Planetary Health Report Card:

University of Ottawa

uOttawa

Faculté de médecine
Faculty of Medicine

Land acknowledgment

The writers of this report, on behalf of the University of Ottawa, would like to pay respect to the Algonquin people, who are the traditional guardians of this land. The city of Ottawa is located on the unceded land of the Algonquin Anishinabe Nation. We acknowledge their longstanding relationship with the Ottawa territory, which remains unceded. We pay respect to all Indigenous people in this region, from all nations across Canada, who call Ottawa home. We acknowledge the traditional knowledge keepers, both young and old. And we honour their courageous leaders: past, present, and future.

2021-2022 Contributing Team:

● **Students**: Niève Séguin*, Sahil Arora, Vanessa Bournival, Andréa Brabant, Lina Chen, Liam Quatermain, Maria Madana

● **Faculty Mentors**: Husein Moloo

● ***Primary Contact**: Niève Séguin, nsegu020@uottawa.ca

Summary of Findings

Overall	C

Curriculum	C

- Planetary Health has been discussed in the process of curriculum renewal occurring in 2022.
- **Recommendations:** The curriculum lacks longitudinal integration, with only a singular one-hour lecture that is devoted to the topic in Year 2. The Faculty of Medicine is making efforts to provide a well-rounded Planetary Health curriculum. We acknowledge the efforts made by the Faculty of Medicine and we are encouraging continuation and follow-through of the progress made. Furthermore, there is improvement to be done in sustainable clinical practice teaching.

Interdisciplinary Research	C

- Large strides have been made since the appointment of Dr. Husein Moloo as the Director of Planetary Health. Dr. Moloo has made planetary health the focus of his research, led collaboration with the Global Consortium on Climate and Health Education, and helped establish the first research symposium on planetary health.
- **Recommendations:** significant work remains to be done in Planetary Health research, such as establishing a dedicated department, and creating a partnership with community members affected by climate change.

Community Outreach and Advocacy	F

- The Faculty of Medicine does not engage with community organizations, or provide community-directed events, to promote planetary health at this time.
- **Recommendations:** Considering the multiple organizations in Ottawa which focus their efforts towards Planetary Health and sustainability, such as MDMOMS4HealthyRecovery, we believe strong partnerships could be created, especially considering their involvement in the Climate Change and Health lecture.

Support for Student-Led Initiatives	B

- Interested medical students can pursue planetary health initiatives through existing programs with non-specific focuses, such as the Leadership elective and Community Service Learning. The Planetary Health interested group has received both funding and faculty support.
- **Recommendation:** considering the multiple initiatives, it would be crucial to have an accessible website that contains and summarizes information about different ways that students can get involved.

Campus Sustainability	C+

- The Office of Campus Sustainability is well-established, with multiple effective programs for the entire university. PPE recycling and sustainable event guidelines have been initiated in 2021. There is also a strong focus on energy efficiency and sustainable construction on campus, which saved 5 million kwH of energy in 2016 by retrofitting the medicine building.
- **Recommendations:** Most sustainability events or initiatives are occurring at the main campus which is separate from the medical school. Medical students can participate but there is no active promotion. There is work to be done on actively involving the medical students within the institution's sustainability efforts.

Statement of Purpose

Planetary health is human health.

The Planetary Health Alliance describes planetary health as "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." This definition is intentionally broad, intended to encompass the multitude of ways that the environment can affect health, including water scarcity, changing food systems, urbanization, biodiversity shifts, natural disasters, climate change, changing land use and land cover, global pollution, and changing biogeochemical flows. The health of humanity is dependent on our environment and our environment is changing rapidly and in disastrous ways. Although the World Health Organization has called climate change "the greatest threat to global health in the 21st century," many medical school's institutional priorities do not reflect the urgency of this danger to human health.

As future health professionals, we must be prepared to address the impacts of human-caused environmental changes on our patients' health. This preparation is in the hands of the institutions providing our medical training. It is imperative that we hold our institutions accountable for educating medical students about the health impacts of climate change and other anthropogenic environmental changes, generating research to better understand health impacts and solutions, supporting related student initiatives, embracing sustainable practices as much as possible, and engaging with surrounding communities that are most affected by environmental threats. Because climate change and environmental threats disproportionately affect vulnerable populations (for example, communities of color, older adults sensitive to health threats, and individuals in low-resource settings), these issues are inherently ones of equity and justice.

