physicians indicating a lack of dedicated time to deliver on the elements of the Declaration on Planetary Health, inadequate resources to develop curriculum materials, a lack of a central repository of curriculum materials, and challenges with the fact that many physician peers and university leaders have never been briefed on the intersection of climate change and health, and therefore do not know what they do not know about the topic. This can make it difficult to get the topic onto the agenda at meetings and to obtain the time and material support required to do the work. These challenges are further elaborated in the Gap Analysis section of this report.
- The concepts of planetary health and global health are linked in approximately half of the schools. Of note, two of the schools indicated that their own or another faculty within the institution leads a One Health program.
- Most respondents do not engage with the Planetary Health and/or Global Health student report cards (see next paragraph). Of the respondents that are engaging with the report cards, only two have a clear path forward for implementing the report card recommendations.

Planetary Health Report Cards

The Planetary Health Report Card is a student-led global initiative which aims to produce "report cards" on improving planetary health contact in health professional schools around the world. Report cards were produced for six Canadian medical schools in 2023 (Dalhousie, McGill, U of Alberta, U de Montréal, U of/de Ottawa, U of Saskatchewan) and an additional school (U of Toronto) was evaluated in 2022 but not in 2023. These schools were evaluated on curriculum, research, community outreach & advocacy, support for student-led initiatives, and campus sustainability, and were given an overall score.

Declaration on Planetary Health Commitment C: "Provide healthcare professionals and learners with value- and evidence-based training to reduce over diagnosis and unnecessary investigations and treatment, to both improve the quality of care and reduce unnecessary healthcare-related environmental impacts, including greenhouse gas emissions."

A number of organizations are working on reducing over diagnosis and unnecessary investigations and treatment, both to improve the quality of care and reduce unnecessary healthcare-related environmental impacts including greenhouse gas emissions. The **Canadian Coalition on Green Health Care** and **Choosing Wisely Canada** are working together on the National Sustainable Prescribing Working Group. They have developed an outpatient document, and an inpatient document is in progress. See https://deprescribing.org/ for more information. Choosing Wisely is an international movement with chapters in many countries including the United States (where it began), Brazil, Australia, and many others.

Declaration on Planetary Health Commitment D: "Ensure that fiscal resources are allocated to planetary health research, including mitigation, adaptation, co-benefits, and resilience."

Some universities have begun explicit planetary health research programs, including the University of British Columbia at the **Planetary Healthcare Lab**, the University of Ottawa's **Planetary Health Research Lab**, and the University of Toronto's **Collaborative Center for Climate, Health, and Sustainable Care**.

Declaration on Planetary Health Commitment E: "Ensure that research, policy, and advocacy on planetary health is formally recognized in the academic health institution, for example in the academic promotion process, the appointment of dedicated planetary health leadership positions, and the granting of awards."

This process is beginning at many schools, with representatives of the Planetary Health Committee of the AFMC reporting, in general, that they need more institutional support through the creation of named positions with dedicated time allocated to them. Institutions where this has been done are making notably more progress.

Declaration on Planetary Health Commitment F: "Recognize that optimizing human health is one of the most persuasive motivators for change and collaborate with other disciplines such as engineering, agriculture, architecture, urban planning, communications, behavioural sciences, and art to de-silo efforts and lead planetary health research, policy, and advocacy aimed at real- world implementation of solutions."

So far, a lack of coordination within medical schools themselves means that opportunities are being missed in this area. Much work is being led by non-governmental organizations including the **Canadian Coalition for Green Healthcare**, the **Canadian Association of Physicians for the Environment (CAPE)**, the **Canadian Association of Nurses for the Environment**, the **Canadian Health Association for Sustainability & Equity**, and **Doctors for Planetary Health - West Coast.**

CAPE's Advocacy and Mobilization Program is an accredited advocacy capacity-building program for health care providers. The third cohort is currently going through the program, whose outcomes are to help participants:

- Become effective communicators on issues such as climate and toxics.
- Learn how to leverage media tools such as op-eds and interviews for advocacy.
- Develop an understanding of government processes and lobbying government officials.
- Build a network of like-minded peers.
- Gain access to CAPE's mobilization network which includes media and CAPE campaign advocacy opportunities.

Declaration on Planetary Health Commitment G: "Reduce emissions associated with travel by transitioning to virtual meetings when possible, including for student interviews, resident interviews, and conferences, choosing lower emissions modes of travel (train, and bus rather than air travel) and offsetting travel-related greenhouse gas emissions."

A learner-led carbon footprinting study of the Canadian medical residency interview tour led to the tour transitioning from in-person to virtual,[71] something interviewees are greeting with enthusiasm given the decreased carbon footprint, time, and money involved.

Declaration on Planetary Health Commitment H: "Divest from fossil fuels and other extractive industries and instead invest in a sustainable and healthy future for all."

Medical school-based work is taking place in concert with broader university initiatives. The **Canadian Medical Association** has divested from fossil fuels and is looking to leverage this leading work to catalyze further fossil fuel divestment within health-oriented organizations in Canada. The **Trottier Family Foundation** is positioning themselves in a leadership role in health organizations' divestment and will be pushing the big foundations (e.g., Sick Kids) to divest. The **Canadian Coalition for Green Healthcare** is also working to advance divestment within healthcare institutions.

Declaration on Planetary Health Commitment I: "Endorse the Fossil Fuel Non-proliferation Treaty, which calls for a global phase out of oil, gas, and coal and a complete transition to renewable energies."

With the WHO having endorsed the call for a Fossil Fuel Non-proliferation Treaty,[50] and organizations representing over forty million global healthcare professionals having called for a fossil fuel phase-out and wider climate action, consensus is building in the global community that the voice of health must contribute to changing fossil fuel-related norms.[55] Scholarship in the commercial determinants of health points out the need for an approach which explicitly analyzes the various forms of power that impact research, communications, policy-setting and implementation of an evidence-based approach to issues with heavy industry involvement such as pharmaceuticals, medical devices, food, and fossil fuels,[72] and the need to learn from prior public health progress, including with Tobacco.[73]

LANDSCAPE ASSESSMENT

The **Canadian Public Health Association**, the **Registered Nurses' Association of Ontario**, the **Canadian Society of Otolaryngology—Head and Neck Surgery** and other Canadian health organizations have endorsed the call for a Treaty—opportunity is available for medical schools to increase their work in this regard.

Declaration on Planetary Health Commitment J: "Academic Health Institutions will advocate for healthcare institutions to commit to climate-resilient, net zero emissions healthcare by 2040 for the emissions controlled directly by healthcare, with an ambition to reach an 80% reduction by 2028-2032. For the emissions healthcare can influence, including travel to institutions and supply chain, reach net zero by 2045, with an ambition to reach an 80% reduction by 2036- 2039."

Canada signed onto the WHO COP26 climate resilient and sustainable low-carbon health systems program in 2021,[7] a commitment that was reiterated recently in the Delhi G20 Summit Leaders' Declaration.[8] Canada has also recently released its first National Adaptation Strategy, many threads of which have implications for health and health systems.[9] The United Kingdom now has a robust national plan to decarbonize its health systems,[10] and has met its first two- year targets, delivering zero emissions ambulances, a supplier roadmap and energy efficiency- related cost savings, as well as huge levels of staff support.[11] Countries such as the United States, Germany, Australia, Singapore, and others are following their lead.

CASCADES is an Environment and Climate Change Canada-funded initiative of four founding partners: the University of Toronto Collaborative Centre for Climate, Health & Sustainable Care, the Healthy Populations Institute at Dalhousie University, the Planetary Healthcare Lab at the University of British Columbia, and the Canadian Coalition for Green Healthcare. In Quebec, CASCADES is a partner in the Réseau d'action pour la santé durable du Québec. CASCADES' mission is to strengthen the capacity of the healthcare community across Canada to transition towards high-quality, low-carbon, sustainable, and climate resilient care. They have 10 priority action areas under the headings of "Care pathways" and "System enabler". These are:

- Pharmacy and prescribing
- Perioperative care
- Primary and community care
- Clinical specialties
- Improving health
- Quality improvement and patient safety
- Strategy and performance
- Measurement
- Procurement
- Operations and infrastructure

CASCADES has developed courses and on-line learning modules that can be accessed asynchronously by anyone.

Canadian Coalition on Green Health Care (formed in 2000)

- Broad cross-Canada network of partnerships with government, health authorities, and academic institutions.
- Committed to situating hospitals as anchor institutions of sustainability.
- Publishes a made-in-Canada comprehensive Green Hospital Scorecard.

Reseau d'action pour la santé durable

Officially associated with the Association pour la santé publique du Québec, this group of thirty organizations representing more than 180 000 people working in health and social services in Quebec that is committed to interdisciplinary work in service of sustainable healthcare.

PEACH Health Ontario

Ontario-centered network of partnerships for environmental action by clinicians and communities for hospitals and health care facilities.

Multiple health systems are making substantial progress in low-carbon, climate-resilient healthcare, including the **Alberta Health Services' Office of Sustainability & Energy Management**, **Vancouver Coastal Health**, and the **Centre Hospitalier de l'Université de Montréal**.

Declaration on Planetary Health Commitment K: "Academic Health Institutions will advocate for healthcare institutions to become anchor institutions of sustainability for communities through integration into active transport networks, local agriculture programs, zero-carbon energy production, and circular economy practices emphasizing the responsible disposal of products and equipment, the recovery of valuable materials, and use of reusable supplies."

Procurement of hospital and clinic equipment and supplies are major contributors to greenhouse gas emissions from the health care sector. Additionally, Canada has experienced persistent supply shortages of key medications in recent years, leading to concerns about potential increasing difficulties in accessing essential medicines as climate-related disasters predictably increase. The **Canadian Coalition on Green Health Care** has started a Procurement Working Group of about 30 people responsible for procurement, mostly at Ontario hospitals. Some hospitals are making sustainable procurement part of their corporate plan. **Nourish** and the **World Resources Institute** are working together to bring the Coolfood Pledge to Canadian hospitals, which will help them achieve a science-based target to reduce the climate impact of the food they serve.

Association québecoise des médecins pour l'environnement works to advance public policy and health systems transformation in service of planetary health in Québec.

INTERNATIONAL CONTEXT

Global Climate and Health Alliance (formed in 2011)
The global convenor of health sector civil society, partners with the WHO in the WHO-Civil Society Working Group on Climate Change and Health.

Planetary Health Alliance
Global network of universities and institutions dedicated to planetary health. Large educational arm with a substantial catalogue of materials.

Summary of Planetary Health Activities by Country

Planetary Health Declaration Commitment	UK	US	Germany	Brazil	Canada
Planetary Health Pledge	Several groups have undertaken the pledge. Currently no regular formal ceremonies.	Several groups have undertaken the pledge. Currently no regular formal ceremonies.	Originated in Germany. Currently no regular formal ceremonies.	Actively pursuing academic work looking into the development of ceremonies around planetary health.	No school is currently undertaking the planetary heath pledge on a regular basis.
Planetary Health Education	National curriculum officially endorsed by the Medical Schools Council—now mandatory across the UK.	Association of American Medical Colleges reports that 50% of US Medical Schools have mandatory curriculum, though this is hugely varied. US-based Global Consortium on Climate and Health Education conducting ongoing updating and	Patchy. Institutions with a champion are ahead. Much work has been put into inputs to the institution in charge of curriculum and that which is developing the exams. A change in leadership is delaying implementation.	There is now a chapter on planetary health in the main medical education textbook. Exams for residency and family practice contain planetary health content. Implementation still patchy.	No national standards. No textbook. No national institution to support implementation.

		peer review process. 44/154 US medical schools participated in the planetary health report card in 2023. 8 schools received above a C+.			
Reduction of overdiagnosis and treatment	Well-established part of training and practice.	Well-established part of training and practice.	Well-established part of training and practice.	Well-established part of training and practice.	Climate-aware elements have recently been added to Choosing Wisely Canada's work.
Allocation of resource to planetary health research	Strong support of climate change and planetary health research at UCL, London School of Hygiene & Tropical Medicine, & by Lancet & BMJ amongst others.	NEJM group committed to publishing on climate change & health. National Academy of Medicine is committed to accelerating research.	Funds for the Global Health Research Alliance are now more likely to involve a planetary health lens. Some universities rebranding existing global health work as planetary health: usually ID related, often not very interdisciplinary.	Research grants are starting to be allocated for planetary health; MDs are beginning to obtain PhDs in the discipline.	Very few grants have been allocated to climate-related or planetary health work. There is no national research agenda, no central place where groups are invited to collaborate, and no incentive for schools to work together.

Formal recognition of planetary health research, policy, & advocacy in institutions	Institutions are beginning to allocate dedicated positions and resources.	National Academy of Medicine is committed to accelerating research.	Patchy. Voluntary education predominantly undertaken by younger MDs who face barriers in implementation /mainstreaming as a result of powerful senior MDs who have not been briefed.[74]	Institutions are beginning to allocate dedicated positions and resources. Planetary Health Brazil, at the Institute of Advanced Studies, University of São Paulo coordinates work.	In Canada, this work is largely done by the non-governmental organization, the Canadian Association of Physicians for the Environment, which, for reference, currently has 18 full time staff. Currently, no medical school surveyed has dedicated more than 0.2 FTE to planetary health.
Collaboration with other disciplines	Occurring actively via multiple organizations including Greener NHS and the UK Health Alliance on Climate Change.	Occurring actively via multiple organizations including the Medical Society Consortium on Climate Change and Health.	KLUG (German Alliance on Climate Change & Health) is very involved in interdisciplinary policy & advocacy.	Active Conversation.	Not organized nationally. CASCADES, which involves several schools, does have interdisciplinary initiatives. National-level collaboration exists primarily in the NGO space between the Canadian Association of Physicians for the Environment and the Canadian Association of

					Nurses for the Environment.
Reduction of emissions from travel	Unknown.	Unknown.	Unknown.	Unknown.	Medical students successfully tracked CARMS-related emissions and advocated for a virtual process.
Divest from Fossil Fuels	Royal College of Physicians/ER/ General Practitioners/ Psychiatrists Faculty of Public Health Royal College of Paediatrics and Child Health, London School of Hygiene and Tropical Medicine & others.	Over 250 US schools have divested from fossil fuels-	KLUG is working on divestment, with a particular focus on German Physicians' Pension Funds.[75]	Unknown.	The Canadian Medical Association has divested from fossil fuels. All medical schools who have signed the Declaration on Planetary Health have committed to divest.
Endorse Fossil Fuel Non-proliferation treaty	British Medical Association Multiple national specialty associations, Royal Colleges, and healthcare institutions.	Multiple national associations and NGOs.	German Medical Association Germany Public Health Association German Soc of Anesthesiology/ICU/Nursing/Surgery and others have endorsed.	Several health organizations have endorsed.	All medical schools who have signed the Declaration on Planetary Health have committed to endorse the call for a fossil fuel non-proliferation treaty.
Advocacy for climate-resilient, low-emissions healthcare.	NHS England's net zero targets were embedded in legislation in the 2022 Health and Care Act. Work is being	US Office of Climate Change and Health Equity has a pledge for Health Sector orgs to take.	Semi-privatized healthcare system with much work funded by health insurance: lack	Isolated initiatives. Still needs a national coordinating body.	The Canadian Medical Association is very involved in this. CASCADES does implementation

	led by Greener NHS with a comprehensive, coordinated plan extending from the national level through to the hospital and clinic level.	The Medical Society Consortium on Climate Change and Health mobilizes major medical societies representing over 700,000 health professionals. Healthcare Without Harm is very active.	of cohesion is slowing implementation of climate-resilient, low-emissions healthcare. KLUG is gathering institutions for individual engagement.		and policy work around climate-resilient low-emissions healthcare, but advocacy is not one of its functions. The Canadian Coalition for Green Healthcare (an NGO) and PEACH Ontario both participate in this.
Advocacy for healthcare institutions to become anchor institutions of sustainability.	System-wide transformation already in effect: All NHS procurements include 10% net zero/social value weighting & all above 5 million pounds/year require suppliers to publish a carbon reduction plan. NHS Suppliers have made sustainability commitments.	Occurring actively via multiple organizations including the Medical Society Consortium on Climate Change and Health.	Rapidly growing Center for Planetary Health Policy that is research and policy oriented. Working on climate-resilient low-carbon healthcare and providing knowledge translation for policymakers.	Many isolated initiatives. Growing interest.	This is primarily done by CASCADES, the Canadian Coalition for Green Healthcare, and PEACH Ontario. There is no funded, organized, national initiative.

Gap Analysis

GAP ANALYSIS

The Gap Analysis provides an overview of gaps, challenges, and obstacles in advancing commitments under the Academic Health Institutions' Declaration on Planetary Health.

GAPS AND CHALLENGES

1. Low Baseline Level of Knowledge

According to both published data and information relayed during interviews for this project,[11] many physicians, health system leaders, and decision makers, including senior leaders, have never received a comprehensive education or training, such as evidence-based briefing on the impacts of climate change on health and health system.[74, 76] Surveys show that overall physicians consider it important but feel unprepared to counsel patients or interact with policymakers.[11] This leaves gaps to be filled either knowingly or subconsciously, by misinformation, biased information, and non-health system specific information. This contributes to a lack of urgency and inadequate allocation of resources, which leaves emerging planetary health leaders with structural barriers to enhancing health system resilience to climate change.[74]

2. Lack of Supportive Educational Resources across Practice Stages

Some medical schools have identified a lack of informational resources as a challenge to implementing the Declaration, while others have indicated that there are so many resources that it is overwhelming. This dichotomy points to the need for a curated, well-organized clearinghouse of informational resources on planetary health for medical schools.

