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Ontario Medical Students Association
Association des étudiant·e·s de médecine de l'Ontario

POSITION PAPER

OMSA Position on Climate Change and Planetary Health

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INTRODUCTION

The climate crisis is the greatest global health threat of the 21st century [1,2]. With the well-documented intersections between climate change and health and its disproportionate effects on marginalized populations, it is necessary for the Ontario Medical Students Association (OMSA) to adopt an unequivocal stance in advocating for a sustainable, resilient healthcare system that places the climate crisis at the forefront of its priorities, adapting to the current effects of climate change and mitigating worsening climate impacts in the future.

The climate crisis

Climate change is currently the largest global health threat in the world [1,2]. The harmful impact of climate change has already led to ocean acidification, land degradation, water scarcity, overexploitation of fisheries, and biodiversity loss [3]. Climate-related impacts on health seen recently in Canada include wildfire-related asthma, tick-borne disease, and heat-related illnesses during heat waves. Climate and planetary health advocacy is necessary to ensure the health of future generations as human health depends on natural systems. As the OMSA represents all medical students in Ontario, there should be a resounding commitment to climate advocacy. As future physicians, it is imperative for us to take the initiative to prioritize the health of patients.

The intersections of planetary health and human health

The health consequences of human-driven climate change and environmental degradation have been extensively studied. The 2020 Lancet Countdown on health and climate change report concluded that unless urgent action is taken, climate change will severely impact global health, disrupt livelihoods, and overwhelm health care systems [4]. 2020 and 2016 have been the hottest years on record, a blaring alarm bell signalling that we are at a critical juncture for urgent action [5].

As we have witnessed across the country, all Canadians are vulnerable to the consequences of climate change. The increased frequency of flooding, forest fires, hurricanes, and vector-borne diseases are a pervasive reminder that we are all at risk [2,3,4]. However, vulnerable groups, such as indigenous populations, rural and northern communities, persons facing precarious housing and financial situations, as well as seniors and children, are disproportionately affected by the climate crisis [2,6]. Notably,

Indigenous and Northern populations are losing their livelihood due to changes in sea ice and permafrost. These communities face increased challenges to accessing safe water, along with increased exposure to carcinogens and heavy metals in their sustenance. Furthermore, melting permafrost threatens critical infrastructure in such communities, including water and power supplies [7]. People living at or below the poverty line bear a disproportionate burden of the increasing costs of food, from higher costs of food production and unpredictable harvests [2,3]. The increased prevalence of heat waves has resulted in the exacerbation of heat-related illness disproportionately affecting seniors [3]. Research has revealed the presence of microplastics in the placenta of pregnant women [8]. These are only a handful of the countless devastating effects that the climate crisis has had in Canada. These impacts will undoubtedly be exacerbated without immediate, intersectional action that prioritizes the well-being of the populations at most significant risk. Across the levels of government, measures have been taken to reduce greenhouse gas emissions, including the ratification of the Paris Climate Accords and carbon emission pricing schemes. However, given the magnitude of the issue, comprehensive climate policies must be enacted at every level in every organization, including the OMSA.

There is no question that human activity is driving unprecedented changes to our climate and environment. There is some debate as to whether we should mitigate the problem by dramatically cutting our greenhouse gas emissions or by trying to adapt to the effects of the change. At present, the global response to this growing crisis has been sluggish at best. However, with the leadership of future physicians, we can take concrete steps to mitigate the toll climate change will have on human health.

PRINCIPLES

The OMSA strives to advocate for Ontario medical students and the systems and communities they serve. Climate change challenges many aspects of community health and is influenced by various levels of the healthcare system. According to a recent survey of the Canadian Medical Association (CMA), 9 of 10 members expressed concern for climate change, and more than 75% believed that it would have a pronounced effect on various health issues in the following decade [9]. It is a crisis of growing concern within the medical community, and one which medical students will play a role in mitigating; as such we endorse the following principles:

1. Climate change is the single greatest threat to human health in the 21st century.

2. Planetary health education should be a requirement for all UGME programs across Ontario and Canada.

3. Organizations representing health care workers and students should divest from all forms of fossil fuel related investments.