With the purpose of increasing planetary health awareness and accountability among medical schools, we have created a Planetary Health Report Card that medical students internationally can use to grade and compare their home institutions on an annual basis. This medical-student-driven initiative aims to compare medical schools nationally and internationally on the basis of discrete metrics in five main category areas: 1) planetary health curriculum, 2) interdisciplinary research in health and environment, 3) University support for student planetary health initiatives, and 4) community outreach centered on environmental health impacts 5) medical school campus sustainability.

Definitions & Other Considerations

Definitions:

- **Planetary Health:** is described by the *Planetary Health Alliance* as "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". For example, topics such as climate change, declining biodiversity, shortages of arable land and freshwater, and pollution would all fall under the realm of planetary health. Both planetary health and traditional 'environmental health' examine the relationship between human health and the external environment, including extreme temperatures, chemicals, vector-borne diseases, etc. Planetary health explicitly concerns itself with the potential health harms associated with human-caused perturbations of natural systems. Therefore, the human health focus of planetary health makes the field well-adapted for the context of medical school education. Throughout this report card, we use the term planetary health to refer to this broad swath of topics, but resources do not need to explicitly include the term "planetary health" to satisfy the metric.

- **Education for Sustainable Healthcare (ESH):** is defined as the process of equipping current and future health professionals with the knowledge, attitudes, skills and capacity to provide environmentally sustainable services through health professional education, thus working to decrease the enormous environmental impact of the healthcare industry. Planetary Health Education is an integral part of this education rather than an end in itself. This is because knowledge on Planetary Health is required to be able to fully understand the necessity of sustainable healthcare as well as being part of the broader knowledge needed to fully protect and promote health. In summary, ESH is covered by the three Priority Learning Outcomes of the Centre of Sustainable Healthcare below, and Planetary Health Education is embraced in the first learning objective and is a fundamental requirement to achieve learning outcomes 2 and 3:

    1. Describe how the environment and human health interact at different levels.

    2. Demonstrate the knowledge and skills needed to improve the environmental sustainability of health systems.

    3. Discuss how the duty of a doctor to protect and promote health is shaped by the dependence of human health on the local and global environment.

- **Medical School vs. Institution:** When "medical school" is specified in the report card, this only refers to curriculum and resources offered by the School of Medicine and does not include offerings from other parts of the university (for example, undergraduate departments (USA), other related departments eg Public Health, Population Health departments). In contrast, when "institution" is specified in the report card, we are referring to the university more broadly. Any resource reasonably accessible by medical students, no matter where in the institution the

resource comes from or if it is specifically targeted for medical students, can meet this metric.

- **Environmental history (Metric 19 in curriculum section):** This is a series of questions providers are taught to ask during medical encounters that elicits patients' exposures and environmental risk factors. Historically, this has included consideration of exposures like pesticides, asbestos, and lead, though in the modern era shaped by climate change, it can be expanded to include things like wildfire smoke exposure, air pollution and mold after flooding. Key components include place of residence over the lifecourse, occupational history, food and water sources (e.g. meat from industrial feeding operations, regular fishing in contaminated water, access to clean drinking water), and exposure to air pollution.

- **Elective:** The word "elective" refers to an optional course or lecture series that a medical student can opt to take part in but is not a requirement in the core curriculum. Generally, these elective courses take place in the preclinical curriculum but vary by school.

- **Clerkship:** This is a term used in the USA to refer to placements that medical students go on e.g. Pediatrics, General medicine, Psychiatry. In the UK these are referred to as rotations or placements.

Other considerations:

- If there are more than one "tracks" at your medical school with two different curricula (for example, Harvard Medical School has a Pathways and HST curriculum track), you can choose to fill out a report card for each track, or fill out just one report card and average the scores received by each track in cases where the scores are different (see the 2021 Harvard or Oxford report cards as example).

Added to our resources this year, the Planetary Health Report Card Literature Review by Metric collates the evidence behind each of the metrics in the Planetary Health Report Card. It serves as a collection of references for further learning and a resource for those advocating for increased planetary health engagement at their institutions.