Learners often have more expertise than faculty, administrative staff, and physicians on planetary health and related topics.[74] This highlights the need for knowledge exchange and learning across the academic hierarchy.[76] This lack of knowledge is compounded by a shortage of faculty development resources and continuing medical education opportunities.

3. Lack of Leadership

In many cases, a lack of leadership is related to practicing physicians, leaders, and decision- makers not knowing what they don't know with regards to planetary health.

a. Each institution needs its own institution-specific implementation plan that identifies timelines and responsible parties for each commitment of the Declaration. In order to be effective, these implementation plans must be developed by, or at least have significant buy-in from, institutional leaders. Without leadership and an institution-specific implementation plan, individual efforts can fall by the wayside, or worse, be duplicated by different people within the same institution.

b. Nationally, there is a lack of funded coordinating structures to ensure an overall cohesive approach to research, education, policy, and advocacy.

4. Lack of Time and Dedicated and Knowledgeable Staff

Implementing a planetary health-oriented approach requires time and multifaceted, multidisciplinary expertise. A common challenge is the lack of time and dedicated staff to work towards implementation of the Declaration. Although some medical schools have a minimal amount of staff time dedicated to planetary health (e.g., 1 person 1 day per week), many schools have no dedicated position addressing planetary health. Many of the individuals who are working on planetary health are doing it off the sides of their desks or on a voluntary basis because of their personal commitment and passion for planetary health. Many of these individuals do not have administrative support from the institution for this work and are themselves relatively new to the area. This is unsustainable from a human resources perspective and puts people at a high risk of burnout. We obtain the results of the systems we create, so this approach should also be expected to be ineffective and result in a lack of delivery when it comes to climate-resilient healthcare and sustainable wellbeing.

5. Mental Health Challenges Associated with Learning About the Ecological Crisis

Colloquially, people often say, "Climate change is depressing," and then turn away. Studies confirm high rates of ecological grief, anxiety, guilt, and anger,[27] as well as substantial and lasting mental health impacts associated with severe events such as wildfires.[77-79] **As health system leaders, we do not have the luxury of turning away:** we must maintain healthcare through wildfires, heat emergencies, floods, emerging infectious disease-related challenges, supply chain disruption and more. This means that we need to support our community emotionally as we learn about and manage planetary health emergencies. Developing insight into our emotional reaction is essential. Many individuals need a process of grieving and adjustment in response to a fuller understanding of the consequences of climate change on health and health systems.

Like COVID-19, this is a diagnosis that affects not only our patients, but ourselves, our families, and everyone we love. As physicians, we bear and are honoured by the societal responsibility to lead a healthy response.

It must be acknowledged that emotions related to our own personal fear for those that we love, our feelings of guilt and complicity in the problem, and our anger may have played a role in our delayed and thus-far inadequate response and may influence our treatment going forward.

In essence, we are creating the systems of knowledge transmission and healthcare provision required to provide treatment for not only our family members and children, but our grandchildren, and their descendants.

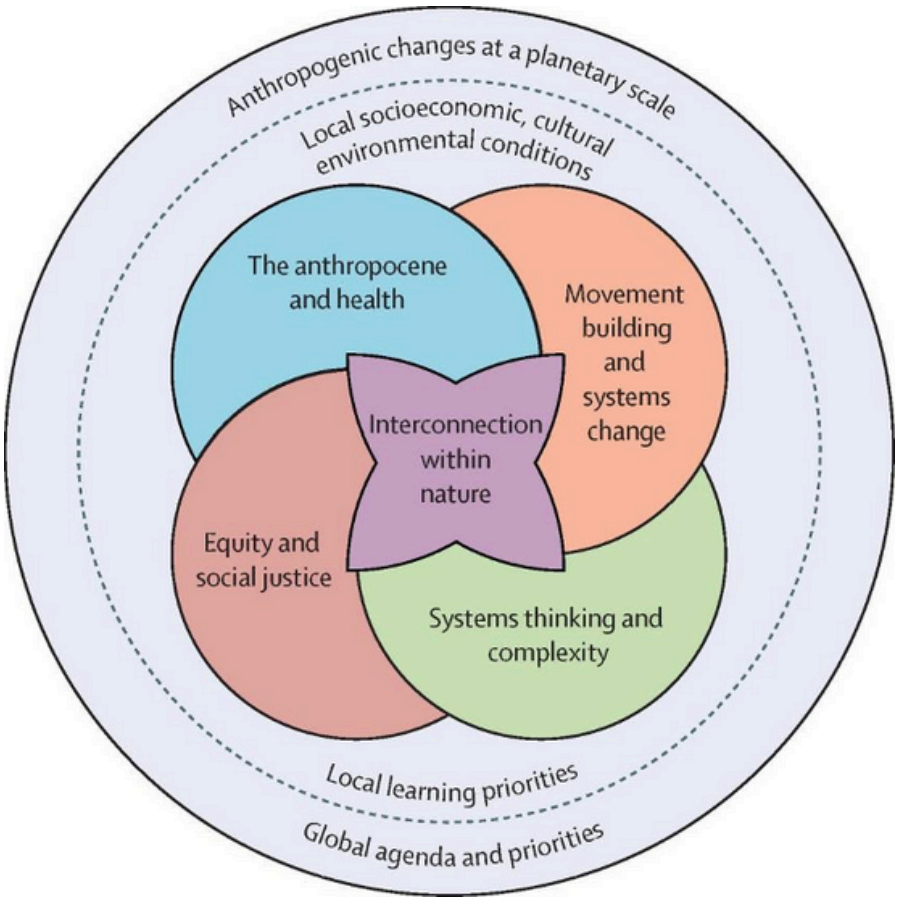
Active emotional work and wellbeing-oriented daily practices are often required in order to achieve a cognitive space in which large quantities of new information can be learned with a degree of equanimity, and high-level strategy, planning, and execution can be undertaken.[68] Common feelings must be surfaced, discussed, and addressed through institution-supported practices and structures and can be expected to be lessened as pathways to action are found and planetary health work becomes better supported within institutions.[74]

6. Complexity

Changing complex systems is not easy, and medical schools are no exception. Medical schools have relationships with other institutions (e.g., hospitals, provincial government), which creates layers of complexity that are challenging to navigate when trying to implement new approaches. There are multiple decision-makers within medical schools and related institutions and the various action items and associated challenges are interconnected, making it difficult to determine where and how to start. There is a lack of understanding among change-makers about how to navigate these complex structures and relationships.

7. Competing Priorities

Keeping planetary health on the radar in the face of "competing priorities" is a common challenge faced by Canada's medical schools. There is a perception that planetary health is competing with other important priorities such as Indigenization/decolonization, social accountability, equity, diversity, and inclusion, and more. In fact, as seen in the Planetary Health Education model adopted in the Declaration, below, these are cross-cutting themes in Planetary Health, and are in fact reinforcing, as opposed to competing priorities.[70]



From *A Framework to Guide Planetary Health Education*. Guzman et al.[70]

8. Lack of Policy, Advocacy, and Systems Change Skills and Organizational Structures

In addition to the lack of knowledge (see point #1), many medical school actors lack the skills required to implement the commitments from the Declaration. Specifically, there is a lack of policy and advocacy skills and supportive organizational structures. This is exacerbated by a lack of understanding of the power dynamics, strategies, and tactics required for systems change within university, health system, and governmental structures. These are part of a larger reality of a lack of institutional support for knowledge translation, policy, and advocacy with regards to planetary health and within the academy more broadly.[80]

9. Lack of Funding

Medical schools are working with limited financial resources, generally, but also specifically for planetary health. There is also a lack of research funding dedicated to planetary health.

10. Challenges Related to Specific Commitments

In addition to the broad challenges outlined above, some specific challenges were identified for each of the commitments in the Declaration:

GAP ANALYSIS

Commitment	Current State	Gaps
Planetary health pledge	Several groups have undertaken the pledge. Currently no regular formal ceremonies.	Lack of understanding of the importance of the pledge as a norm-shifting and community-building tool. Lack of organizational structures and capacity both within and between schools.
Planetary health education	CanMEDS criteria under review. Added to MCC exams. Curricular efforts within family practice existing at the level of an emerging, currently under-resourced, national community of practice. Curricular efforts within specialty curricula under development by the Royal College. Efforts to develop educational materials and practice change materials for practicing physicians underway led by the Royal College and CASCADES. School-specific and isolated efforts to redesign curricula underway.	Lack of clarity around goals and objectives for the curriculum. Difficult to define competencies for theme integration. Argument that the curriculum already covers too much content and that there is no time available to add more content. Prevailing mindset in medicine that prioritizes "hard" clinical skills over "soft" skills and knowledge, undervaluing the importance of non-clinical aspects.
Reduction of over-diagnosis and treatment	Well-established part of training and practice though environmental lens is just being added.	Need to support the integration of the environmental lens. Choosing Wisely Canada has recently introduced climate-wise content. For example, the Choosing Wisely recommendation to prefer oral antibiotics over intravenous (IV) ones when safe and effective reflects this. Oral antibiotics, like ciprofloxacin, have a much lower carbon footprint (1.4kg CO_2e) compared to their IV counterparts (100.1kg CO_2e). Emphasizing this in training and practice can help reduce the healthcare sector's environmental impact, aligning with sustainability goals.

Allocation of resource to planetary health research	Resources only just starting to be allocated to planetary health research.	No national planetary health research body. No coordinated national review of planetary health research gaps or plan to fill them. Few schools with a dedicated planetary health research center. Few schools with dedicated funding or positions for planetary health research.
Formal recognition of planetary health research, policy, & advocacy in institutions	Institutions are just beginning to allocate dedicated positions and resources.	Tendency within the academy to reward publications as opposed to knowledge translation and real-world impact.[81] Lack of national/provincial/territorial planetary health policy and advocacy body to connect medical schools and integrate actors from other disciplines in order to develop a policy strategy and coordinate advocacy, resource-gathering and practice change efforts in service of planetary health including sustainable healthcare. No coordinated national planetary health action plan or set of planetary health policy suggestions or roadmaps. General tendency for systems-level advocacy to be less well-taught than patient-level advocacy.
Collaboration with other disciplines	Silos within both government and medical schools make collaboration with other disciplines difficult. Other key disciplines, including nursing, pharmacy, dentistry, engineering, and economics are themselves in the midst of curricular change to add planetary health competency, and are also unevenly briefed.[82-84]	Lack of dedicated interdisciplinary institutions/structures associated with medical schools to house interdisciplinary work. Lack of interdisciplinary educational, research, policy, and advocacy initiatives to support a learning-by-doing approach to interdisciplinary work.
Reduction of emissions from travel	Uneven implementation of institution-level travel policies.	Need for the development of institutional and national policies which support in-person activities

		when these are likely of benefit (hands-on procedural learning, rapport-generation for high-level strategic transformation and policy influence) and virtual activities when these are likely to support high-functioning and economically and ecologically efficient work (didactic learning, procedural meetings, etc.)
Divest from fossil fuels	Many large institutions and some universities have divested from fossil fuels, but the conversation is ongoing at many institutions.	Lack of a briefing package, playbook, and support structures to assist university advocates in contributing the health voice to fossil fuel divestment efforts at their institutions.
Endorse Fossil Fuel Non-proliferation Treaty	Multiple health and health systems actors have endorsed the call for a fossil fuel non-proliferation treaty, including the World Health Organization.	Lack of an evidence-based briefing means that many leaders are unaware of the extent to which health and health systems are compromised by continued fossil fuel use. Huge lobbying and public relations arms of fossil fuel companies influence the public narrative and policy processes.[55, 85, 86] Interviewees report that contributions of fossil fuel companies to institutions can make leaders hesitant to discuss endorsing this call. Successful work to counteract similar tactics by tobacco companies has not yet been applied at scale with regards to fossil fuels though huge momentum is growing internationally. Canadian health sector leaders require courage to act in alignment with the evidence.[73, 87]
Advocacy for climate-resilient, low-emissions healthcare	Canada has endorsed the WHO COP26 Health program for climate-resilient, low-carbon sustainable healthcare. Given the need for an overarching national plan in order to maximize impacts on the supply chain and via hospital accreditation standards, as	Lack of a well-funded national secretariat to coordinate climate-resilient, low-emissions healthcare. Lack of well-funded provincial/territorial secretariats to coordinate climate-resilient, low-emissions healthcare.

	well as a body with which to interact with ATACH/WHO, a national coordinating body is needed. Given provincial/territorial delivery of healthcare, provincial and territorial advocacy and implementation are also needed. CASCADES is leading research, policy and practice change with regards to sustainable healthcare, but funding is time limited. The Canadian Coalition for Green Healthcare is well-established but underfunded to lead at scale. The Canadian Medical Association is well-positioned to lead national advocacy and policy efforts though is just engaging in the space. Good work is underway on a more regional, isolated basis.	Lack of stable funding for CASCADES and the Canadian Coalition for Green Healthcare, or equivalent connecting structures. Lack of a clear mechanism for the implementation of the National Adaptation Strategy through health systems and medical schools. Lack of a quantitative national plan which baselines emissions and outlines a concrete, deliverable pathway to a net zero health system. Lack of national hospital standards in line with climate-resilient, low-carbon, sustainable healthcare. Lack of a national procurement strategy in line with climate-resilient, low-carbon, sustainable healthcare as well as with emerging work on pharmacare. Lack of a national/provincial/ territorial planetary health policy and advocacy body to connect medical schools and integrate actors from other disciplines in order to develop a policy strategy and coordinate advocacy, resource-gathering, and practice change efforts in service of planetary health including sustainable healthcare.

GAP ANALYSIS

Advocacy for healthcare institutions to become anchor institutions of sustainability.	Work is currently being led by the Canadian Association of Physicians for the Environment but is not ideally institutionally placed with regards to universities and health system when it comes to influencing healthcare institutions themselves. Isolated university and health system-specific leadership is being shown in parts of Canada.	Lack of a national/provincial/ territorial planetary health policy and advocacy body to connect medical schools and integrate actors from other disciplines in order to develop a policy strategy and coordinate advocacy, resource-gathering, and practice change efforts in service of planetary health including sustainable healthcare. No coordinated national planetary health action plan or set of planetary health policy suggestions or roadmaps.

Implementation Planning

IMPLEMENTATION PLANNING

Canada is already experiencing significant climate-related impacts to health and health systems,[12] such that rapid implementation of our National Adaptation Strategy is essential.[38] That said, at a moment where tipping points in the Earth System are in danger of being triggered, leading to the possibility of catastrophic runaway warming,[46] adaptation alone will be vastly inadequate to support a standard of health and healthcare considered acceptable to members of the Canadian medical community or patients in Canada now and into the future.[57]

This approach aims to increase the individual knowledge, skill sets and networked power of the Canadian health community to support the implementation of the Declaration on Planetary Health and work on sustainable healthcare via engagement in climate mitigation, adaptation, and broader societal wellbeing. This is understood to include efforts in support of health, health systems, and the ecological, social, and structural determinants of health. It calls to all components of medical expertise as defined in the CanMEDS roles: Communicator, Collaborator, Leader, Health Advocate, Scholar, and Professional.[20]

The intent is for all elements of this Roadmap to be pursued in alignment with the Planetary Health Educational Framework (see page 52) which is the current international standard for best practices.[70] Recommendations submitted to the Royal College CanMEDS framework refreshment process by the expert committee on Planetary Health were made in alignment with this approach, and future curriculum development is anticipated to be as well. The framework nestles local priorities within the global space, is centered on interconnection within Nature as are many Indigenous eco-centric ways of knowing,[39] and adopts a systems thinking approach that recognizes that movement-building and systems change are required to achieve transformation at the scale required.[70] While the vast majority of current and historical greenhouse gas emissions have been produced by wealthier people in high- and upper-middle- income countries, the first and worst impacts are felt by vulnerable and marginalized populations, including low-income countries and less well-resourced groups within high-income countries, island nations, Indigenous Peoples, racialized communities, women, youth, and future generations.[57, 90] In seeking to remedy the situation, we must become aware of and seek to remedy structural inequities.[70]

RATIONALE FOR KEY ELEMENTS

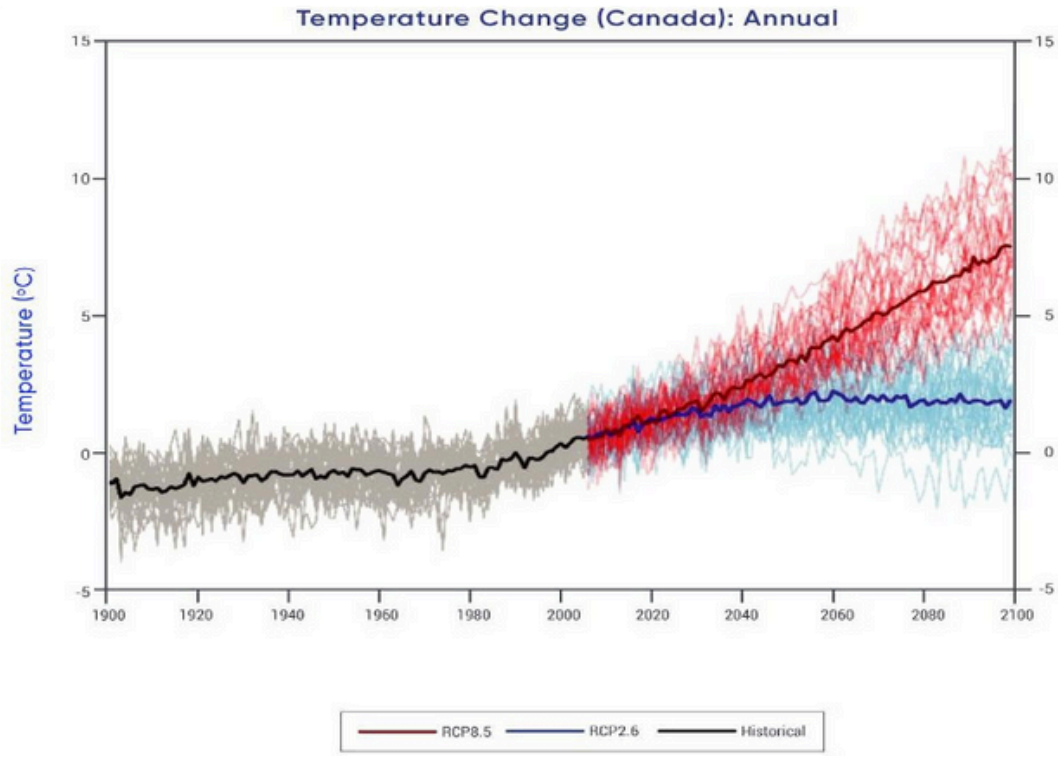
The Roadmap is informed by key elements (challenges, gaps and priorities) identified in our gap analysis, that each demand new approaches in order to ensure adequate societal responses. These new approaches are then reflected in recommendations at national and institutional level actions.