4. Medical students, as future health care practitioners, should be making all possible attempts to reduce their ecological footprint to minimize their impact on the health burdens of climate change and to show leadership in the pursuit of planetary health.

RECOMMENDATIONS

The Ontario Medical Students Association recommends the following:

1. **That the Ontario Medical Students Association shall declare a climate emergency, to acknowledge the public health threat posed by climate change, and advocate in support of carbon neutrality in the Canadian healthcare system.**

Healthcare professionals and trainees are uniquely positioned to serve as advocates for the health of our current and future populations. However, environmental sustainability and climate adaptation and mitigation efforts remain a largely overlooked aspect of health advocacy. It is thus imperative for the

OMSA to take a firm stance on the climate emergency in pushing for a sustainable and resilient healthcare system that places the climate crisis at the forefront of its priorities. The COVID-19 pandemic has demonstrated the necessary role of physicians and trainees as key leaders in responding to global health threats. A similar response must be immediately carried out in response to “the single biggest health threat facing humanity”, as described by the World Health Organization [10].

As part of the Paris Agreement in 2015, countries committed to limit global warming to well below 2ºC [11]. Yet, nationwide emissions from Canada and other countries are not on target to meet this reduction. Estimates from the Lancet Countdown on Health and Climate Change (2019) suggest that Canada’s health industry produces 4% of the country’s total greenhouse gas emissions and has the third-highest per capita emissions [11]. Further research has demonstrated that the use of specific anesthetic gases, such as Desflurane, the required ventilation of operating rooms using these gases, and the overuse of medical procedures including endoscopy, contribute to the large carbon footprint created by Canada’s health care sector [12] [12,13]. Physicians and medical students are uniquely positioned to act against the effects of climate change by not only raising awareness, but also using this knowledge to influence their daily practice. For example substituting desflurane for sevoflurane, a readily available and safe alternative anesthetic gas, that offers a significant reduction in burden of operating rooms on the climate [14].

The recommendations put forth by the 2020 Lancet Countdown on Health and Climate Change include 43 indicators across five sections regarding mitigating the impacts of climate change [3]. As per indications 3.1.3 and 3.6, there is an urge for zero carbon emission electricity and a need to mitigate greenhouse gas emissions from the health care sector, respectively. Moreover, recommendations 11 and 13 from the CMA policy on *Climate Change and Human Health* encourage integrating health care professionals into the treatment of climate-related health emergencies, while also suggesting that healthcare professionals should be focused on reducing their environmental impact through their practice [15].

Interestingly, other health care systems have made significant steps towards climate change mitigation, such as the National Health Service (NHS) in England that has committed to being the world’s first net zero health system [16]. The NHS has recorded their baseline carbon footprint and is actively quantifying the effect of different sources of emissions on their carbon footprint. Similar efforts have been made in the USA and Australia [17,18]. While Canada has committed to a net-zero carbon footprint by the year 2050, the healthcare sector has not been explicitly outlined and held accountable for reaching this target. Advocating for this goal is a necessity, as research has shown that Canada’s total 4% of greenhouse gas emissions from the health care sector contributes to a loss of 23, 000 disability-adjusted life years annually [18,19]. Moreover, the overall effects of climate change and greenhouse gas emissions in Canada have begun to disproportionately affect Northern Indigenous communities as melting permafrost has harmed their hunting systems, infrastructure, and caused more illness and injury [20]. Further effects of climate change include increased mortality and morbidity from extreme weather fluctuations, food insecurity, greater susceptibility to infectious disease vectors, and changes in air quality associated with cardiopulmonary morbidity and mortality [3].