Planetary Health Curriculum

Section Overview: ***This section evaluates the integration of relevant planetary health topics into the medical school curriculum.*** *Today's medical students will be on the frontlines of tackling the health effects of climate and other environmental changes. Therefore, it is critical that medical students are trained to understand the health effects of these changes, as well as planetary health issues and principles more broadly. Topics like the changing geography of vector-borne diseases, the health consequences of air pollution, environmental health inequities, and disaster response principles must be part of every medical school's core curriculum.*

Curriculum: General

1. Did your medical school offer elective courses (student selected modules) to engage students in Education for Sustainable Healthcare or Planetary Health in the last year?	
3	Yes, the medical school has offered more than one elective whose primary focus is ESH/planetary health in the past year.
2	Yes, the medical school has offered one elective whose primary focus is ESH/planetary health in the past year.
1	The medical school does not have any electives whose primary focus is ESH/planetary health, but there are one or more electives that include a lecture on planetary health.
0	No, the medical school has not offered any electives on planetary health or electives that include ESH/planetary health topics in the past year.

Score explanation: Although uOttawa doesn't offer an elective whose primary focus is ESH/PH, the Faculty of Medicine offers a Global Health Concentration and a Leadership Elective which gives the opportunity for students to further their learning and knowledge on ESH/PH.

The Global Health Concentration (https://med.uottawa.ca/international-global-health-office/global-health/education/global-health-concentration) is an optional curriculum that promotes global health education via didactic learning, self-teaching and experiential learning. Medical students may pick and complete whichever of offered topics interest them, and they can complete this optional curriculum over a period of 1-4 years. Planetary health is not the main focus of the global health concentration but is one of several learning topics offered (the other topics include social accountability and Indigenous health). Students that choose to pursue further Planetary Health education through the Global Health Concentration have several learning opportunities made available to them, such as workshops with topics in planetary health, as well as attending and presenting at conferences with themes in planetary health.

Furthermore, the Faculty of Medicine offers a Leadership elective for 4th year students which is a longitudinal elective that promotes leadership in healthcare via a change management project (https://med.uottawa.ca/undergraduate/education/electives/elective-opportunities/non-clinical-angloph

one). Although this elective is not directly aimed at Planetary Health or Sustainable Healthcare, one of the projects that was accepted for the 2021-2022 school year, conducted by one of our students Nathan Chiarliati, has been focusing on improving sustainable healthcare at the Ottawa General Hospital. Nathan has been working to quantify the amount of greenhouse gas emission generated directly and indirectly by the Ottawa General Hospital each year, according to the Greenhouse Gas Protocol (https://ghgprotocol.org/). Once this assessment is complete, he will meet with the Green Team at the hospital in order to discuss his recommendations for reducing the hospital's carbon footprint. In contrast to the Global Health Concentration, this non-clinical elective program does not include any lectures or instruction on Planetary Health, but it does provide an experiential learning opportunity for students interested in exploring planetary health, or any other to topic of interest.

Curriculum: Health Effects of Climate Change

2. Does your medical school curriculum address the relationship between extreme heat, health risks, and climate change?	
3	This topic was explored in depth by the core curriculum.
2	This topic was briefly covered in the core curriculum.
1	This topic was covered in elective coursework.
0	This topic was not covered.

Score explanation: This topic was discussed in the 1-hour "Climate Change and Health lecture" in Unit 2 of Year 2. The learning objective related to this topic is the following: "Explain the current and projected health impacts of climate change on the Canadian population". The first slide dedicated to this objective introduces why climate change is a public health crisis. The following slides delved into different effects of climate change in Canada such as extreme heat, air pollution, wildfires and smoke, floods and water, vector-borne diseases, mental health, as well as food and water security. Regional climate-related health risks are also outlined.

Concepts such as planetary health and environmental health were explained in the context of the learning objective: "Define Planetary Health and Environmental Health".

The topic was also discussed in the context of a case study of a 4-year-old boy with an asthma exacerbation during a heat wave. A slide was dedicated to showcasing a research article demonstrating the increase in pediatric emergency department visits during extreme heat in Southwestern Ontario.