1. Rapidly Changing Systems

Evidence has existed for many years that climate change is impacting health and health systems in Canada.[12] However, the climate system is changing faster than anticipated even a few years ago: we are no longer working to address an impending threat, but instead to respond to one that is already causing harm, whose impacts will predictably worsen until at least mid-century, and whose drivers must be urgently reduced.[57] In Canada, we have had two near-misses with the evacuation of 100-bed hospitals in wildfire situations over the past several years,[91, 92] and major population centers have experienced significantly increased mortality, morbidity, and health system utilization as a result of wildfires and wildfire smoke,[24] heat,[22] floods, and shifts in infectious disease.[12]

Approach

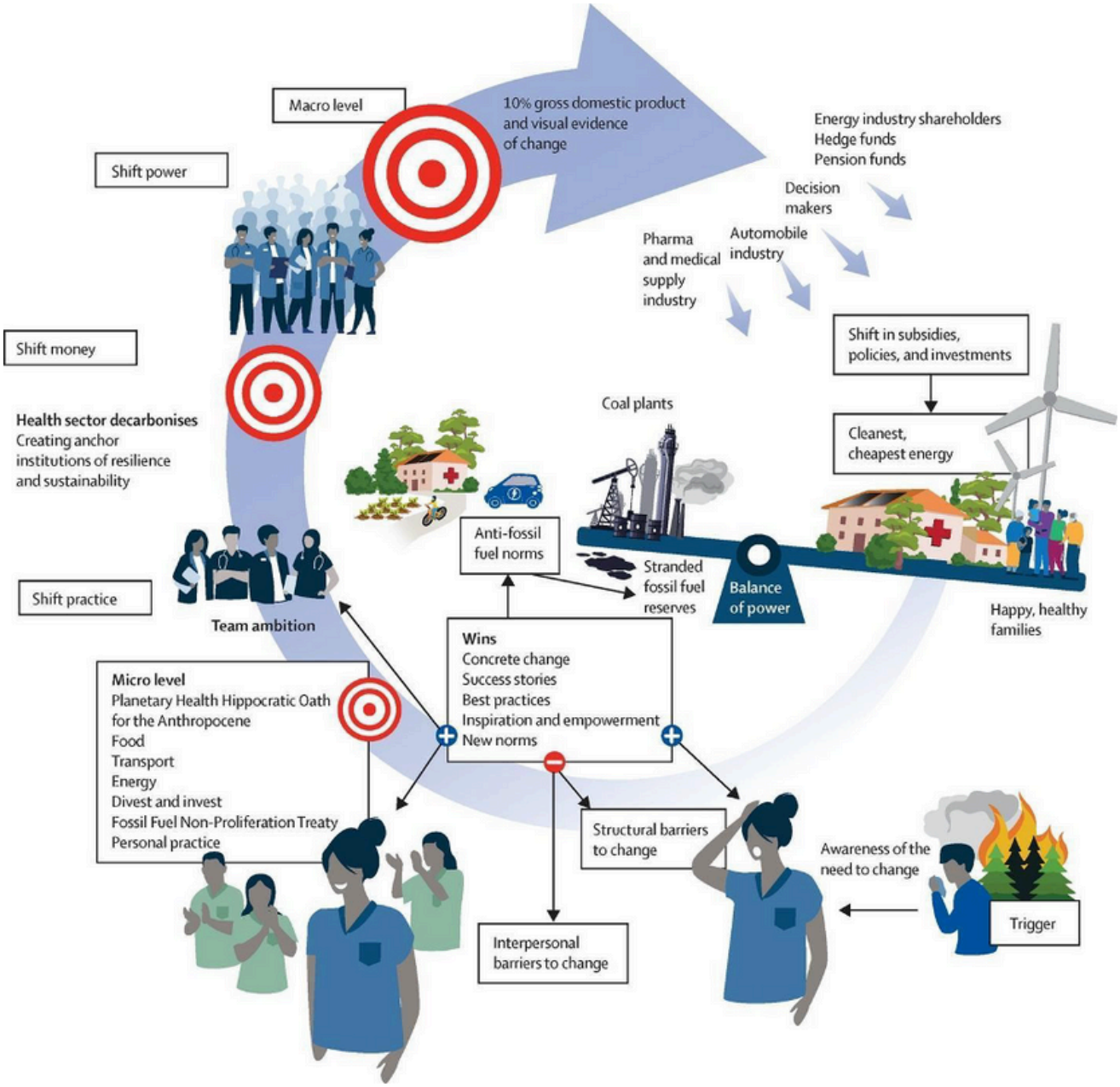
The plan below reflects what needs to be done in order to protect health and health systems in this rapidly changing situation. Having managed our health system during the pandemic we are all aware that change can be implemented quickly, and that the resources required of any one institution can be reduced via networks that pool resources (human, social, political, financial) in service of the joint pursuit of common goals.



Projected Temperature Increases in Canada Under a Very Low-Emissions Scenario and a High-Emission Scenario. We are currently tracking much closer to the high-emission scenario. We are not at a new normal: under all projected scenarios Canada will continue to warm from this point until at least mid-century.[30]

IMPLEMENTATION PLANNING

Given the multiplicity of actors in the space and unstable funding patterns, we have not mentioned every organization, but in some cases have instead named the function required for the achievement of the Objectives in the Declaration on Planetary Health.



Learning to Treat the Climate Emergency Together: social tipping interventions by the health sector, Howard et al.[43]

Integration of planetary health and work for sustainable health systems into medical education in support of the Declaration on Planetary Health represents a large-scale change project. The plan therefore adopts principles from change management including ensuring a powerful guiding coalition, communicating an overall vision, and aligning structures with strategy.[93] [94] It makes use of previous work showing the potential for the health sector to make use of social tipping interventions - actions with the potential to accelerate 'contagious' spread of new behaviors, social norms, and structural reorganizations,[95] via aligned work at micro (individual), meso (institutional/community), and macro (subnational/national/international levels),[59] in order to generate accelerated impact on climate mitigation.[43]

2. Climate Resilient, Sustainable Low Carbon Healthcare, Progressing Towards Net Zero

The Declaration on Planetary Health involves a commitment for academic health institutions to "advocate for climate-resilient, net zero emissions healthcare by 2040 for the emissions controlled directly by healthcare, with an ambition to reach an 80% reduction by 2028-2032. For the emissions healthcare can influence, including travel to institutions and supply chain, reach net zero by 2045, with an ambition to reach an 80% reduction by 2036-2039."[15]

Approach

As outlined in the Roadmap below, institution-specific work on sustainable healthcare will depend on local goals set via a strategic planning process, with training specifics to be outlined in alignment with the refreshed CanMEDS process and local curriculum initiatives. However, the sum-total of local contributions will optimally add up to facilitate health sector delivery on Canada's existing commitment under the WHO ATACH program, which is to develop a "Climate resilient, sustainable low carbon health system."[37] Because education beyond the initial stages of medical curricula takes place in real healthcare structures, education for sustainable healthcare is indivisible from the pursuit of health system transformation. The plan identifies key supporting structures necessary to prevent local institutions from "reinventing the wheel," which risks outcomes that are less than the sum of their parts. It is also designed to support advocacy by the health sector for Canada to sign onto the more ambitious net zero commitment that is part of the ATACH program. Of note, 28 countries now have a net zero target for their health system.[37] Canada has committed to a "climate-neutral" health system as part of a 2022 G7 communiqué but this has not yet been translated into a net zero WHO commitment.[96]

The framework used to guide work on the "climate resilient" aspect of this commitment is Canada's National Adaptation Strategy.[38] This "top down" approach must be applied at the community level in consultation with Indigenous leaders and be informed by community- specific temperature and precipitation projections as well as the lived experience of climate- related impacts to health and health systems. An interesting healthcare specific model is seen in work done by CCEDARR: the Climate Change and Ecosystem Disruption Adaptation Responses in Rural Canada program at UBC's Rural Health Services Research Network of BC.

IMPLEMENTATION PLANNING

The five National Adaptation Strategy systems.[38]

The National Adaptation Strategy is part of a variety of federal efforts which drive action to respond to climate change impacts to ensure a resilient future. Canada's National Adaptation Strategy, the Government of Canada's Greening Government Strategy, which aims to make its operations net-zero by 2050 with enhanced climate resilience by 2035,[97] GC's Greening Government Strategy, and the Federal Sustainable Development Strategy reflect specific actions related to climate change mitigation, adaptation, and resilience. As part of the Health and Wellbeing system, the Roadmap supports the following goals and objectives:

- **Goal**: "The health of all people in Canada is safeguarded and supported by a climate-resilient and adaptive health sector that has robust and agile systems and services that account for and support the diverse components of well-being."
- **Objectives**: "Health systems have the expertise, knowledge, and resources needed to identify climate change-related risks and take equitable, evidence-based action to protect health".
- **Targets**: "By 2030, consideration of health impacts and benefits are integrated into key climate change tools, guidelines and standards"[38]

As part of the Disaster and Resilience system, the Roadmap supports the following goals, objectives, and targets:

- **Goal**: "Communities and all people living in Canada are better prepared to prevent, mitigate, respond to, and recover from the hazards, risks and consequences of disasters linked to the changing climate; the well-being and livelihoods of people living in Canada are better protected; and overall disaster risks have been reduced, particularly for vulnerable sectors, regions and populations at greater risks."
- **Objectives**:
  - "All communities are able to implement timely and successful emergency response plans that are readily accessible to everyone in the event of a disaster."
  - "National, provincial, territorial, and regional readiness, mitigation, and recovery plans and policies integrate the latest evidence informed by risk and resilience assessments as well as local and Indigenous knowledge and are inclusive of the whole of society."
- **Targets**:
  - "By 2025, 60% of Canadians, including northerners and Indigenous Peoples, are aware of the disaster risks facing their household."
  - "Communities, including northern and Indigenous communities, in zones of high risk, as identified by provinces and territories, develop wildfire community prevention and mitigation plans by 2030, with up to 15 % implemented by 2028."[38]

As part of the Nature and Biodiversity system, the Roadmap supports the following goals and objectives:

- **Goal**: "Biodiversity loss has been halted and reversed and nature has fully recovered allowing for natural and human adaptation, where ecosystems and communities are thriving together in a changing climate, with human systems existing in close connection with natural systems."
- **Objective**: "The use of nature-based solutions is accelerated to increase resilience and maximize co-benefits such as reducing stress on grey infrastructure, increasing social benefits of nature, and climate change mitigation."
- **Targets**: "Establish 15 new national urban parks by 2030 to conserve nature, connect people with nature, and advance reconciliation with Indigenous Peoples."[38]

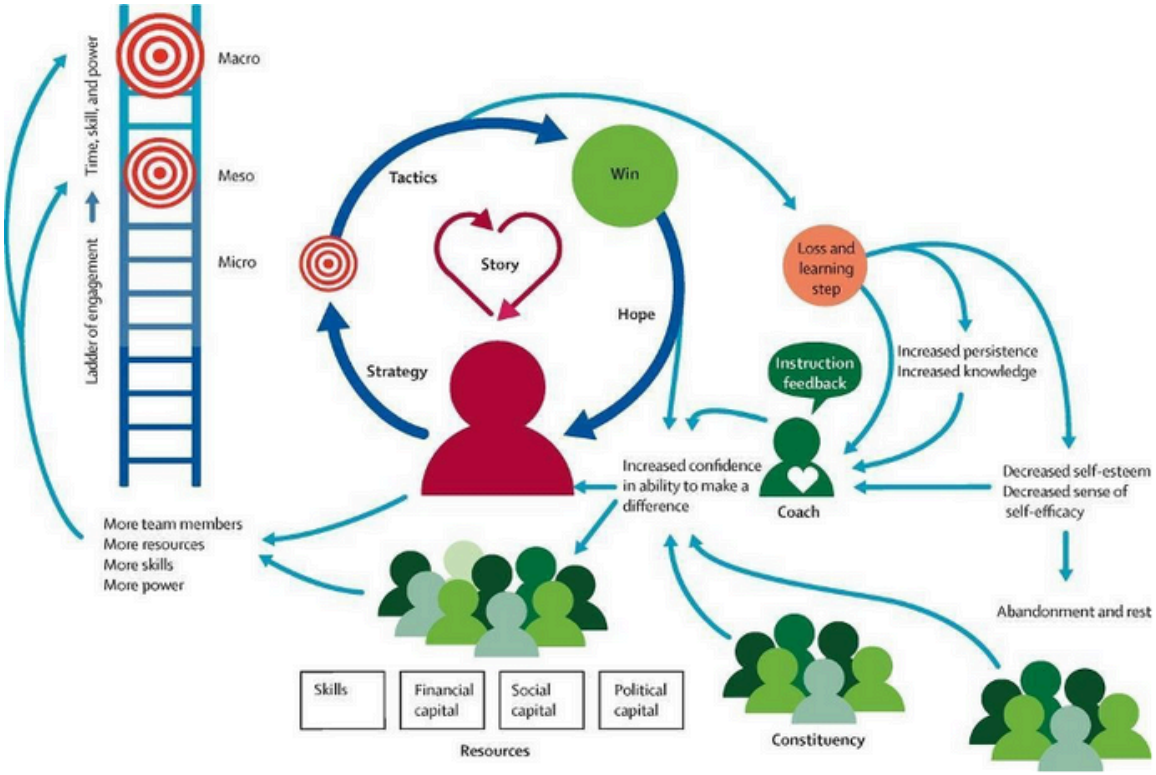
3. Low Baseline Knowledge

Our Landscape Assessment and Gap Analysis indicate that the academic medicine community is starting from very limited understanding of planetary health. It was 2009 when the Lancet said that "climate change is the greatest global health threat of the 21st century".[6] The pace of change has been slow: curriculum surveys done by medical learners report scant coverage in Canada and internationally,[8-10] and practicing physicians indicate that they believe the issue is important but are not confident in their ability to counsel patients or advise decision makers.[11] The slow pace of curricular change has left many practicing physicians unsure of how to guide patients, learners, and decision makers in a healthy response to climate change.[11] International studies as well as interviews and the workshop conducted as part of this project confirm that many senior medical leaders do not know what they do not know about the severity of the risk posed by climate change to health and health systems.[74, 76]

This delays allocation of resources and leaves junior professionals in an awkward position of needing to educate senior leaders about a health emergency and major organizational risk, exposing them to the possibility of significant risk of moral distress, eco-anxiety, and burnout.[43] It also leaves the sector vulnerable to misinformation and biased information. Learning issues for health professionals urgently need to be resolved with evidence-based didactic, group-based, and learning-by-doing content.

Approach

The plan outlined below acknowledges the need for the entire medical community to be educated and trained over the next several years. As during the COVID-19 pandemic, this will require health systems leaders, practicing physicians, residents, and students to learn in parallel.[74, 76] Planetary health education emphasizes a learning-by-doing approach, with much of the material learned via clinical or implementation work, as is the case with much of medical education.[43] Institution-specific curriculum plans at undergraduate and graduate levels need to be developed for each specialty, as does continuing medical education to brief the practicing physician workforce. The introduction of a "Coach" role can enable both learners and more experienced staff learn collaboratively, with team members switching from the learner to the supporter role depending on their relative expertise with a given task.[43] Intentionally supportive team-based structures can facilitate pathways to agency in which action alleviates ecoanxiety.[43]



Target-based Change-making Model from Howard et al.[43]

4. Power-informed Approach to the Commercial Determinants of Health

Success in implementation of this Roadmap requires an awareness of power. Analysis of health sector performance in change-making finds that health professionals often operate with an ineffective "information deficit" model of change-making, ie: "I will relay information, and they will change their behavior."[80, 81] We must instead take a power-informed approach aligned with best practices in movement-building that is consistent with practice and evidence in disciplines such as behavioural change, communications, and political science.[72, 81, 98] Emerging scholarship on the commercial determinants of health demonstrates that the same set of tactics have been used to place profits before public health in industries from pharmaceuticals, to tobacco, to the food-and-beverage industry, to the fossil fuel industry.[99] Given that work on planetary health and sustainable healthcare intersects with many of these industries, research, education, policy, and advocacy efforts should pair analysis of the relevant evidence base with an explicit power analysis.