The Ontario Medical Students Association must support its members by adopting a strong stance in support of a sustainable and resilient healthcare system that places the climate crisis at the forefront of its priorities, through advocating for and adopting the recommendations placed forth by the *2020 Lancet Countdown on Health and Climate Change* and the CMA policy on *Climate Change and Human Health.* We ask that the OMSA encourage 100% carbon neutrality in the Canadian health care system and encourage Canadian medical students and physicians to advocate for sustainable practices in the health

care sector in line with the recommendations. The OMSA can advocate for the recommendations set forth by the CMA and Lancet Countdown by adding it as one of the central commitments of the OMSA Strategic and Financial Plan. Namely, an eighth commitment could include “Improved focus on climate change and the contributions of the health care system”. Additionally, as per the OMSA Advocacy Values & Guiding Principles, the subsection titled “A stable ecosystem and sustainable resources” for patients could include a mention of not only the future availability of natural resources, but also a commitment to carbon neutrality and a sustainable health care system. Lastly, we ask that the OMSA appoint a member of their advocacy portfolio as a liaison or ambassador with Canadian Federation of Medical Students’ Health and Environmental Adaptive Task (CFMS HEART) to coordinate advocacy efforts and collectively ensure its urgency is incorporated into decisions about the medical curricula and are made aware of for medical students.

2. **That all Ontario undergraduate medical education programs should complete the planetary health report card and implement intersectional planetary health curricula that teach according to the 11 planetary health competencies developed by the Health and Environment Adaptive Responsive Task Force (HEART), within the Canadian Federation of Medical Students (CFMS).**

With each year that passes, the profound impact of the climate crisis on human health becomes harder to ignore. Both the World Health Organization and the International Federation of Medical Students’ Associations have recently taken the position that climate change represents the single biggest health threat to humankind [21, 22]. These actions should impress upon all medical schools, in Ontario and globally, the gravity of the health challenges posed by climate change.

Healthcare professionals already appreciate the need for further planetary health education. A 2021 survey of medical professionals by The Lancet (which included mostly Canadian medical professionals) found that the vast majority believe the climate crisis will cause moderate or severe harm to themselves, their patients, their community, and future generations [23]. However, more than 40% of participants felt that they lacked sufficient knowledge to engage with the public about climate change issues, and over 75% desired further professional education on climate change and health.

Moreover, only 3 out of 17 Canadian medical schools provide appropriate climate and health education as of 2019 [23, 24]. This lack of climate change knowledge and resulting reluctance to engage with planetary health issues is immensely concerning, since physicians can no longer afford to be blind to the health challenges of climate change. As explained by Maxwell & Blashki, a thorough Planetary Health curriculum that illustrates the health impacts of climate change is crucial in preparing physicians for clinical practice during the climate crisis, as well as for enabling physicians to be protectors and advocates of public health in the context of climate change [25].

It is similarly vital that planetary health concepts are not taught in isolation, as the health effects of climate change are not separate from existing determinants of health. As reported by the WHO, climate-related health risks (such as heatwaves, the spread of vector-borne disease and disruption to food supply) are disproportionately suffered by communities already disadvantaged by existing health determinants, such as minority groups, the elderly and those of lower socioeconomic status. Similarly, many impacts of climate change on health must be understood through their impacts on existing social determinants of health, such as the ability to earn a good livelihood and access to health care [26].

Fortunately, HEART has recently developed a framework of 11 educational competencies that can guide the implementation of planetary health curricula in Ontario medical schools [27]. These competencies were developed based on a comprehensive literature review determining the most important topics of instruction, assessment by environmental health experts and feedback from Canadian medical students. They are divided into three domains, which collectively address all shortcomings of planetary health education illustrated above [28]. Briefly, the “Managing and Preventing Health Impacts” domain ensures that students have not only a fundamental understanding of the major health threats of

climate change, but also a foundation on how to manage and treat them. The “Advancing Planetary Health Justice” domain highlights the intersectionality of social and environmental determinants of health, and the “Leading and Collaborating on Mitigation and Adaptation” domain ensures that students are prepared to both respond to the health effects of climate change in practice and promote public health in the face of climate change through education and advocacy (including vital advocacy for sustainable change within the healthcare system itself, for which doctors as healthcare leaders must play a central role). The competencies of each domain overlap, thus ensuring the existing shortcomings in planetary health education are thoroughly addressed. A specific manner in which the competencies can be incorporated into curricula is through the evidence-based *Climate Wise* slides also developed by CFMS HEART [29]. The slides are organized by system (e.g. cardiology) and specialty (e.g. pediatrics) for ease of integration and to work within the limited space for curricular content. Further, these slides provide a well-researched tool for planetary health to be easily accessible for instructors.

