

## An approach to implementing planetary health teaching in medical curricula

### Une approche pour mettre en pratique l'enseignement de la santé planétaire dans les programmes d'études médicales

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Published ahead of issue: Sept 1, 2022; CMEJ 2022 Available at <https://doi.org/10.36834/cmej.75514>

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It is well-established that climate change is the greatest global health threat of the 21<sup>st</sup> century. While the health impacts of climate change, environmental degradation, and biodiversity loss are increasing the demands on healthcare services and disrupting the provision of healthcare, the healthcare sector is simultaneously contributing to these intersecting planetary health challenges. By recent estimates, healthcare contributes to 4.4% of global greenhouse gas emissions.<sup>1</sup> Therefore, healthcare professionals (HCPs) have a crucial responsibility to understand and address the drivers and health impacts of climate change. Developing this fundamental understanding positions HCPs to advocate for health system and practice transformations that prioritize the health of patients, communities, and the planet.

#### How do medical schools currently teach planetary health?

In a recent international study, the majority of HCPs believed that climate change will harm their patients (77%) and future generations (93%); however, lack of knowledge (41%) was cited as a key barrier to their engagement in climate action.<sup>2</sup> Health educators worldwide have recognized the urgent need for curricula that address these knowledge gaps and prepare future HCPs to practice in a volatile climate.<sup>3</sup> However, only 15% of medical schools worldwide provide teaching about climate change.<sup>4</sup> This finding is reflected in Canada; in 2019, only ten out of

Canada's seventeen medical schools had any representation of climate and health in their curricula.<sup>5</sup> In 2021, though this number increased to 16 out of 17 medical schools, only seven schools evaluated students on planetary health content and a mere three provided longitudinal planetary health learning opportunities spanning the preclinical and clinical years of medical school. In particular, key gaps were identified in teaching on healthcare sustainability and climate justice.<sup>6</sup> These are missed opportunities for medical students to learn how to practice on a smaller carbon footprint and to care for patients experiencing health inequities exacerbated by climate change.

#### What planetary health competencies need to be universally integrated into medical curricula?

The Canadian Federation of Medical Students' Health and Environment Adaptive Response Taskforce (CFMS HEART) has developed planetary health medical educational competencies, which includes 11 competencies distributed into three foundational domains: 1) Advancing Planetary Health Justice, 2) Managing and Preventing Health Impacts, and 3) Leading and Collaborating on Mitigation and Adaptation.<sup>7</sup> These competencies were developed through literature review, consultation with interdisciplinary experts in planetary health, and curriculum mapping onto the national accreditation standards for Canadian

physicians and the CanMEDS roles, an internationally recognized competency framework for medical practice.<sup>8</sup> Each competency is operationalized into a skill that future physicians can harness to weave planetary health principles into their future clinical practice, advocacy, leadership, and scholarship. Further, the competencies acknowledge the climate crisis as inherently a justice issue. Marginalized communities continue to be disproportionately affected by climate change, despite having contributed least to greenhouse gas emissions. Marginalized voices have also been historically underrepresented and overlooked in climate action efforts, despite the fact that Indigenous communities worldwide have been environmental stewards since time immemorial. Therefore, the competencies are framed from a climate justice lens and with an aim to meaningfully center Indigenous ways of knowing. Emphasizing justice and Indigenous perspectives prepares medical learners to provide care that optimizes both the social and environmental determinants of health, and that harnesses traditional approaches to reduce the environmental harms of healthcare.

### How can these planetary health competencies be universally integrated into medical education?

In our path to implement universal educational standards for planetary health in medical curricula Canada-wide, we have encountered two significant barriers: 1) the limited space for new curricular content, and 2) the lack of faculty expertise to provide effective teaching. Our experiences align with the literature; a minority of health educators from a large Australian university reported confidence to explain (36.9%) and inspire (44.2%) students to incorporate planetary health principles into their practice.<sup>9</sup> The CFMS HEART has developed a series of evidence-based *Climate Wise* slides to address these observed barriers and enable prompt curricular change.<sup>10</sup> This open-access repository of slides are an approach to integrate our planetary health medical educational competencies into pre-existing medical curricula. Each slide teaches future physicians about the impact of climate change on patient health as well as how healthcare practice and systems can be transformed to advance climate change adaptation and mitigation. For example, a respirology faculty lecturer could integrate the air pollution and respiratory diseases slides in their lecture on asthma to teach students about the negative impacts of air pollution on respiratory health and how to counsel patients to reduce their exposure to air pollution. They are organized by system (e.g. cardiology)

and specialty (e.g. pediatrics), which is concordant to the design of most preclinical and clinical curricula worldwide, respectively. These slides work within the limited space for curricular content through their ease of integration into existing lectures. Further, these slides provide a well-researched pedagogical tool for planetary health that can be taught by instructors regardless of their expertise in planetary health topics.

We believe that our approach to planetary health education is easily adaptable to diverse settings, cultures, and healthcare professional curricula. Medical institutions that incorporate these competencies and the associated slides into their curricula will prepare their learners to identify and manage climate-related illnesses, to advocate for low-carbon and climate-resilient healthcare systems, and to collaborate on transdisciplinary initiatives drawing upon diverse ways of knowing to build healthy, thriving and just environments for all.

**Conflicts of Interest:** The authors declare no competing interests.

**Funding:** The *Climate Wise* slides were funded by the Canadian Federation of Medical Students, the University of Calgary Sustainability Office, and the Calgary Medical Student's Association Endowment Fund. The curriculum competencies did not receive any funding.

**Acknowledgements:** The authors would like to acknowledge the many medical students and faculty reviewers including Dr. Atanu Sarkar, Dr. Andrea Hull, Dr. Claudel Pétrin-Desrosiers, Dr. Sonja Wicklum, Dr. Husein Mooloo, Dr. Edward Xie, Dr. Warren Bell, Dr. Nicole Redvers, Dr. Laura Muldoon, Dr. Signe Richer, Dr. Melissa Lem, and Dr. Finola Hackett who contributed to the curriculum competencies and the *Climate Wise* slides.

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Published ahead of issue