Approach

This understanding will inform advocacy and mobilization training programs aimed at equipping doctors with the necessary skills to achieve the advocacy targets, as well as directly inform the development of activities related to education and training outlined in the proposed Roadmap. Training will emphasize the importance of addressing commercial determinants of health, which involves analyzing the manner in which profit-driven actors influence research, guideline-setting, policies, procurement, and clinical practice, and adopting an approach to advocacy that pairs an evidence-based approach to basic science with the best of what the social sciences can teach us about power analysis, target setting, message testing, narrative and visual communications. Tools and strategies to effectively advocate for public health priorities and counteract the influence of profit-driven interests are essential.

Knowledge mobilization, policy, advocacy, and communications-related skill sets have been neglected within the academy, to the detriment of the use of evidence in service of health.[81] Community organizing that changes the status quo does not just happen, but requires time, training, and supporting structures.[100-103] These structures are valuable because, unlike merely conveying information, target-based change making strategies foster a sense of group-based efficacy,[104] with each win generating hope[104] and contributing to a bandwagon effect that attracts further team members and resources.[43] Encouraging these efforts within the peri- academic space requires an alignment of incentive with the desired effect via academic advancement and granting structures.

Recommendations

RECOMMENDATIONS

CanMEDS is the framework that "identifies and describes the abilities physicians require to effectively meet the health care needs of the people they serve."[20] Stewarded by the Royal College of Physicians and Surgeons of Canada, it is the most widely-applied physician competency framework in the world, and is integrated into accreditation standards, exam blueprints, and continuing medical education.[20] The integrating role, "Medical Expert," is built from overlapping competencies in the roles of Professional, Communicator, Collaborator, Leader, Health Advocate, and Scholar.[20]

This set of recommendations is aligned with these roles, and takes into account three overall stages, recognizing that what is required to protect health and health systems requires greater resource and power than what is available to any isolated institution:

a - Implementation of elements that are within the immediate locus of control of academic health institutions.
b - Collaboration to develop the network of supporting structures that are within the shared locus of control of the **community** of academic health institutions in Canada, as organized by the Association of Faculties of Medicine of Canada in association with other members of the Canadian Medical Forum.
c- Advocacy for required structures and programs that are outside of the locus of control of academic health institutions. Recognizing the default tendency of scientists and academics to employ an unconscious "information deficit" model of change-making, which assumes that evidence is the primary factor influencing human decisions, when in fact the evidence does not support this,[20] we envision this advocacy employing instead a power-informed target-based model of change-making. See diagram above.

Throughout the plan below, all proposed new structures and programs **are in purple.**

1- POLICY, COMMUNICATIONS & ADVOCACY

We have more planetary health research than we have acted on, and more knowledge than we have communicated.[57] A lack of institutional support for policy and advocacy work within the academy has previously been noted,[81] with deliberations occurring with regards to how to shift the culture of academia to enhance faculty engagement with decision-makers in alignment with increasing requirements by funders to demonstrate broader impacts of research.[105] Communications efforts are hampered by technical vocabulary, paywalls and a lack of resource for message-testing and information dissemination, equipping the health sector poorly to counteract misinformation, which is becoming a massive challenge with consequences not only for health but for society at large.[48, 106] Policy work is often addressed in medical training as part of leadership and quality improvement initiative, however medical school instruction is not comprehensive.[107] Similarly the CanMEDS advocacy role has been described as the most difficult to teach and assess, even as physicians and resident trainees emphasize its importance, with residents reporting their needs have not been met.[21] The literature suggests that lectures and role modelling alone are inadequate to prepare learners to become advocates, and that immersion through implementation is an effective way to build competence and confidence.[21]

RECOMMENDATIONS

We obtain the results of the systems we design, so if we don't like current results, we must develop new structures. The work of turning evidence into action requires specific skill sets spanning policy development, advocacy, and implementation.[80, 81] Advocacy efforts at the national level will enable the development of needed supporting structures such as an **Educational Train-the-Trainer Program** (see Recommendation 5.1.C) a new **Environment and Health Institute** at CIHR[108] (see Recommendation 5.4) and others, while advocacy efforts at the institutional level will equip the university and healthcare professional communities to accelerate change within universities and health systems. In particular, the first few nodes on the recommended **Network of Nationally Coordinated Peri-academic Planetary Health Change-Making Nodes (see Recommendation 5.1.G)**, will offer the foundation to build and strengthen the necessary capacity in advocacy, implementation, communications and knowledge mobilization. All of these will provide inputs and support to medical curricula development and work for sustainable healthcare.

National Level

1.1. Develop skill-sets of policy and influence among planetary health actors and academics. This may build on or partner with the Canadian Association of Physicians for the Environment's Advocacy and Mobilization Program,[109] which has been accredited by both the Royal College of Physicians and Surgeons of Canada and the Canadian College of Family Practice. Training must include systems change and institutional governance and decision-making.

1.2. National-level advocacy will then be employed to both assist in the initial stages of delivery on the commitments in the Declaration on Planetary Health, *and* to build the new structures required to do so well at scale, which are together represented by the following recommendations in this Roadmap: 1.3, 2.1, 3.1, 3.2, 5.1.A-H, 5.2, 5.3, 5.4, 5.5.

1.3. Work with the Health Standards Organization and Accreditation Canada on the development of a **new national sustainable hospital accreditation standard.**

Community Level

1.4. At the institutional level, advocacy will focus on obtaining commitments to deliver on the following recommendations in this Roadmap: 2.2, 2.3, 2.4, 2.5, 3.3, 3.4, 4.2, 4.3, 4.4, 5.6, 5.7, 5.8, 5.9, 5.10, 5.11, 5.12, 5.13, 5.14, 5.15, and 5.16, as well as the following commitments from the Declaration:

a) Advocate for healthcare institutions to commit to climate-resilient, net zero emissions healthcare by 2040 for the emissions controlled directly by healthcare, with an ambition to reach an 80% reduction by 2028-2032. For the emissions healthcare can influence, including travel to institutions and supply chain, reach net zero by 2045, with an ambition to reach an 80% reduction by 2036-2039.

b) Advocate for healthcare institutions to become anchor institutions of sustainability for communities through integration into active transport networks, local agriculture programs, zero-carbon energy production, non-polluting and non-toxic use of chemicals and circular economy practices emphasizing the responsible acquisition and disposal of products and equipment, the recovery of valuable materials, and use of reusable supplies.
c) Advocate for healthcare institutions to divest from fossil fuels and other extractive industries and reinvest in a sustainable and healthy future for all.
d) Advocate for healthcare institutions to endorse the Fossil Fuel Non-proliferation Treaty, which calls for a global phase out of oil, gas, and coal and a complete transition to renewable energies.
e) Advocate for research granting agencies to invest in planetary health research.

2. FUNDING

National and Provincial/Territorial Levels

2.1. Dedicate sufficient resources to implement the recommendations herein, in a sustained and on-going manner (federal and provincial/territorial governments).

Institutional Level

2.2. Resource allocation at the university level must prioritize planetary health, the action items herein, and the institution's own five-year strategic implementation plan for the Declaration (see recommendation 5.3).

2.3. Ensure that **fiscal resources are allocated to planetary health research**, including mitigation, adaptation, co-benefits, and resilience. (Declaration commitment)

2.4. Ensure that **fiscal resources are allocated to fund climate resilience and the implementation of sustainable, low-carbon technology at healthcare facilities.**

2.5. Ensure that **fiscal resources are allocated to policy, advocacy, and communications** to allow for adequately professional work to counter misinformation and industry-led lobbying.

3. MEDICAL EDUCATION

This Roadmap has been produced in collaboration with the physicians leading curriculum development in service of planetary health and sustainable healthcare at Canada's medical schools, and represents a summary of what they believe would be helpful to support them by lowering the amount of institutional human, social and financial capital required for any individual institution to deliver on the Declaration on Planetary Health.

RECOMMENDATIONS

Responsibility for determining the specific content of medical curriculum typically falls within the jurisdiction of individual medical schools, with many standards are set nationally by members of the Canadian Medical Forum. While the AFMC convenes a planetary health committee whose members can advocate for the inclusion of certain topics in medical education at their institutions, the AFMC itself, and therefore this report, does not have the authority to dictate curricular content.

Instead, the aim here is to provide guidance, resources, and support to medical schools as they develop and refine their curricula to address emerging issues in healthcare such as planetary health and sustainable healthcare.

National Level

3.1. **Integrate planetary health-related outcomes** into the Royal College-led curriculum refreshment process (CanMEDS). This process is underway, and is expected to produce an initial set of draft competencies that include planetary health in September 2024. Given inputs to the process by the expert committee on planetary health, many of whose members contributed to this report, it is expected that competencies will align with the approach taken by the Planetary Health Education Framework. This, as well as the Canadian Federation of Medical Students HEART competencies,[110] have previously been agreed by the AFMC planetary health committee as providing common foundational principles, competencies, and language to prepare future healthcare professionals to both mitigate further environmental degradation and to lead and contribute to adaptation and resilience strategies.

3.2. Collaborate with Health Canada in the creation of a Train-the-Trainer program to rapidly diffuse education on planetary health and climate-resilient, sustainable low-carbon healthcare across the lifespan of medical professionals (see recommendation 5.1.C). Ensure the medical community acts as a good partner that connects with, synergies, and fuels other training, capacity strengthening, and workforce development needs in partnership with other disciplines and professions, particularly close partners such as nursing, pharmacy, physical and occupational therapy, and dietetics.

Institutional Level

3.3. Curriculum development in alignment with the Canadian Federation of Medical Students HEART competencies and Planetary Health Educational Framework can progress as new CanMEDS competencies are developed. Priority areas include training in the clinical management of air pollution, climate change-amplified mental health issues, disaster preparedness in general, planetary healthcare, and geography-specific health threats related to heat emergencies, wildfires, floods and shifting patterns of infectious disease.[110] Increased capacity is required at most institutions for curricular development, so appointment of a planetary health lead with dedicated time is a key step. Efforts should aim to provide common foundational principles, competencies, and language to prepare future healthcare professionals to both mitigate further environmental degradation and to lead and contribute to adaptation and resilience strategies. (Declaration commitment)

3.4. Provide healthcare professionals and learners with **value- and evidence-based training to reduce overdiagnosis and unnecessary investigations and treatment** as per Choosing Wisely Canada, to both improve the quality of care and reduce unnecessary healthcare-related environmental impacts, including greenhouse gas emissions. (Declaration commitment)

4. DATA & RESEARCH

National Level

4.1. Employing existing collaborative structures, including the Planetary Health Committee at the AFMC, begin to develop a national research agenda on planetary health and climate-resilient, sustainable low-carbon healthcare. Work to bring about the **National Planetary Health and Climate Resilient Sustainable Low Carbon Healthcare Research Community** within the medical community and an **Institute on Environments and Health** into being as part of the Canadian Institute of Health Research (see Recommendation 5.4).

Institutional Level

4.2. Identify an institutional leader to champion cross-faculty dialogues to advance planetary health research and knowledge mobilization within the university to ensure an approach that gathers expertise from other disciplines whose skill sets are required to implement actions associated with optimizing planetary health (e.g., engineering, urban planning, policy, political science, economics, law, business, communications, etc.).

4.3. Identify **funding supports for transdisciplinary research** addressing planetary health challenges.

4.4. Remove **barriers to data access and sharing** to support integrative planetary health research (e.g. spanning climate, water, transportation, energy, health data.)

5. OVERARCHING STRUCTURES

National Level

5.1. Create a **National Resource Center for Planetary Health and Climate Resilient Sustainable Low Carbon Healthcare**. This could be run out of AFMC and/or the Royal College of Physicians and Surgeons of Canada. It would:

A. Transition the AFMC planetary health committee into a **planetary health community of practice** with representatives from all medical schools, with enhanced resources. This would work towards planetary health leaders for networking and information exchange and developing and maintaining a clearinghouse of quality planetary health resources for medical schools.

The community of practice also serves as a supportive team-based structure that can facilitate pathways to agency in which action alleviates eco-anxiety.[43] This team will be essential to bringing about elements B-H and will evolve into that more complex set of teams and resources.

B. Maintain a **central repository of curriculum resources** with adequate support to enable ongoing peer review, sharing and refreshment. This could be similar to the practice at the Global Consortium on Climate and Health Education but done with a planetary health lens in a manner informed by Indigenous Traditional Knowledges and ways of knowing, led by Indigenous Peoples. The intent would be to work towards collaboration with other health professions to ensure multidisciplinary content and a shared approach.

C. Participate in the development of a **Train-the-Trainer Program** co-administered by Health Canada and members of the Canadian Medical Forum, possibly the AFMC or the Royal College of Physicians and Surgeons of Canada. Materials and educational priorities should be reviewed on a regular basis with the Public Health Agency of Canada and the National Coordinating Center for Environmental Health. This program would diffuse key planetary health knowledge in a "snowflake" movement-building strategy[5] to help brief the entire profession at all practice stages, and to be informed by planetary health innovations emerging among other health professions. A similar program was previously used at a smaller scale by Health Canada to deliver education on air pollution, radon, and climate change and health via the Canadian College of Family Physicians. It was later successfully scaled for use internationally via the World Organization for Family Doctors.[111] A central administrative structure and modular approach could be used to ensure frequent updates. A "reverse classroom" model could be explored, with initial virtual online delivery of the material followed by virtual discussions with a coach. Co-learning and case-based learning modules could also be effective and developed in conjunction with health professionals who have led through climate-related disasters (for instance, the evacuation of Fort McMurray and Stanton Territorial Hospital in Yellowknife) to ensure lessons learned during the management of rapidly intensifying climate-enhanced disasters are quickly transmitted through the profession.

D. Coordinate the systematic briefing of practicing physicians through inclusion of planetary health in continuing medical education offerings and advocacy for high-level presentations in keynote spots at conferences.

E. Identify opportunities for knowledge exchange and resource sharing with other interprofessional and interdisciplinary colleagues also progressing planetary health actions.

F. Accelerate the creation of an official, national **sustainable health system community of practice** to catalyze research, policy, and practice change while these functions transition into being housed within mainstream governmental, health system, and university structures and practices. Include development of an essential medicines list for Canada with considerations given to likely worsening of supply shortages and alternative means of securing reliable supply, including the use of crown corporations as previously suggested,[112] or other types of purpose-driven production.

*As noted in the Landscape Assessment section of this report, this work is currently being done by the Canadian Coalition for Green Healthcare, CASCADES, Synergie Santé Environnement, PEACH, Project Green Healthcare, BC GreenCare, and other university-, NGO- and health system-associated bodies. In particular, the Canadian Coalition for Green Healthcare, while generally under-funded, has been doing this work across the Canadian health system for almost 25 years. The recently created and university-based CASCADES is currently the largest structure within the space, with funding from Environment and Climate Change Canada for another two years. It will be important to monitor the mainstreaming of planetary health and ensure that, if CASCADES's functions have not been folded into daily practice and analysis in a two-year time frame, further funding is provided in a seamless manner. Similarly, though medical faculties are well-positioned to work with teaching hospitals, the Canadian Coalition for Green Healthcare holds many relationships with both academic and non-affiliated hospitals, so financial support of their operations is important to maintain until this work fully mainstreams through provincial and territorial ministries of health and health authorities.

G. Create a **Network of Nationally Coordinated Peri-academic Planetary Health Change making Nodes**, in collaboration with university-affiliated members of the CAPE's provincial and territorial chapter members, members of the CCGH network and others to build and strengthen the necessary capacity in advocacy, implementation, communications, and knowledge mobilization and **lead de-siloed multi, inter and transdisciplinary work that harnesses the research and expertise of university communities in service of planetary health**. Training can be done in alignment with CAPE's Advocacy and Mobilization Program. The National Health Service in the UK has served as an excellent model for how health systems can be decarbonized, but they are a single employer system.[113] In order for us to deliver on a sustainable, climate-resilient health system in this country, a delivery plan is required in each health system, and policy, communications, and advocacy are needed to bring that into being. Interviewees report that though efforts are underway, a well-supported overarching connecting structure does not exist and it is therefore happening inefficiently with many isolated, under resourced groups experiencing similar challenges.

Similarly, many elements of a sustainable, low-carbon transition require collaboration with engineers, architects, urban planners, energy planners, and more.[67] Communication studies indicate that a health rationale led and articulated by health professionals will often be the most persuasive frame to use to motivate a transition,[114] however the expertise of other professionals is required to put together an evidence-based plan for transition. For instance, work by the health sector to make an evidence- based case for coal power phase-out required the co-production of materials with engineers and energy specialists.[1, 115, 116] Academic work has demonstrated that the fossil fuel industry is lobbying government decision makers approximately 4.5 times per day.[85] Interviewees report that when participating in government decision making processes, for instance the development of clean electricity regulations, industry has greater capacity to arrive at the meeting with a well-prepared, graphically appealing briefing note than do under-resourced and under-networked health advocates, which puts an evidence-aligned approach at a disadvantage. This set of peri-academic nodes will be distributed across the country at interested universities and be joined by a national coordinating body with the mandate to:

- **Train** multidisciplinary planetary health actors and academics in the skill sets of policy and influence.