All Ontario medical schools should adopt the HEART competencies in implementing new Planetary Health curriculums. This adaptation will allow medical students to gain a thorough understanding of the intersectional health threats of climate change, prepare students to respond to these threats in the real world, as well as promote public health awareness through education and advocacy.

3. **That Canadian health organizations and universities should follow the lead of the CMA by divesting from companies whose primary source of income rests in fossil fuels, pushing for investment in the growth of sustainable industries including clean energy and zero-emission transportation/building sectors.**

Divestment is the process of selling stock holdings or investment funds. From the perspective of social responsibility, divestment is rooted in an ethical obligation to avoid supporting businesses that cause harm or injustice. A prime example of healthcare-led efforts is the tobacco divestment campaign, which served to bring public attention to the health harms of smoking and reduce tobacco usage and mortality [30]. This campaign elucidated an important lesson: divestment delegitimizes an industry, and creates space for policy changes. Historically, divestment has precipitated governmental action and regulation, as well as a change in public societal perceptions [30,31]. Likewise, fossil fuel divestment seeks to stop supporting fossil fuel industries producing gas, oil, and coal which are responsible for a significant portion of anthropogenic greenhouse gas emissions [32].

From a health lens, fossil fuel emissions are responsible for a diverse host of negative health effects. In particular, they are responsible for 65% of excess mortality rate attributable to air pollution [31]. Air pollution increases mortality from cardiovascular, respiratory, and other diseases [32]. Yet, despite their negative effects on human and planetary health, fossil fuel companies continue to lobby governmental bodies to receive indirect subsidies, postpone implementation of climate regulation policies, and run disinformation campaigns to indoctrinate the public with climate denial [33]. Divestment from fossil fuels aims to reveal the industry’s destructive environmental influence, hoping to generate public support for their censure, and initiate the phasing out of fossil fuels [33]. Ultimately, the divestment campaign will create an echo chamber for public awareness and discussion. We hope to yield the power of institutions to enact policy changes and drive reinvestment of capital into clean energy.

The international fossil fuel divestment movement has surged to 1508 organizations in 2022 from 440 organizations in 2015. Together, these organizations have divested more than 40 trillion USD from fossil fuels [34]. However, a closer look reveals that healthcare organizations only compose 1.1% of these institutions globally [34]. Such institutions include hospital endowment funds, as well as health care worker pension funds. For example, the Healthcare of Ontario Pension Plan (HOOPP), an organization responsible for investing the retirement savings of over 400,000 Ontario health-care workers, remains heavily invested in the fossil fuel industry [35].

As healthcare providers, we have committed to a “do no harm” principle. Therefore, we have an ethical obligation to stop supporting the fossil fuel industry that causes so much harm. As made evident by the pandemic, healthcare leaders are privileged by society with power and responsibility for providing

leadership on matters of health. Thus, we recommend that the OMSA lobbies administrations, like the OMA, to better public health through divestment and to join a growing movement that already includes the World Medical Association, British Medical Association, and Canadian Medical Association [34]. The decision to divest will send a strong message to all health professionals and medical societies that we are committed to fulfilling our responsibility to protect the health of our patients and communities.

Fiduciary duty, or financial responsibility, is often used as an argument against divestment of fossil fuels [35]. Yet, numerous analysts, notably those at the London School of Economics, HSBC, and Impact Asset Management, report that fossil fuel companies are overvalued by as much as 40% to 60% [35]. Leading financial experts such as BlackRock—the world's largest investment organization—are now encouraging investors to divest and reinvest in green solutions, as climate change will inevitably make fossil fuels obsolete and renewable energy the future. Furthermore, BlackRock reported divesting investments produced neutral to positive results, with no significant negative performance; these studies demonstrate that divestment both reduces long-term financial risk and increases financial returns [36, 37]. However, divestment alone is not sufficient. Institutions must additionally invest in clean, renewable, and sustainable infrastructure, supporting our transition to a fossil-free economy [38].