- **Mobilize** evidence, stakeholder values, communication frames, public opinion research, and coalitions to incentivize governments to respond to the policy agenda, because governments respond to those who organize and show up.
- Identify themes, thought leaders, and institutions.
- Coordinate with the **National Secretariat for Sustainable Healthcare, the National Planetary Health Resource Center, Provincial/Territorial Secretariats for Sustainable Healthcare** and a broad network of stakeholders including Indigenous wellness systems, and local health systems to design an integrated policy framework that includes work on fossil fuel divestment, the fossil fuel non-proliferation treaty and virtual travel policies (Declaration Commitments). This would then guide further policy and advocacy efforts designed to align our society with planetary health principles, anchored by a sustainable, low-carbon climate-resilient health system, and positioning health structures as anchor institutions of sustainability for communities that are designed in accordance with the World Health Organization's framework for wellbeing societies.[117]
- Conduct **government relations** with decision makers at all levels of government to socialize and build support for policy priorities. This is key given Canada's federated model and provincially controlled healthcare delivery.
- Synthesize and exchange the most recent **knowledge** about planetary health and climate resilient, sustainable low carbon healthcare, and their application in Canada, helping this mainstream in the health sector and beyond.
- Distill components of the overarching policy framework into actionable **policy briefs** to guide policy adaptation and systems change for all four levels of Canadian government: Indigenous, municipal, provincial/territorial, and federal, and conduct related policy-related research.
- Conduct strategic **communications research** including effective audience research, message testing, along with graphic and digital design testing.
- Design and **implement public engagement, media, and social media** strategies to re-frame the public's beliefs about planetary health problems and policy solutions.
- Set short-term **change-making agendas** that prioritize specific policy targets that respond to policy windows that are open at different levels of government.
- Attract, nurture, and facilitate powerful **coalitions** to grow support for these priorities.
- Engage in active issue **advocacy** in partnership with social and environmental movements to build political cover for politicians to respond bravely to the evidence-based policy recommendations.
- Communicate with local community organizations to provide evidence-aligned support for planetary health initiatives, including place-based adaptation efforts. The nodes can also provide information mentoring and a supportive team-based structure that can facilitate pathways to agency in which action alleviates eco-anxiety.[43]

H. Establish a **National Planetary Health and Sustainable Healthcare Research Community** to

- Conduct a national evidence analysis to identify research needs and gaps.
- Work to align research with the implementation, policy, and communication needs as articulated by the teams working as part of items 5.1A-E.

- Advocate for the creation of an **Institute on Environments and Health** **to be added to the Canadian Institute of Health Research (CIHR)** (see Recommendation 5.4)

5.2. Advocate for the creation of a **Privy Council-level Interministerial Planetary Health Committee** to help coordinate work between Finance, Health, Mental Health and Addictions, Innovation, Science and Industry, Emergency Preparedness, the Public Health Agency, Environment and Climate Change, Indigenous Services, Housing, Agriculture and Agri-Food, Public Services and Procurement, Canada Mortgage and Housing Corporation, Transport Canada, and other bodies that are critical to delivering climate resilient, sustainable low carbon healthcare and optimizing the social, structural, and ecological determinants of health. This can help the work at the very top and align financing with initiatives.

5.3. Advocate for the formalization and expansion of a **National Secretariat for Sustainable Healthcare**, to lead the design and delivery of climate resilient, sustainable low carbon health systems. This secretariat can:

A. Partner with the international WHO-affiliated ATACH network, particularly on procurement of pharmaceuticals and medical devices, in order to ensure consistent sectoral pressure to decarbonize the supply chain (at least 60% of total health sector emissions).

B. Align ongoing work on pharmacare as well as emerging essential medications initiatives, with adequacy of supply considerations and ATACH decarbonization work.

C. Measure baseline health sector emissions and outline a credible, quantitative pathway to net zero (see Delivering a Net Zero NHS for an international example),[113] in consultation with Environment and Climate Change Canada. Quantitative analysis could be done in partnership with the Canadian Climate Institute, or via a new **Institute on Environments and Health** at CIHR (see recommendation 5.4).

D. Partner with the Health Standards Organization and Accreditation Canada on the development of a new **sustainable hospital standard**. This is a key action item given that hospital accreditation criteria are one of the few nationally-determined elements across the many health systems in Canada.

E. Work with the Committee on Accreditation of Canadian Medical Schools (CACMS) and the Committee on Accreditation of Continuing Medical Education (CACME) to incorporate planetary health into medical school accreditation criteria.

F. Coordinate with Agriculture and Agri-Food Canada on elements specific to ensuring a healthy sustainable climate resilient food supply in Canada.

G. Coordinate with the Department of Finance to ensure work on climate resilient, sustainable low carbon health systems is well-funded, and contributes to optimizing wellbeing indicators as part of Canada's new Quality of Life Strategy.

H. Coordinate with other ministries including Environment and Climate Change Canada, Agriculture and Agri-Food Canada, Indigenous Services Canada, the Public Health Agency of Canada, and others in the implementation of Canada's National Adaptation Strategy.

I. Partner with national Nature Prescription (PaRx) and Social Prescription (CISP) initiatives to scale up adoption and provision of low-carbon treatment options that promote health, community connection and environmental stewardship values.[118]

5.4. Advocate for the addition of an **Institute on Environments and Health** **to the Canadian Institute of Health Research (CIHR),** the government of Canada's health research investment agency, the specifics of which should be determined with the help of an assessment of international models. This new institute will require a start-up fund, ideally with contributions from the multiple ministries which are impacted by planetary change, as well as training programs for new researchers. This new Institute would:

A. Conduct a review to identify the planetary health research that has been done in Canada, including that done in a manner informed by Indigenous Traditional Knowledges and ways of knowing, led by Indigenous Peoples.
B. Identify gaps.
C. Outline a national research agenda, paying particular attention to topics relevant to the health of Indigenous and other equity-seeking groups, as well as which studies ought to be prioritized.
D. Promote the inclusion of elements designed to drive high-quality Knowledge Translation, policy, and real-world impact in its granting structure.

Provincial Level

5.5. Advocate for the creation of **Provincial/Territorial Secretariats for Sustainable Healthcare** within Health Ministries, which would:

- Align procurement goals stemming from ATACH and work at the national level with continuing work on pharmacare as well as emerging initiatives to ensure an essential medications list and supply.
- Participate in baseline health sector emissions and outline a credible, quantitative pathway to net zero (see Delivering a Net Zero NHS[25] for an international example), in consultation with Environment and Climate Change Canada and other relevant ministries.
- Coordinate with the Ministries of Agriculture on elements specific to ensuring a healthy sustainable climate-resilient food supply in Canada.
- Coordinate with the **National Secretariat** and provincial/territorial ministries in the implementation of Canada's National Adaptation Strategy.
- Partner with national Nature Prescription (PaRx) and Social Prescription (CISP) initiatives to scale up provincial adoption and provision of low-carbon treatment options that promote health, community connection and environmental stewardship values.[118]

Institutional Level

5.6. Develop a **five-year strategic implementation plan for the Declaration** at each medical school that identifies responsible parties and timelines for each commitment of the Declaration. The goal of the plan should be to complete or integrate into on-going institutional norms all commitments in the Declaration.

The plan should be developed with engagement from all involved (board, curriculum committees, clinical faculty, students, etc.), particularly high-level decision-makers, to ensure buy-in and commitment to implementation.

5.7. Transition from voluntary policy approaches within the school to more **mandated policy change** within the school.

5.8. Hire or designate one or more ***paid*** **planetary health leads with dedicated administrative support**, whose responsibilities will include participating in the planetary health community of practice (see recommendation 5.1) and keeping apprised of planetary health initiatives across the university. To understand the impact that one designated person can have on planetary health at the institution level, see Moloo et al, 2024.

5.9. Provide opportunities for faculty, staff, and students to take the **Planetary Health Pledge**, incorporating work for a healthy planet into our duty of care. (Declaration commitment)

5.10. Ensure that **research, policy, and advocacy on planetary health** is formally recognized in the academic health institution, for example in the academic promotion process, the appointment of dedicated planetary health leadership positions, and the granting of awards. (Declaration commitment)

5.11. Advocate for the inclusion of planetary health in **institutional strategic plans.**

5.12. Recognize that optimizing human health is one of the most persuasive motivators for change and in partnership with the local collaborate with other disciplines such as engineering, agriculture, architecture, forestry, urban planning, communications, behavioural sciences, and art to de-silo efforts, and in collaboration with the regional **Peri-academic Planetary Health Change-Making Nodes** lead planetary health research, policy, and advocacy aimed at real- world implementation of solutions. (Declaration commitment)

5.13. Reduce emissions associated with travel by transitioning to virtual meetings when possible, including for student interviews, resident interviews, and conferences, choosing lower-emissions modes of travel (train and bus rather than air travel) and offsetting travel- related greenhouse gas emissions. (Declaration commitment)

5.14. Divest from fossil fuels and other extractive industries and instead invest in a sustainable and healthy future for all. (Declaration commitment)

RECOMMENDATIONS

5.15. Endorse the Fossil Fuel Non-proliferation Treaty, which calls for a global phase out of oil, gas, and coal and a complete transition to renewable energies. (Declaration commitment)

5.16. Emphasize co-learning and case-based learning modules to enhance faculty and staff understanding of planetary health principles.

Roadmap

ROADMAP

The following Roadmap outlines a comprehensive strategy to align with the recommendations stated above. By addressing short and long-term objectives, the Roadmap endeavors to drive tangible progress towards the overarching goal of fostering climate-resilient, sustainable, low-carbon health systems.

Desired high-level, long-term impacts and goals of the implementation of the Declaration on Planetary Health and related work towards climate-resilient, sustainable, low-carbon health systems can be stated as:

1. A **healthy population** living within climate-resilient, sustainable low-carbon communities that optimize the social, structural and ecological determinants of health and are anchored by climate-resilient, sustainable low-carbon healthcare institutions.
2. A **health workforce** which uses a planetary health lens to optimize health for both themselves and their communities, and who understand how they can contribute to climate-resilient, sustainable low-carbon healthcare now and into the future.
3. A **future-ready healthcare system** in which climate-resilient, sustainable low-carbon healthcare structures serve as anchor institutions of sustainability within communities and which employ a planetary health lens to optimize wellbeing for patients and healthcare providers.

To establish the groundwork for realizing the long-term vision, immediate short-term goals encompass:

1. Establishing identifiable opportunities for the Planetary Health Pledge at all signatory schools, creating paid planetary health leadership positions and initiating strategic planning.
2. Assessing and enhancing Planetary Health Report Card scores across all schools alongside identifying medical faculty team leads and planning for national events involving 100% participation.
3. Establishing mechanisms for collaboration with the Canadian Medical Forum and other relevant organizations to create shared planetary health resources and actively advocate for planetary health initiatives both within the medical sector and in the broader community."

Recognition of the complexity of measuring these holistic outcomes is reflected in the strong health sector support exhibited on World Health Day 2022 when multiple organizations called on the Prime Minister and other leaders to explicitly transition Canada towards a Wellbeing Society.[88] Finance Canada has, in fact, done substantial work on this, developing a Quality of Life Strategy with measurement based on indicators chosen over years of work at the University of Waterloo.[41] Moving forward, the health community can continue this discussion, working with multiple stakeholders to define, measure and track high-level key performance indicators of these long-term impacts.

Given the early state of implementation of planetary health and work towards sustainable health systems in Canada, as well as the need for efficiency of resource use, initial KPIs will include measurement of inputs as well as of outputs and outcomes. We propose that a yearly survey is conducted via the Planetary Health Committee at the end of the academic year to collect the necessary data.

ROADMAP SUMMARY WITH KEY PERFORMANCE INDICATORS AND TIMELINE

Throughout the plan below, all proposed new structures **are in purple.**

Elements	Inputs	Outputs	Outcomes	Key Performance Indicators and Evaluation Frequency **Year 1** = by end of 2025 med school year **Year 2** = by end of 2026 med school year Year 3 = by end of 2027 med school year Year 4 = by end of 2028 med school year Year 5 = by end of 2029 med school year
Implementation within the Locus of Control of Individual Medical Faculties (recommendations 1, 2, 3, 4 & 5)				
1	Social, human and financial capital allocated by Faculty of Medicine leadership towards creating a Planetary Health Pledge opportunity.	**Recurring yearly opportunity for students to take the Planetary Health Pledge and celebrate the progress of the year.**	Commitment by individual physicians to incorporate work for healthy people on a healthy planet into their scope of practice. Shift of social norms within the community to normalize and encourage work for planetary health.	**Output KPI:** **Year 1: Identifiable Planetary Health Pledge present (Y/N)** **Target: Opportunity present at 100% of signatory schools.** **Year 2: University-affiliated hospital community invited to participate. (Y/N)** **Target: Invitation given at 100% of signatory schools.** Years 3-5: Multidisciplinary Planetary Health Pledge opportunity presented. (Y/N) Target: Opportunity present at 100% of signatory schools. Optional self-evaluation and multi-media self-report with regards to the epic nature of the celebration.

Elements	Inputs	Outputs	Outcomes	**Key Performance Indicators and Evaluation Frequency** **Year 1** = by end of 2025 med school year **Year 2** = by end of 2026 med school year Year 3 = by end of 2027 med school year Year 4 = by end of 2028 med school year Year 5 = by end of 2029 med school year
2	Financial capital allocated by Faculty of Medicine leadership to support enhanced human resources to lead work on planetary health.	**Paid Planetary Health Leads for the following functions:** A - Planetary Health Research Lead B - Planetary Health Education lead C - Planetary Health Policy, Advocacy and Implementation Lead **Annual survey of Planetary Health Leads** to ask how many FTEs are present at the school and how well-supported they feel on a scale of 0-10.	Improved scores on the Planetary Health Report Card. (See Item 4) A well-organized approach to policy and advocacy.	**Output KPI** **Year 1: At least one 0.2 FTE planetary health education and 0.2 FTE research lead reporting to senior leadership, with commensurate 0.2 FTE administrative support paid positions created and filled (Y/N)** **Target: At least one present at 100% of signatory schools.** Track Years 2-5: Number of paid FTE (full- time equivalent) planetary health leads. (Quantitative variable) Target: Increase from baseline over time until Planetary Health Leads report that they are feeling well-supported to a level of at least 8/10. Target: 100% of Planetary Health Leads feel well- supported to a level of at least 8/10.

Elements	Inputs	Outputs	Outcomes	Key Performance Indicators and Evaluation Frequency **Year 1** = by end of 2025 med school year **Year 2** = by end of 2026 med school year Year 3 = by end of 2027 med school year Year 4 = by end of 2028 med school year Year 5 = by end of 2029 med school year
3	Time and resources dedicated to developing a five-year strategic implementation plan for Faculty of Medicine for the Declaration on Planetary Health. This plan includes elements designed to contribute to the shared structures within the **National Resource Center for Planetary Health and Climate Resilient Sustainable Low Carbon Healthcare.**	Five-year strategic implementation plan for Faculty of Medicine for the Declaration on Planetary Health. *If it makes more sense at a given institution to move immediately to multidisciplinary, health system and community-partnered outreach and planning, that could also be a good choice. In that case, please see Item #5.	A clear Faculty of Medicine roadmap for the implementation of the Declaration on Planetary Health. Clear institutional goals with regards to issues such as: • baselining of carbon emissions for the medical faculty and associated teaching hospitals as well as targeted carbon reduction plan, in support of COP26 commitments. • approach to climate-resilient, sustainable low-carbon procurement of medical supplies, pharmaceuticals, and food. • climate change resiliency assessment on the medical school and its associated health system • institution-specific advocacy goals for needed community, provincial and national support structures such as the establishment of a provincial climate-resilient, sustainable, low-carbon health system secretariat.	**Output KPI:** **Year 1: Environmental scan of existing activities and strategic plan begun (Y/N)** **Target: Begun at 100% of signatory schools.** **Year 2: Strategic plan complete (Y/N)** **Target: Complete at 100% of schools.** Years 3-5: Reporting on delivery on Strategic plan & Declaration Commitments

ROADMAP

Elements	Inputs	Outputs	Outcomes	Key Performance Indicators and Evaluation Frequency **Year 1** = by end of 2025 med school year **Year 2** = by end of 2026 med school year Year 3 = by end of 2027 med school year Year 4 = by end of 2028 med school year Year 5 = by end of 2029 med school year
3			• contributions to the organization and support of the **National Resource Center for Planetary Health and Climate Resilient Sustainable Low Carbon Healthcare**	
4	Increased institutional support for planetary health as expressed via the Planetary Health Pledge in #1. Increased resources dedicated to integration of Planetary Health into education, research and policy, advocacy and implementation as expressed in #2, and #3.	Improving alignment of medical education with the **Planetary Health Education Framework.** Given that Royal College Planetary Health Competencies are still in development, as is the curriculum that will flow from them, use the internationally well- known Planetary Health Report Card as a measurement with evaluation conducted by a joint faculty and learner team at each institution.	Co-ownership of planetary health work by learners, faculty lead and medical school leadership in recognition of the profound intergenerational justice consequences of a lack of progress. Continuous integration of the planetary health lens into research, education, policy, advocacy and implementation at each school.	**Output KPI:** **Year 1: Baseline Planetary Health Report Card Score if not done.** **Target:** **i- Baseline done at 100% of schools.** **In schools where a baseline has already been done.** **Target: Improved score at 100% of schools.** **ii- Meeting between medical school dean, planetary health faculty lead, and learner representatives to review results at 100% of schools.**

Elements	Inputs	Outputs	Outcomes	**Key Performance Indicators and Evaluation Frequency** **Year 1** = by end of 2025 med school year **Year 2** = by end of 2026 med school year Year 3 = by end of 2027 med school year Year 4 = by end of 2028 med school year Year 5 = by end of 2029 med school year
4				**Year 2:** **Target: Improved score from baseline at 100% of schools. ii-Meeting between medical school dean, planetary health faculty lead, and learner representatives to review results at 100% of schools.** Years 3-5: Target: Achievement of a score of “B” or better at 100% of schools. ii-Meeting between medical school dean, planetary health faculty lead, and learner representatives to review results at 100% of schools.

Elements	Inputs	Outputs	Outcomes	Key Performance Indicators and Evaluation Frequency **Year 1** = by end of 2025 med school year **Year 2** = by end of 2026 med school year Year 3 = by end of 2027 med school year Year 4 = by end of 2028 med school year Year 5 = by end of 2029 med school year
5	Increased institutional support for planetary health as expressed via the Planetary Health Pledge in #1. Increased resources dedicated to integration of Planetary Health into education, research and policy, advocacy and implementation as expressed in #2, and #3. Increasingly well-trained physician workforce with regards to planetary health as measured by the Planetary Health Report Card in #4.	**Five Year Healthy Community Planetary Health and Sustainable Healthcare Plan.** Multidisciplinary plan extending from Faculty of Medicine into other Health Faculties and involving university-affiliated healthcare systems and community partners. Designed to establish the hospital as an anchor institution in support of a healthy community. See Fraser Health's Planetary Health Strategy for an example.[40]	Improved performance with regards to: • baselining of carbon emissions for the medical faculty and associated teaching hospitals as well as targeted carbon reduction plan. • approach to climate-resilient, sustainable low- carbon procurement of medical supplies, pharmaceuticals and food, using institutional purchasing power to drive • climate change resiliency assessment on the medical school and its associated health system.	**Output KPI** **Year 1: Strategic plan begun (Y/N)** **Target: Begun at 100% of signatory schools.** **Year 2: Strategic plan complete (Y/N)** **Target: Complete at 100% of schools.**

Elements	Inputs	Outputs	Outcomes	**Key Performance Indicators and Evaluation Frequency** **Year 1** = by end of 2025 med school year **Year 2** = by end of 2026 med school year Year 3 = by end of 2027 med school year Year 4 = by end of 2028 med school year Year 5 = by end of 2029 med school year
5	Outreach to Faculties of Nursing, Faculties of Pharmacy, Faculties of Occupational and Physical Therapy, Indigenous leaders, community clinics, community decision makers and stakeholder groups etc.		• improved integration of Indigenous ways of being and knowing with regards to health and wellbeing. • institution-specific advocacy goals for needed community, provincial and national support structures such as the establishment of a provincial climate-resilient, sustainable, low- carbon health system secretariat.	Years 3-5: Reporting on delivery on Strategic plan & Declaration Commitments

Elements	Inputs	Outputs	Outcomes	Key Performance Indicators and Evaluation Frequency
				Year 1 = by end of 2025 med school year **Year 2** = by end of 2026 med school year Year 3 = by end of 2027 med school year Year 4 = by end of 2028 med school year Year 5 = by end of 2029 med school year
Collaboration of Community of Medical Faculties and Medical Forum Required to Implement (recommendations 3, 4 & 5)				
6	Increased institutional support for planetary health as expressed via the Planetary Health Pledge in #1. Increased resources dedicated to integration of Planetary Health into education, research and policy, advocacy, and implementation as expressed in #2, and #3. Increasingly well-trained physician workforce with regards to planetary health as measured by the Planetary Health Report Card in #4.	**Annual national Planetary Health Pledge & Progress Party:** moment of ceremony when faculty, staff, and students can take the Planetary Health Pledge and celebrate progress in order to create community, articulate new norms, celebrate progress, and create a national positive feedback cycle of mutual inspiration.	Enhanced sense of joy within medicine. Progression towards joint achievement of Canada's national commitments to sustainable healthcare. Integration of eco-centric Indigenous ways of knowing and being into the culture of medicine, health, and healthcare. Strong group-based sense of efficacy and community related to doing hard things with friends.	**Output KPI** **Year 1: Consultation process and planning occurs.** **Target:** **100% of schools involved in consultation process around the creation of a national event.** **Year 2: First national Planetary Health Pledge & Progress Party occurs.** **Targets:** **a-100% of Schools participate in a well-defined and organized nationally coordinated moment.** **b-100% of Deans in attendance.** **Bonus points available on a per-school basis for Deans spotted dancing.**

Elements	Inputs	Outputs	Outcomes	**Key Performance Indicators and Evaluation Frequency** **Year 1** = by end of 2025 med school year **Year 2** = by end of 2026 med school year Year 3 = by end of 2027 med school year Year 4 = by end of 2028 med school year Year 5 = by end of 2029 med school year
6			Transformation of feelings of ecoanxiety and moral distress related to inaction on climate change in healthcare into a feeling of accomplishment and preparation for the challenges of present and future. If fun enough, this could be an excellent fundraising opportunity for the **National Resource Center for Planetary Health and Sustainable Healthcare.** Think Met Gala for Healthy People on a Healthy Planet.	Years 3-5: Iterative multidisciplinary and artistic expansion of expressed commitment, celebration of progress, and experienced joy.

Elements	Inputs	Outputs	Outcomes	Key Performance Indicators and Evaluation Frequency **Year 1** = by end of 2025 med school year **Year 2** = by end of 2026 med school year Year 3 = by end of 2027 med school year Year 4 = by end of 2028 med school year Year 5 = by end of 2029 med school year
7	Increased institutional support for planetary health as expressed via the Planetary Health Pledge in #1. Increased resources dedicated to integration of Planetary Health into education, research and policy, advocacy and implementation as expressed in #2, and #3. Increasingly well-trained physician workforce with regards to planetary health as measured by the Planetary Health Report Card in #4.	**National Resource Center for Planetary Health and Sustainable Healthcare.**	Existence of Planetary Health Resource Center adequately staffed and resourced to: A - Coordinate existing planetary health community of practice. B - Maintain a central repository of curriculum resources. C - Develop a Train-the-Trainer Program co-administered with Health Canada. D - Develop a Climate resilient sustainable low carbon health system community of practice whose work includes consideration of essential medicines and security of supply. Strengthen relations with PHAC, Health Canada E - Coordinate national-level work for Peri-academic Planetary Health Changemaking Nodes.	**Outcome KPI** **Year 1:** **KPI: National Resource Center for Planetary Health and Sustainable Healthcare Steering Committee created through outreach to members of Canadian Medical Forum conducted by Planetary Health Leads through the AFMC Planetary Health Committee.** **Year 2:** **KPI:** **a-Costed plan for the National Resource Center for Planetary Health and Sustainable Healthcare developed by the National Resource Center for Planetary Health and Sustainable Healthcare Steering Committee.**

Elements	Inputs	Outputs	Outcomes	**Key Performance Indicators and Evaluation Frequency** **Year 1** = by end of 2025 med school year **Year 2** = by end of 2026 med school year Year 3 = by end of 2027 med school year Year 4 = by end of 2028 med school year Year 5 = by end of 2029 med school year
7			F - Establish a National Planetary Health and Climate Resilient Sustainable Low Carbon Healthcare research community.	**b-Focused and high-level outreach by the national medical community to raise funds and form the necessary relationships to stand up the National Resource Center for Planetary Health and Sustainable Healthcare Steering Committee.** Year 3: Target: Assembly of Resource Center begins, and functions begin to be transferred from existing AFMC Planetary Health Committee to developing National Resource Center. Years 4 and 5: Target: National Resource Center for Planetary Health and Sustainable Healthcare is up and running, fulfilling functions as described in recommendation 5.4 A-F.

Elements	Inputs	Outputs	Outcomes	Key Performance Indicators and Evaluation Frequency
				Year 1 = by end of 2025 med school year **Year 2** = by end of 2026 med school year Year 3 = by end of 2027 med school year Year 4 = by end of 2028 med school year Year 5 = by end of 2029 med school year
Priority Advocacy Targets for the Medical Community to be led by the Peri-academic Planetary Health Change-making Nodes in E (recommendations 1 & 5) A suggested timeline is presented for the achievement of these goals, however faster is better. KPIs are not presented. Instead, suggested steps are listed and an electronic map of Canada will be created and placed on a central website to track progress in each province or territory to foster national collaboration and healthy competition between the medical community in different provinces and territories.				
8	National coordination for policy, advocacy and implementation. Increased institutional support for planetary health as expressed via the Planetary Health Pledge in #1. Increased resources dedicated to integration of Planetary Health into education, research and policy, advocacy and implementation as expressed in #2, and #3. Increasingly well-trained physician workforce with regards to planetary health as measured by the Planetary Health Report Card in #4.	Formalized, named, well-resourced, and adequately staffed **secretariats for sustainable healthcare at national and provincial levels.**	Government leadership on all elements of national streams of work of international Alliance for Transformative Action on Climate and Health (ATACH) work[37]: 1 - Climate resilience 2 - Low carbon sustainable 3 - Supply chain and Essential Medicines 4 - Financing 5 - Nutrition	**Years 1 and 2: National-level advocacy by members of the Canadian Medical Forum** Years 3 and 4: Making use of newly formed teams from Element #5, develop an advocacy strategy designed to bring about a secretariat in each province and territory Target Year 5: Formalized and well-resourced secretariats for climate resilient sustainable low carbon healthcare exist at national and provincial levels and are working in coordination to deliver on all streams of ATACH work.
9		New national hospital accreditation standard for **sustainable hospitals.**		

Elements	Inputs	Outputs	Outcomes	**Key Performance Indicators and Evaluation Frequency** **Year 1** = by end of 2025 med school year **Year 2** = by end of 2026 med school year Year 3 = by end of 2027 med school year Year 4 = by end of 2028 med school year Year 5 = by end of 2029 med school year
9	Competitive physician team spirit harnessed for the good of people and planet via dreams of glory at the next **Annual national Planetary Health Pledge & Progress Party.**	**Incorporate planetary health in the Committee on Accreditation of Canadian Medical Schools (CACMS) and Committee on Accreditation of Continuing Medical Education's (CACME) accreditation standards.**	New hospitals built and administered in alignment with the accreditation standard; existing hospitals retrofitted and administered in alignment with the accreditation standard. Revised accreditation standards for medical schools and continuing professional development provide organizations with accountability in preparing learners to tackle planetary health challenges.	**Year 1:** **a- Collaborate with the Health Standards Organization Accreditation Canada, and the Planetary Health Committee on advancing development of a new hospital standard: evaluate whether to create a new standard or adopt and existing one from the international community.** **b- Initiate conversations with CACMS and CACME to incorporate planetary health into medical school accreditation standards.** **Year 2: Depending on the answer in year 1, develop or implement the hospital standard (s).** **Provide feedback on modifications/additional standards to the CACMS and CACME for review.** By Year 5: National sustainable hospital accreditation standard in use across Canada, and inclusion of planetary health required for the accreditation of medical schools across Canada.

Elements	Inputs	Outputs	Outcomes	Key Performance Indicators and Evaluation Frequency **Year 1** = by end of 2025 med school year **Year 2** = by end of 2026 med school year Year 3 = by end of 2027 med school year Year 4 = by end of 2028 med school year Year 5 = by end of 2029 med school year
10	*Same as #8 and #9*	**a- Privy Council-level or formal body of advisors Interministerial Planetary Health Committee.** **b- Institute on Environments and Health to the Canadian Institute of Health Research (CIHR).**	Improved interministerial coordination of work on planetary health, working towards wellbeing budgeting in alignment with Canada's Quality of Life Strategy.[41] Improved understanding of planetary health, enabling evidence-informed decision-making on planetary health and informing future medical curricula and work on sustainable healthcare.	**Year 1: Make connections with other health sectors, environmental health, and wellbeing society-oriented communities who are also advocating for these structures.** **Year 2: Develop advocacy strategy for each.** Years 3 and 4: Run a target-based advocacy program designed to bring these into being. Year 5: Both structures approved, funded, and in development.

Collaboration and Outreach Plan

COLLABORATION AND OUTREACH PLAN

"If you want to go fast, go alone, if you want to go far, go together."
– Origins unknown, but often cited as an African proverb

The implementation of the Roadmap and, indeed, the reorientation of our entire society and economy towards a safer, climate-resilient, low-carbon future where present and future generations have the opportunity to thrive, requires everyone to be rowing in the same direction. The Roadmap recognizes the importance of collaboration by recommending explicitly collaborative structures and approaches such as:

- A **National Planetary Health Resource Center** to support medical schools,
- A **Train-the-Trainer Program** that would diffuse key planetary health knowledge in a "snowflake" movement-building strategy,
- A **sustainable health system community of practice,**
- A network of nationally coordinated **peri-academic Planetary Health Change-Making Nodes**, and
- Collaborating with other disciplines whose skill sets are required to implement actions associated with optimizing planetary health such as engineering, agriculture, architecture, urban planning, communications, behavioural sciences, and art.

In addition to these specifically collaboration-oriented recommendations, it is very unlikely, one might even say impossible, that any of the recommendations in the Roadmap will be implemented by one person alone. Rather, they will be implemented by multiple different people within many organizations, each with their own competing priorities, constraints, and organizational cultures. In order to fulfill the Roadmap, collaboration is imperative.

GOALS

The goals of the collaboration and outreach plan are:

1. To engage as many healthcare institutions and organizations as possible to advance planetary health in Canada, including through the transformation of healthcare into a climate-resilient, sustainable, low-carbon system.
2. To employ shared goals as catalysts for the creation of supportive team-based structures that facilitate pathways to agency in which action alleviates eco-anxiety through both comradery and iterative reduction in climate-related risks to the health and safety of present and future generations and enhancement of the opportunity for all to thrive.
3. To maximize the efficient use of limited time and resources by eliminating duplication of efforts and avoiding "reinventing the wheel".

COMMUNITY-BUILDING, OUTREACH STRATEGIES, TEAM-BUILDING AND COMMUNICATIONS

Keeping people and organizations engaged and working together toward a common goal does not happen haphazardly. Maintaining engagement requires a sustained and consistent input of energy and effort.

COLLABORATION AND OUTREACH PLAN

Eventually, the goals of this collaboration and outreach plan will be realized through the **National Planetary Health Resource Center** to support medical schools, the **sustainable health system community of practice**, and the network of nationally **coordinated peri-academic Planetary Health Change-Making Nodes**. However, at the outset of the Roadmap and prior to those overarching structures being formed, outreach and engagement efforts will need to be undertaken by the Planetary Health Committee convened by the AFMC in partnership with collaborators from the Canadian Medical Forum.

We have identified two main locations from where outreach will occur: efforts led by individual medical faculties into their communities, and joint efforts by the medical community at the national level, as organized at the AFMC and Canadian Medical Forum.

1) Collaborators for individual medical schools:

a) **other health faculties** including nursing, pharmacy, physical and occupational therapy, etc.

b) local organizations and institutions that are already prioritizing planetary health: i.e.

- CASCADES
- Canadian Coalition for Green Healthcare
- PEACH
- Canadian Association of Physicians for the Environment's Provincial/Territorial Chapters
- Association québecoise des médecins pour l'environnement

c) **university faculties outside of the health sciences** important to climate-resilient, sustainable low-carbon transformation both within healthcare provision and as part of creating healthy communities where healthcare structures are anchor institutions of sustainability: engineering, architecture, urban planning, environmental sciences, agriculture and food sciences, political science, communications, fine arts and more.

d) individuals and groups affiliated with teaching hospital structure and function including hospital leadership, local health system leaders and patients.

e) individuals and groups outside of the university and teaching hospital structure who are key to building healthy communities where healthcare structures are anchor institutions of sustainability: local environmental non-governmental organizations, municipal decision makers, farmers, provincial and territorial decision makers.

2) Collaborators for the Association of Faculties of Medicine, community of medical faculties, and the Canadian Medical Forum:

a) National academic and professional associations related to other health disciplines including public health, nursing, pharmacy, occupational therapy, physical therapy and more.

b) Health and healthcare-affiliated groups that are already centered around planetary health and climate-resilient, sustainable low-carbon healthcare. At the time of writing, these organizations and institutions include:

- Association québecoise des médecins pour l'environnement
- Canadian Association of Nurses for the Environment
- Canadian Association of Physicians for the Environment
- Canadian Coalition for Green Healthcare
- Canadian Federation of Medical Students HEART Group
- Canadian Health Association for Sustainability & Equity
- CASCADES
- Choosing Wisely Canada
- College of Family Physicians of Canada
- Doctors for Planetary Health - West Coast
- Health Canada's Climate Change and Innovation Bureau
- PEACH Health Ontario
- Project Green Healthcare / Projet vert la santé
- Reseau d'action pour la santé durable
- Royal College of Physicians and Surgeons of Canada
- Society of Rural Physicians of Canada
- Synergie Santé Environnement

A sense of team-based efficacy is developed as people align around the articulation of shared values and the achievement of joint goals. We recommend that outreach occur in alignment with the recommendations and KPIs lined up in the Roadmap above. Creating team-building opportunities with a low barrier to entry that involve a reportable outcome is a good way to generate initial wins that can generate momentum, create a sense of hope, and attract further resources, as per the target-based diagram.