We believe that medical professionals and students have a responsibility to protect public health and reduce the negative impact of climate change on patient morbidity and mortality. Thus, we recommend the OMSA follow a two-pronged approach: (1) lobby healthcare organizations to divest from fossil fuels, and; (2) collaborate with an investing firm to create an ethical investment policies document. Firstly, we ask that the OMSA call on healthcare organizations such as hospital and university endowment funds as well as health care worker pensions funds to cease investment in fossil-fuel-related companies. Organizations must publicly commit to fully divesting from and stopping all financing of coal, oil, and gas companies and assets. Institutions should adopt Net Zero plans that immediately cut investments in fossil fuels and ensure that all assets in the portfolio have transition plans that halve absolute emissions by 2030, consistent with science's demands to limit global warming to 1.5°C. Secondly, the OMSA should call on health organizations and universities to create and use an ethical investment policies document, with the Sustainable Finance Disclosure Regulation as a starting framework [39]. These guidelines will help institutions practice socially responsible investing where human rights and environmental standards are respected. The OMSA should encourage organizations to reallocate funds to climate solutions, including investments in renewable energy systems and universal energy access. We ask that the OMSA recommend organizations to invest a minimum of 5% of their assets in climate solutions, doubling to 10% by 2030. Ultimately, this two-pronged approach is a plan we as medical professionals must commit to, if we are to uphold our duty of protecting patients and improving public health.

4. **That OMSA, in collaboration with Canadian Federation of Medical Students (CFMS), petitions the Association of Faculties of Medicine of Canada (AFMC) to adopt a virtual process for all future Canadian Residency Matching Service (CaRMS) interviews as a measure to reduce the carbon emissions footprint of medical students. This should occur following appropriate consultation between medical students and the AFMC.**

The CaRMS interview tour is an annual process in which fourth year medical students from across the nation interview to match to a residency program [40]. Prior to 2021, these interviews were held in person with applicants attending an average number of 7.2 interviews each in 2020 [CaRMS 2020]. As demonstrated in a research study by Liang et al. 2021, the average candidate's tour emissions represent 35.1% of the average Canadian's annual household carbon footprint. Holding these interviews virtually eliminates the carbon footprint of this process almost entirely [41].

In response to the COVID-19 pandemic, the Association of Faculties of Medicine of Canada (AFMC) took the decision to conduct all interviews virtually [40]. This action has virtually eliminated the greenhouse gas emissions that would otherwise have been produced by in-person CaRMS interviews. However, as travel restrictions are lifted across the country, programs may choose to return to in-person interviews. Beyond the greenhouse gas emissions, in person CaRMS interviews are an additional financial pressure on fourth year medical students who often carry a deep burden of debt at this stage of

their schooling [43]. Additionally, the process can be time consuming with the average candidate missing 4.6 days of class time to attend interviews and other associated events [42].

One aspect to consider in transitioning to a complete online interview process is that of student buy-in. In a CaRMS survey on the interview experiences of Canadian medical graduates in 2020, 44% of respondents were neutral or disagreed with the statement: “on-site interviews are worth my time and money spent travelling” [44]. It is important to consider that this data predates the first online interviews and as of yet; CaRMS has not published a follow-up report since holding 2 rounds of successful virtual interview and match cycles. The OMSA should recommend that the Association of Canadian Faculties of Medicine (ACFM) conduct a proper consultation and survey with Canadian medical students to explore their opinions on the virtual interview process. This should include a summary of climate, financial and time factors of hosting virtual CaRMS interviews.

Given that climate change is recognized as the most significant threat to human health in the 21st century [3], medical students, as future physicians and practitioners of health care should be making all possible attempts to reduce their contribution to this problem. Considering that CaRMS is a national residency matching system, we recommend that the CFMS lead this initiative. The Health and the Environment Adaptive Response Taskforce (CFMS-HEART) a subcommittee of the CFMS has endorsed a position on virtual interview in their 2021 open letter and campaign #KeepCaRMSVirtual [44]. By advocating for permanent practice of virtual CaRMS interviews, the OMSA endorses a concrete action to reduce the carbon footprint of Ontario and Canadian medical students in a process that has now been validated over two consecutive match cycles (2021 and 2022).