Evidence-aligned communications is extremely important, and a sizeable evidence base is emerging with regards to best practices. We suggest making use of the following resources:

- WHO: Communicating on climate change and health: Toolkit for health professionals.
- Climate and Health Alliance of Australia: Real, Urgent, & Now: Communicating the Health Impacts of Climate change.
- Potential Energy & Yale Center for Climate Communications: Later is too late to act on climate change.

COLLABORATION AND OUTREACH PLAN

Target Audience 1: Organizations and institutions that are already prioritizing planetary health.

Engagement Strategies for Target Audience 1:

- Quarterly planetary health meetings for networking, relationship-building, and knowledge exchange
- Annual planetary health conferences for networking, relationship-building, and knowledge exchange
- Secretariat/convenor role support for multiple organizations/institutions wanting to work together on
  - one of the recommendations from the Roadmap,
  - one of the commitments in the Declaration, and/or
  - planetary health-themed journal article(s)
- Electronic platform for informal exchanges (e.g., Slack or similar)
- Quarterly planetary health e-newsletter

Key Messages for Target Audience 1:

- "Thank you for your leadership on planetary health."
- "What challenges is your organization/institution facing in advancing planetary health? Let's work together on a key next step together."

Target Audience 2: Organizations and institutions that recognize planetary health as important but may not have prioritized it in terms of budget allocations, time, and/or effort.

At the time of writing, these organizations and institutions include:

- Canadian Forces Health Services Group
- Collège des médecins du Québec
- Fédération des médecins omnipraticiens du Québec
- Fédération des médecins spécialistes du Québec
- Fédération médicale étudiante du Québec
- Medical Council of Canada
- Resident Doctors of Canada

Engagement Strategies for Target Audience 2:

- Invitations to join/participate in all of the engagement strategies identified for the Target Audience 1
- 1-on-1 personal outreach and relationship-building with key organizational/institutional leaders

Key Messages for Target Audience 2:

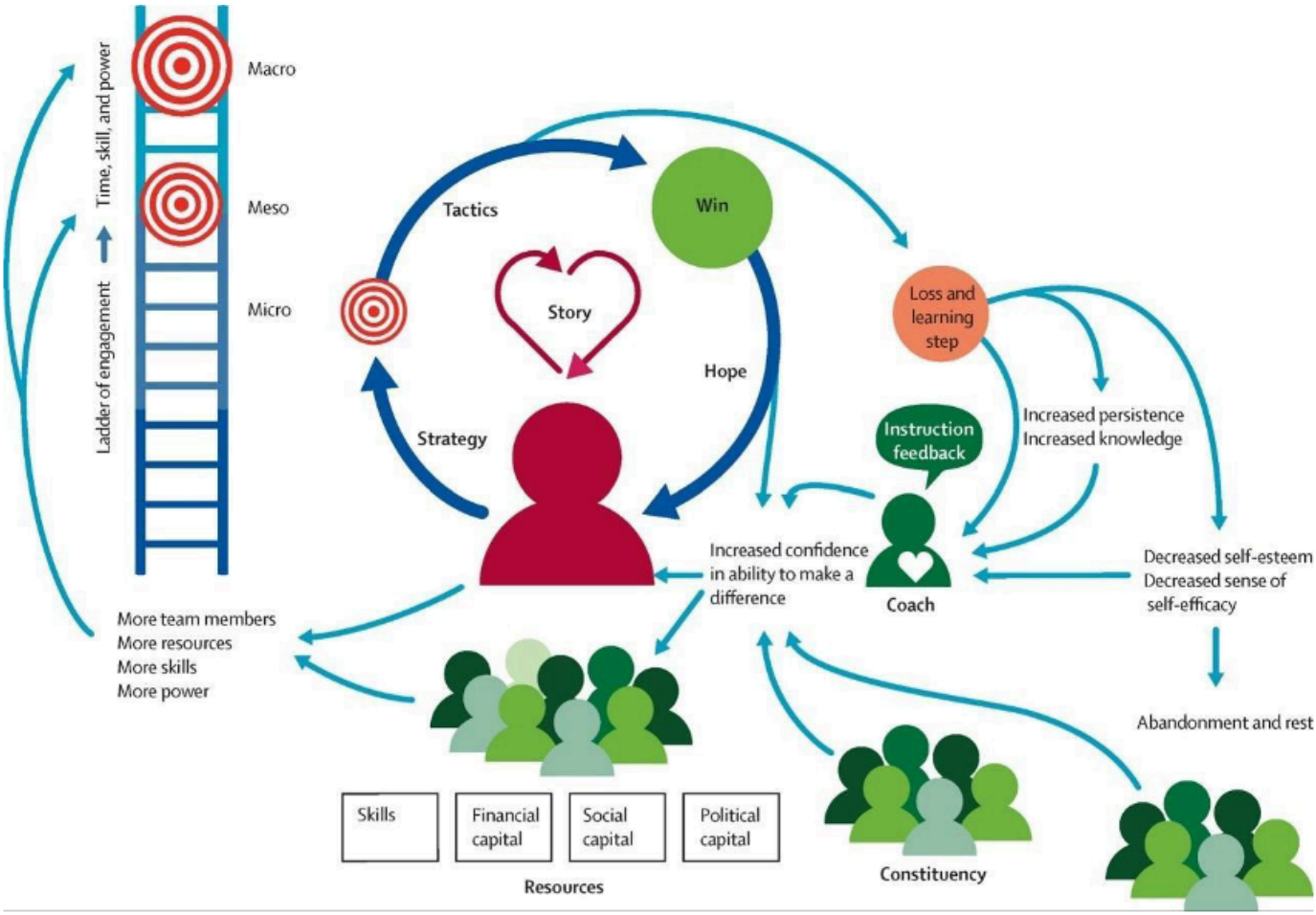
- "Climate change is the biggest global health threat of the 21st century."
- "What are the barriers to prioritizing planetary health at your institution/organization? How can we support you as we work towards the achievement of a key next step together?"

Roadmap Tool for Canadian Medical Professionals: Build your own path to leadership in planetary health & sustainable healthcare

ROADMAP TOOL FOR CANADIAN MEDICAL PROFESSIONALS: BUILD YOUR OWN PATH TO LEADERSHIP IN PLANETARY HEALTH & SUSTAINABLE HEALTHCARE

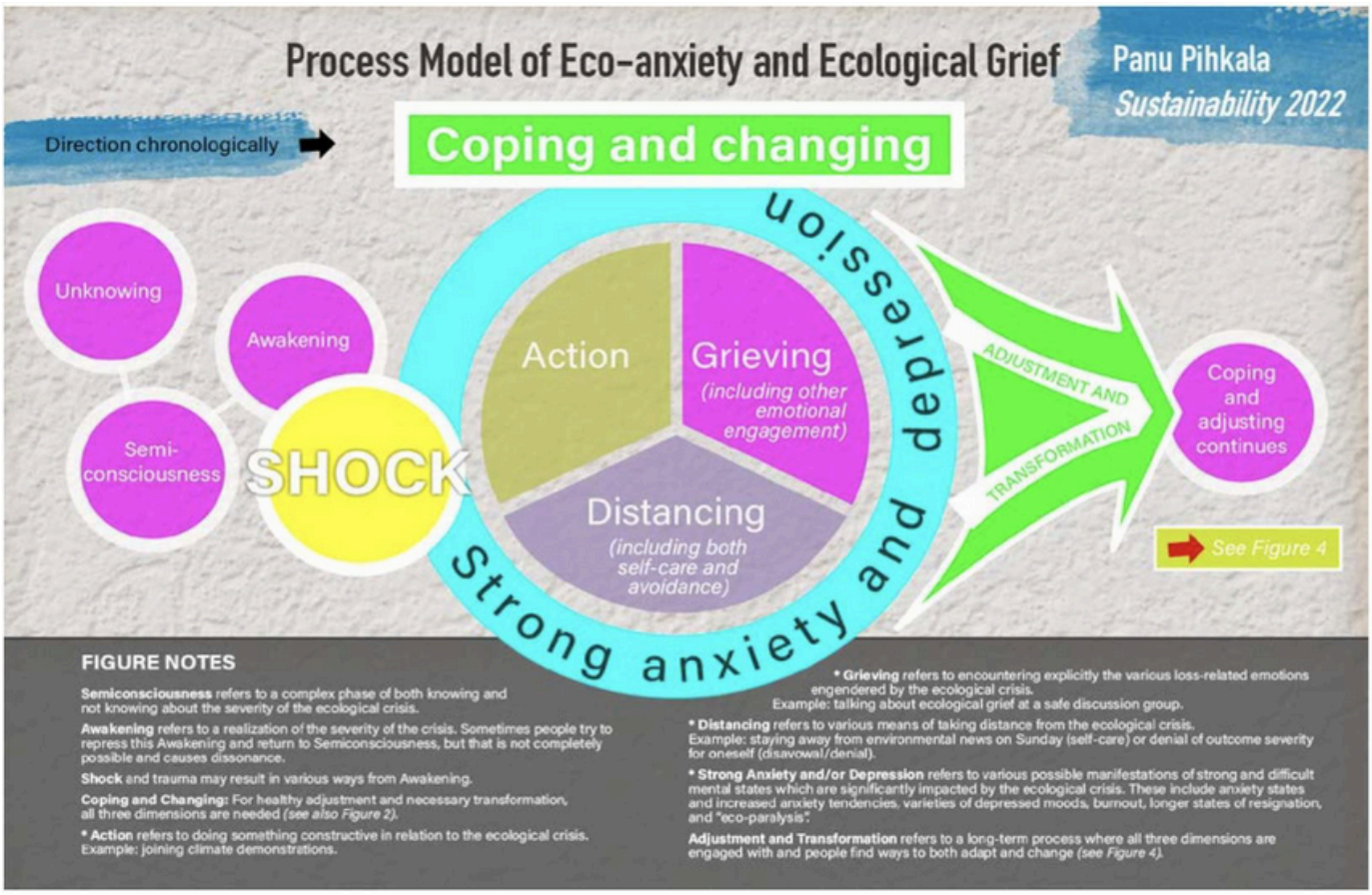
This tool complements the Academic Health Institutions' Declaration on Planetary Health and aligns with the AFMC Roadmap for Planetary Health and Sustainable Health Systems for Canadian Medical Professionals. It is crafted to guide medical professionals and institutions through the process of personalizing their approach to planetary health, ensuring that the ambitious goals outlined in both the Declaration and the Roadmap are translated into effective, actionable plans. By providing a structured framework, this tool enables users to systematically address the challenges and opportunities of integrating sustainable practices into their operations and educational strategies.

The change-making model suggested is the following, from "Learning to Treat the Climate Emergency Together: social tipping interventions for the health community." Using this can provide common language that helps your team care for one another, strategize and build power. A downloadable PowerPoint with it and other figures in the report is available here.



ROADMAP TOOL FOR CANADIAN MEDICAL PROFESSIONALS: BUILD YOUR OWN PATH TO LEADERSHIP IN PLANETARY HEALTH & SUSTAINABLE HEALTHCARE

Many people find that when the climate crisis moves from being an issue of which they are vaguely aware to one whose risks become apparent, often termed a "climate awakening," they experience strong emotions. These should be addressed as we move towards action.



From The Process of Eco-Anxiety and Ecological Grief Pihkala et al.[119]

Much as when we faced COVID19 as a medical community, people will find that developing an action plan for the climate crisis calls to our whole selves, and requires work of the heart (emotional), the head (strategic), and the hands (implementation). It is important to surface and acknowledge the fact that health professionals are human, and that an integrated response to the ecological crisis requires us to process what it means for our own safety, and that of our family and loved ones.

"Recognizing that emotions are often what leads people to act, it is possible that feelings of ecological anxiety and grief, although uncomfortable, are in fact the crucible through which humanity must pass to harness the energy and conviction that are needed for the lifesaving changes now required." [68]

ROADMAP TOOL FOR CANADIAN MEDICAL PROFESSIONALS: BUILD YOUR OWN PATH TO LEADERSHIP IN PLANETARY HEALTH & SUSTAINABLE HEALTHCARE

PURPOSE OF THE TOOL:

- **To surface and normalize feelings of ecological grief and anxiety and bring health professionals into community** to provide mutual support in processing these emotions and moving towards decreasing the real risk of the ecological crisis through action.
- **To provide a structured approach for integrating the Academic Health Institutions' Declaration on Planetary Health into daily practices and institutional policies**, ensuring that users can effectively translate broad recommendations into actionable steps tailored to their specific contexts.
- **To facilitate the setting of personal and institutional goals and the meeting of KPIs that are aligned with national and international efforts to promote planetary health,** helping to synchronize efforts across different levels and sectors within Canada and beyond.
- **To consolidate information and facilitate pan-Canadian coordination,** by enabling the sharing of data on the meeting of KPIs, outcomes, and effective practices among institutions and individuals. This helps in creating a cohesive network that leverages collective insights and resources for enhanced planetary health initiatives.
- **To promote robust collaboration among stakeholders across the country,** strengthening the collective impact on planetary health through shared learning, strategic partnerships, and joint actions.

STRUCTURE

The tool is organized into three main sections to help users develop actionable plans for planetary health. Many of the sections can be undertaken by individuals. There are also sections for those who have formed hospital "Green Teams" or other types of change-making teams, such as those who may be involved in existing quality improvement initiatives that can weave in work on planetary health and sustainable healthcare.

Section 1: HEART (Emotional)

Provides suggestions for personal and community-assisted processing of emotions around ecological change, for the setting of compassionate group norms, and for work to develop stories that help motivate change.

Section 2: HEAD (Strategic)

Focuses on setting personal and institutional goals for action, as applicable.

Section 3: HANDS (Implementation)

a- helps institutions align their goals with specific Roadmap recommendations and includes features for tracking progress.
b- is dedicated to identifying potential partners and planning collaborative actions.
c- enhances engagement through participation in national and international events.
d- encourages users to share their progress, join the community of practice, and maintain engagement in planetary health initiatives. This structure ensures that users can effectively integrate the Roadmap into their practices and policies for sustainable healthcare.

ROADMAP TOOL FOR CANADIAN MEDICAL PROFESSIONALS: BUILD YOUR OWN PATH TO LEADERSHIP IN PLANETARY HEALTH & SUSTAINABLE HEALTHCARE

From The Process of Eco-Anxiety and Ecological Grief Pihkala et al.[119]

Section 1: HEART (Emotional)

A - Impact

Personal Exploration: self-reflection questions

1. Looking at the figure depicting the general process of eco-anxiety and grief – have you experienced difficult emotions related to events similar to what is depicted?
2. How did you cope with those emotions at the time?
3. How do you think these emotions have affected the actions that you have taken in response to the ecological crisis–in your personal life? In your professional life?

ROADMAP TOOL FOR CANADIAN MEDICAL PROFESSIONALS: BUILD YOUR OWN PATH TO LEADERSHIP IN PLANETARY HEALTH & SUSTAINABLE HEALTHCARE

Group Exploration:

Setting of Group Norms

1. What behavioural norms would you like to set as a group? Examples include asking questions, considering when to step forward and when to step back, respecting time, creating a brave space that fosters mutual learning and accountability, being an active listener, asking clarifying questions, avoiding and/or explaining acronyms, assuming the best intentions, being present: closing tabs, putting phones away.
2. What decision-making norms would you like to set as a group? Examples include allowing all voices to be heard before suggesting a conclusion, requiring consensus to proceed, requiring a vote of simple majority to proceed, requiring a ⅔ majority to proceed, conducting pulse checks where people indicate their level of approval for a project on a scale of 0 fingers (strongly opposed) to 5 fingers (strongly for) and then adjusting the plan until everyone is at least at a 3 before proceeding.

Group reflection questions:

1. Looking at the figure depicting the general process of eco-anxiety and grief–do you think your community, both within and beyond healthcare, has been affected by the events depicted? (Heat dome, Wildfire events–others)
2. How have you seen your colleagues, family and patients cope with these events?
3. Do you think any of these events have affected health and healthcare in your community? How?
4. How do you think emotions linked to these events have affected the actions that you have taken in response to the ecological crisis–in your personal life? In your professional life?