5. **The OMSA shall adopt a set of sustainable practices guidelines for events and activities the organization hosts and encourage the individual medical student governments it represents to adopt similar practices.**

Sustainability has become a central pillar in global policy, commerce, and education as the pace of climate change is quickening with its effects being felt worldwide [3]. Considering the calls to action by the CMA and Lancet countdown on climate change for health care practitioners to adopt sustainable policies that limit our ecological footprint [3,46], it is imperative that the OMSA take action to reduce its impact on climate change by creating a policy of sustainability to govern its practices. This policy should take the form of a set of guidelines to ensure events and activities organized by the OMSA and its members follow sustainable practices. The scope of these guidelines should apply to all events and meetings organized by the OMSA, which includes but is not limited to the leadership summit and AGM, the OMSA day of action, the Ontario medical student retreat, and the Ontario student medical education conference. The OMSA should offer this policy as a roadmap for medical societies of each medical school to adopt as well.

These guidelines should include measures for reducing the impact of travel on greenhouse gas emissions, ending the use of single-use plastics at all events, encouraging adoption of sustainable food sources when catering events, and mandating the use of appropriate waste sorting and disposal for all events and activities. Such a policy could follow the model set out by the Sustainable Events Guidelines ratified by the The Aesculapian Society of the University of Ottawa [47].

Given that transportation accounts for 24% of greenhouse gas emissions in Canada [48], the OMSA should encourage all participants to its events to take measures to reduce their travel emissions. This includes the encouragement of virtual participation in all events, recommending the use of sustainable modes of transportation and the purchase of carbon offset when feasible.

It is estimated that 29 000 tonnes of plastic waste enters the environment in Canada each year [46]. As plastic degrades very slowly and is persistent in the environment, the amount of plastic pollution is anticipated to continue to increase over time. There are growing concerns that plastic pollution may adversely impact the health of the environment and humans as it breaks down and releases degradation products [49]. The federal government of Canada is preparing to implement a ban on single use plastic items, but this ban is limited in scope and has yet to be implemented [50]. Thus, the OMSA should proactively mandate an end to the use of all single use plastic items at all events it organizes. This ban

should include all forms of single use plastic and polystyrene utensils, straws, bottles, and bags. In addition to this, event organizers should reduce plastic waste by avoiding products with excessive non-biodegradable packaging. In order to mitigate the impact of this policy, event organizers may ask participants to bring their own reusable containers and cutlery or provide reusable plates and cutlery.

Food is a critical aspect of the determinant of human health and environmental sustainability. Our current global food system does not have the capacity to meet the nutritional needs of our growing population without irreversible damage to the planet. For this reason, the Lancet Healthy Diets from Sustainable Food Systems recommends the adoption of a planetary health diet that prioritizes plant-based foods and diets that are locally sourced [51]. When catering events, the OMSA must adopt a policy of prioritizing plant based foods and reduce the consumption of greenhouse gas intensive foods, such as meat and dairy products, and seek vendors that provide foods that are locally sourced.

Appropriate waste sorting is necessary to ensure recyclable and compostable materials remain separate from waste destined for landfills. Waste sorting helps reduce our collective ecological and carbon footprint while ensuring valuable materials get a second life. In addition, institutions should ensure hazardous waste products, such as chemical waste, batteries, and electronic waste, are properly disposed to reduce the risk of harmful toxins being released into the environment. The OMSA should ensure that proper waste sorting facilities are accessible at all its hosted events and ensure participants are educated on the proper use of these facilities.

The final arm of this policy is to promote event sustainability at all OMSA events. Event participants will be informed of the sustainable policies and practices the OMSA has implemented to ensure a sustainable event, and how to contribute to this effort.

Overall, the creation of a Sustainable Events Guidelines will provide concrete steps to help OMSA event organisers promote sustainability at OMSA functions, for instance providing directions to an event by public or active transit, highlighting the location of recycling and composting stations, highlighting vegetarian and vegan food options, and offering ways to connect virtually when possible.

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