From The Process of Eco-Anxiety and Ecological Grief Pihkala et al.[119]

B - Response: Coping, Changing, and Living Well in a Time of Ecological Crisis[119]

This model of ecological grief and coping identifies three dimensions of Coping and Changing in response to a new understanding of the ecological crisis. In the background of the three aspects of coping, there is the possibility of stronger anxiety and depression. All three are viewed as being helpful for constructive coping, adjustment, and transformation. Meanwhile, an overly intense focus on only one of these can cause problems.[119]

Grieving and Other Emotional Engagement: This refers to engaging with tasks of grief processes as well as with other emotions which are frequently present such as anxiety, guilt and anger.[119] Tasks associated with these emotions can include allocating time and energy to sharing feelings of sadness with those that we trust, journaling, or processing emotions in other ways that people find helpful, such as spending time in nature, engaging in artistic expression or others.[119]

Distancing Including Both Self-care and Avoidance: this refers to the need to rest from processing emotions and from planning or engaging in action.[119] If engaged in to the exclusion of other methods of coping, these can be maladaptive, provoking feelings of cognitive dissonance and other distress. Distancing can outwardly appear as what we commonly view as "climate denial." Many scholars argue that taking time to rest can be an important form of self-care, particularly when undertaken consciously, and in community.[119] This can look like taking a news fast, going on a nature retreat, or laying on your belly in the sun until your child comes to lay on you after you have read a particularly distressing report. (Not that any of the authors have personal experience with this 🙂)

Action: Refers to efforts to respond constructively to the ecological crisis with regards to pro-environmental behaviour and community-building,[119] such as we are engaged with in the application of the Declaration on Planetary Health, and that individuals may be involved with in their personal lives. Action can reduce real physical risks, is the ethical response, and provides feelings of efficacy and empowerment which help relieve emotional distress. [119] That said, an over-reliance on action as a coping mechanism can result in that action coming from a place of anxiety–rather than a centered and strategic place, which tends to result in less effective and collaborative work (Have you ever been "talked at", instead of "spoken to", by someone who is intent on climate action? Yep. Doesn't work.) Similarly, too much time spent on action, just like too much time in the hospital, can put a person at risk of burnout.

Personal Exploration: self-reflection questions

1. Have you found yourself already engaging in any of the three dimensions of coping? If so, which practices, looking back on them, were helpful? Do you think you have potentially leaned too far into any of the three dimensions? Is there one you could lean into to a greater extent? Have you ever burned out as a result of activities related to eco-action? Write down a series of thoughts that you could refer back to for guidance the next time you are experiencing difficult climate-related emotions.

Group Exploration: reflective questions

1. Have you noticed any behaviours associated with the three dimensions of coping in your community?
2. Have you noticed any behaviours that may indicate maladaptive coping?
3. As you move forward, are there any group practices or ground rules that you think you could institute to encourage your team in the various aspects of coping?
4. What are the more formal supports that exist in your community or that can be accessed virtually that you could access if people require care beyond what is available through the health community? Examples include: Unthinkable, Climate Cafe, Good Grief Network, Climate Psychiatry Alliance.

C - Storytelling for Change

Marshall Ganz' public narrative framework is a well-established and helpful way for us to connect our experience and emotions to that of a broader "us" as a way of motivating change now. For more details, please see a worksheet here.

Image from What is Public Narrative: Self, Us & Now by Marshall Ganz [120]

Personal Exploration:

1. Can you describe moments from your life, like scenes from a movie, that motivate your work on planetary health and sustainable health systems? Looking at the guidance on "Story of self," how could you use these moments to help people understand your motivation for this work?

Group Exploration:

Exercise:

1. Get in pairs and tell your story of self to a partner. Get feedback from your partner about which aspects resonate and which seemed like biographical details that could be dropped. Switch. Give it another go, incorporating feedback from the first attempt.
2. What elements of the Story of Now, and the Story of Us could you bring into your group's narrative with regards to applying the Roadmap for the Declaration on Planetary Health and leading change in service of sustainable health systems.

Section 2: HEAD (Strategic)

As Individuals, and as a Group:

- **What are my (our) areas of expertise?** Consider your skills and areas of knowledge. How can these be applied to planetary health initiatives? Thinking in terms of the different types of capital (human, social, financial, political), what resources do we have that we can draw upon to help us achieve our goals?
- **What Roadmap recommendations resonate?** Review the Roadmap and identify the recommendations that most interest you or align with your capabilities.
- **How can you engage in the 5-year strategy?** What will be your first steps in developing a 5-year strategy? A group benefits from understanding how any one action fits into an overall whole. Be sure to situate your actions within work that is being undertaken by the entire medical community in Canada, and internationally. 81 countries have now committed to climate resilient health systems, and 75 to sustainable low carbon health systems. Given that the health sector allocates 10% of Global World Product and is responsible for about 5% of greenhouse gases, this represents the potential for huge sectoral impact with the ability to trigger social and economic tipping points. Your work matters.
- **What immediate actions can you take?** List at least three immediate actions you believe you could take to start contributing to these goals. Incorporating early wins can help to attract resources and generate hope and a sense of group-based efficacy that will help you target ever-more ambitious goals.
- **What about a big, hairy goal?** As you build power, what would you like to achieve together? What is one ambitious change target you'd like to strive for in advancing planetary health? Make it a stretch goal that feels just barely possible and gets peoples' eyes sparkling when they consider the impact it would have on the world.
- **What is my (our) unique value proposition?** What unique value can you bring to these initiatives? Reflect on where you excel, where you can lead, and what you could share.
- **Who can I work with or influence to advance change?** Based on your knowledge and the Roadmap, who are the potential collaborators in your proximity? How can you engage or influence them to work together? How can you ensure your institution contributes to the shared structures in the Roadmap that are required for efficient work in Canada? What resources does your group need from the community?

ROADMAP TOOL FOR CANADIAN MEDICAL PROFESSIONALS: BUILD YOUR OWN PATH TO LEADERSHIP IN PLANETARY HEALTH & SUSTAINABLE HEALTHCARE

Referencing the Target-based Changemaking Model Above, for each initiative, brainstorm Tactics and Stories that will be required to help you achieve your goals. See here for further description of the model.

Action Planning Workspace

What will you do?	How will you do it?	When will you do it?	Priority / Timeframe (Fast, Medium, Long-term)
Example: *Integrate climate health into the medical curriculum*	*Collaborate with faculty to develop modules that address the impact of climate change on health. Secure approval from the curriculum committee and incorporate the modules into both undergraduate and postgraduate programs.*	*Develop modules in 6 months, pilot by [date] and fully integrate by next academic year.*	*Medium*
[Add your own]			

ROADMAP TOOL FOR CANADIAN MEDICAL PROFESSIONALS: BUILD YOUR OWN PATH TO LEADERSHIP IN PLANETARY HEALTH & SUSTAINABLE HEALTHCARE

Section A: Target Setting

This section is designed to help users define specific, measurable goals that align with both their personal aspirations and their institution's commitments to planetary health. By setting clear goals, users can better track progress and make meaningful contributions to sustainable health systems.

Instructions for completing target setting tables:

1. **Identify Targets:** Consider what changes you want to achieve on a personal and institutional level that contribute to planetary health.
2. **Describe and Align Goals:** Clearly articulate each goal and explain how it aligns with the Roadmap's recommendations.
3. **Plan and Resource:** Identify necessary resources and set realistic timelines.
4. **Measure Impact:** Define clear performance indicators to measure the impact and effectiveness of achieving each target.

2A - Personal

This part focuses on individual commitments to planetary health, encouraging users to reflect on their daily activities and broader professional roles.

Personal Goal	Actionable Description of Goal	Alignment with Roadmap	Timeline	Measure Impact
Example: *Reduce commute emissions*	*Transition to using public transport or carpooling to reduce my carbon footprint.*	*Supports sustainable practices within personal lifestyle changes.*	*Start by next quarter, ongoing assessment yearly.*	*Track reduction in personal vehicle use monthly, assess carbon footprint reduction annually. Notice how many conversations are generated with others, and who follows your lead.*
[add your own]				

2B - Institutional Targets

This part is tailored for leaders or members of institutions to set organizational goals that promote planetary health within their professional practices.

Institutional Goal	Actionable Description of Goal	Strategic Alignment	Resources Required	Timeline	Performance Indicators
Example: *Implement a Recycling Program*	*Establish comprehensive recycling stations throughout all facilities to reduce waste.*	*Enhances the institution's commitment to sustainable operations as outlined in the roadmap and strategic plan for the* *FoM.*	*Recycling bins, staff training, regular waste audits.*	*Roll out starting in six months, fully operational within one year.*	*% of waste recycled, reduction in waste volume, feedback from staff surveys.*
[add your own]					

Section 3: HANDS (Implementation)

A - Institutional Alignment with Roadmap Recommendations and Progress Tracking

This section is designed to help institutions adapt the Roadmap recommendations to their specific operational and strategic needs. It features a dynamic table for institutional-level recommendations, with each entry allowing for detailed, customized action planning and progress tracking. This facilitates a hands-on approach to implementation and supports continuous improvement aligned with national-level goals.

Furthermore, the section underscores the importance of collaboration with the AFMC, enabling the aggregation and analysis of data that contribute to a pan-Canadian overview of advancements in planetary health. This collective effort enhances institutional engagement and enables shared learning and adjustments across Canadian medical schools, emphasizing strategic alignment with planetary health objectives and the importance of systematic reporting.

Instructions for effectively utilizing this section:

1. **Review and Understand Roadmap Recommendations:** Thoroughly examine each institutional-level recommendation to understand their outcomes and how they can be adapted to your institution's context.
2. **Develop and Tailor Your Action Plan:** Use the table to outline detailed, executable steps for each recommendation, specifying tasks, responsible teams, and necessary resources tailored to your institution's needs.
3. **Set Realistic Timelines and Resources:** Establish clear timelines and allocate resources for each part of your action plan to guide implementation and manage expectations.
4. **Implement Progress Tracking and Reporting**: Regularly update the progress tracking columns for each action item, documenting milestones, plan adjustments, and outcomes. Coordinate with the AFMC to report progress, regularly uploading your institution's progress data and milestone achievements to the website for centralized tracking.
5. **Evaluate and Review:** Periodically assess the effectiveness of your action plan by comparing actual outcomes with the expected results. Engage in benchmarking activities by evaluating your progress and outcomes with other institutions to identify best practices and areas needing enhancement.

3A - Institutional Targets

Roadmap Output	Your Action Plan	Potential Collaborators	Progress Goals	Progress Achieved
[Rec 1] Recurring yearly opportunity for students to take the Planetary Health Pledge and celebrate the progress of the year.				Y1: Identifiable Planetary Health Pledge present (Y/N) Y2: University-affiliated hospital community invited to participate. (Y/N) Y3-5: Multidisciplinary Planetary Health Pledge opportunity presented. (Y/N)
[Rec 2] Planetary Health Lead(s) for health research, education and health policy/advocacy				Y1: - 0.2FTE Education - 0.2FTE Research - 0.2FTE Admin Y2-5: # FTEs for PH Leads; support level sentiments

[Rec 3] Create 5-year Strategic Plan for FoM to implement PH declaration.				Y1: Environmental scan Y2: Strategic Plan complete Y3-5: Reporting Results
[Rec 4] Participate in the planetary health report card				Y1: Baseline PH Report Card Score Y2: Improved Score Y3-5: Score of "B" or better
[Rec 5] Develop Community & Multi-disciplinary Sustainable Healthcare Strategy				Y1: Planning underway with affiliated health system Y2: Plan developed (Y/N) Y3-5: Reporting Results
[add your own]				

3B: Identifying Partners and Collaboration Opportunities

This section is designed to help users identify and select potential partners that align with their specific targets, utilizing a simplified table format for listing and planning around the establishment of relationships for the exchange of resources to mutual benefit. This setup encourages users to determine the relevance of each potential partnership to their objectives and brainstorm effective engagement strategies. The overall focus of this section is to facilitate a strategic approach to building partnerships, ensuring they are targeted and effective for implementing specific objectives outlined in the Roadmap.

Instructions for effectively utilizing this section:

1. **Identify Potential Partners:** Refer back to the landscape assessment to help fill out the first column to list potential partners who can contribute to or benefit from your planetary health initiatives. Examples are provided, but you should add or modify according to your specific context.
2. **Relevance to Your Targets:** In this column, briefly describe how each partner can help achieve your specific goals. This helps in prioritizing partners who have the most significant potential impact on your project.
3. **Proposed Collaboration Opportunities**: Here, you specify what type of cooperation or project you envision undertaking with each partner. This is a brainstorming area to outline potential projects, joint initiatives, or support structures.
4. **Contact Method:** Plan how you will initiate contact and build relationships with these partners. This could include emails, formal letters, networking events, or direct introductions.

Partner and Collaboration Targets:

Potential Partners	Relevance to Your Targets	Proposed Collaboration Opportunities	Contact Method
Example: Universities with medical faculties	*Curriculum development, joint research*		
Example: Local healthcare organizations	*Shared sustainable practices, community health projects*		
Example: Environmental NGOs	*Advocacy and community engagement*		

Example: Indigenous communities	*Integration of traditional knowledge, community-led initiatives*		
Example: Professional associations (e.g., AFMC)	*Professional development, policy advocacy*		
[add your own]			

3C: Pan-Canadian and International Participation and Collaboration

This section is designed to empower users to actively participate in pan-Canadian and international collaboration initiatives that enhance planetary health goals. By leveraging users' capabilities in event participation, resource sharing, and advocacy, it promotes active involvement on both national and global levels. A structured table helps users articulate and align their engagement strategies with their professional skills, institutional goals, and personal interests.

Take action now by engaging proactively in available opportunities, documenting and sharing your achievements, and providing continuous feedback to refine and improve collective efforts. Your involvement is essential to driving meaningful outcomes and enhancing the impact of planetary health initiatives.

Instructions for effectively utilizing this section:

1. **Identify Your Targets:** Select initiatives that resonate with your areas of expertise, institutional priorities, or personal interests, particularly those that allow for direct advocacy and impact.
2. **Define Your Contributions:** Articulate what resources, insights, or skills you are prepared to offer. Emphasize how these contributions can influence policy and public opinion both domestically and globally.
3. **Plan Your Actions:** Outline detailed preparatory steps and follow-through activities, ensuring they are robust and well-organized to maximize impact.
4. **Outline Advocacy Efforts:** Specify your advocacy strategies, including the objectives, target groups, and desired outcomes, to effectively communicate and promote your goals.
5. **Set a Timeline:** Develop realistic timelines for all planned activities to synchronize with overarching goals of the initiatives, world events (release of climate reports, Earth Day, Wildfire and Heat season etc.) and ensure timely progress and contributions.

System Participation and Advocacy:

Initiative	Your Area of Interest	What You Can Contribute	Planned Actions	Advocacy Efforts	Timeline
Planetary Health Pledge & Progress Party					
National Resource Center for Planetary Health and Sustainable Healthcare					
Advocacy for Policy Changes					
[propose your own]					

3D: Winning, Learning Losses, Celebrating and Mutual Coaching

This section invites you to actively share your progress as you progress around the action cycle, join the AFMC Planetary Health Community of Practice, and engage further by providing feedback and collaborating on projects. Designed to facilitate a robust exchange of ideas and practices, it enhances our collective effort towards achieving planetary health goals.

How to Submit Your Plan:

To enable tracking and comparison of diverse strategies across our network, please submit your completed action plan via the provided **[email].**

Join Our Community of Practice:

Enhance your network, gain professional development, and share your achievements and challenges by joining the AFMC Planetary Health Community of Practice. Sign up **[here]([Link or instructions for joining the community]** to start connecting with peers who are equally committed to planetary health.

Provide Feedback:

Your insights are vital to our continuous improvement. Share your feedback and suggestions through our **[feedback form link – SEE QUESTIONS BELOW],** helping us refine our tools and resources.

Collaborate on Projects:

If you are keen to initiate or join a collaborative project, reach out to us at **[email]**. Together, we can innovate for healthier communities and a sustainable planet.

Take Action:

Engage with these opportunities to play a pivotal role in advancing our collective goals. Your proactive participation is key to driving impactful outcomes at both national and international levels.

Conclusion

CONCLUSION

Planetary health initiatives have increased significantly in number and scope over the past few years, building on the foundational work of organizational and individual leaders over the past few decades, and in response to the Lancet's 2009 statement that "climate change is the biggest global health threat of the 21st century."[6] Although often effective, and always well- intentioned, the impact of these initiatives can be limited due to a lack of coordination and strategic oversight. This report attempts to bring that missing coordination and strategic oversight to advance planetary health and climate resilient, sustainable low carbon healthcare for educational and medical institutions in Canada. It is the authors' hope that organizational and government leaders and decision-makers understand the urgency of the situation, take the recommendations herein seriously, and allocate financial and human resources accordingly as soon as possible. As the movement grows, we know they will. However, as stated earlier—later is too late to prevent outcomes that could critically destabilize health and healthcare in Canada.

Importantly, the leadership of **one** person is often required to start a team and to set any given project in motion.

The more powerful the individual, the truer this is. However, persistent, strategic work, often by people with little institutional power, is what has gotten the movement for planetary health this far.

One thing is absolutely certain: ***What you do matters.***

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Appendix A: Planetary and Global Health Committee Survey that was circulated to medical schools in March 2023 and January 2024

APPENDIX A: PLANETARY AND GLOBAL HEALTH COMMITTEE SURVEY THAT WAS CIRCULATED TO MEDICAL SCHOOLS IN MARCH 2023 AND JANUARY 2024

1. What is your name?
2. What organization are you representing on this Committee?
3. What is your specific role within your institution?
4. Are planetary and global health linked within your institution?
5. Does your institution have a clearly defined direction for planetary and/or global health?
6. Are you engaging with the Planetary Health and/or Global Health Student Report Cards?
7. How are the recommendations from these Report Cards being implemented?
8. What resourcing does your institution provide for this area of work (e.g. staff FTEs, etc.)
9. What are some key activities you are currently undertaking in the areas of planetary and/or global health?
10. What are some challenges you are currently addressing in the areas of planetary and/or global health?
11. What do you hope to see being mobilized with this Committee's work?