3. Does your medical school curriculum address the impacts of extreme weather events on individual health and/or on healthcare systems?

3	This topic was explored in depth by the core curriculum.
2	This topic was briefly covered in the core curriculum.
1	This topic was covered in elective coursework.
0	This topic was not covered.

Score explanation: This topic was discussed in the 1-hour "Climate Change and Health lecture" in Unit 2 of Year 2, as part of the learning objective "Explain the current and projected health impacts of climate change on the Canadian population". The lecture discussed several examples of climate change leading to specific health consequences and included a map from the Lancet that illustrated various extreme weather trends and events across Canada, and their various impacts on human health One of the examples on the graphic is the 2013 floods in Alberta causing deaths and closing healthcare facilities. There was a focus on recent wildfire events in Canada, and the resulting effects on individual and healthcare. A slide was dedicated to flooding and its effects on health. Several other extreme weather events and their effects on health and healthcare systems were also discussed, such as droughts, and sea level rise.

4. Does your medical school curriculum address the impact of climate change on the changing patterns of infectious diseases?

3	This topic was explored in depth by the core curriculum.
2	This topic was briefly covered in the core curriculum.
1	This topic was covered in elective coursework.
0	This topic was not covered.

Score explanation: This topic was briefly discussed in the 1-hour "Climate Change and Health lecture" in Unit 2 of Year 2, as part of the learning objective "Explain the current and projected health impacts of climate change on the Canadian population". There was a slide dedicated to vector borne diseases, specifically Lyme disease and West Nile Virus, and how the ranges of these diseases as spread due to climate change, including West Nile being detected in Ottawa in 2021. These were the only two examples provided however, and there was no discussion of patterns of infectious disease outside of Canada.

There is a lack of mention of climate change as a major factor of changing patterns of infectious diseases within the microbiology block as well as in the emerging infectious diseases lecture. There are steps to be taken in order to expand on this topic in a more longitudinal way within the curriculum.

5. Does your medical school curriculum address the respiratory health effects of climate change and air pollution?

3	This topic was explored in depth by the core curriculum.
2	This topic was briefly covered in the core curriculum.
1	This topic was covered in elective coursework.
0	This topic was not covered.

Score explanation: The topic of air pollution and cardiorespiratory health is explored in depth within the respirology block. A full 45–60-minute mandatory self-learning module is dedicated to Air pollution and Lung Health. The learning objectives include the following: 1) recognize the contaminants that may affect indoor air quality and influence respiratory health and 2) List important outdoor air pollutants, their important causes, and their effects on health.

It explores the health effects of outdoor and indoor pollution, the link between air quality and lung health, the effects of CO2 and global warming and it describes criteria pollutants (NOx, CO, SO2, O3). The concept of Particle matters is explored and PM2.5 and PM10 is explained. Big smog events worldwide and in Canada are explained. The connection to health is made clear and is reinforced with estimation of premature death due to air quality. There is also a mention of biomass fuel in developing countries and wood stoves in Canada and their effect on health.

Air pollution is also mentioned briefly as one of the multiple causes in the COPD lecture as well as in the cough self-learning module and pneumonia and COPD case-based learning.

6. Does your medical school curriculum address the cardiovascular health effects of climate change, including increased heat?

3	This topic was explored in depth by the core curriculum.
2	This topic was briefly covered in the core curriculum.
1	This topic was covered in elective coursework.
0	This topic was not covered.

Score explanation: This topic was briefly discussed in the 1-hour "Climate Change and Health lecture" in Unit 2 of Year 2, as part of the learning objective "Explain the current and projected health impacts of climate change on the Canadian population". A slide dedicated to extreme heat listed heart conditions as one of the resulting aggravating health effects.

7. Does your medical school curriculum address the mental health and neuropsychological effects of environmental degradation and climate change?

3	This topic was explored in depth by the core curriculum.
2	This topic was briefly covered in the core curriculum.
1	This topic was covered in elective coursework.
0	This topic was not covered.

Score explanation: Score explanation: This topic was briefly mentioned in the 1-hour "Climate Change and Health lecture" in Unit 2 of Year 2, as part of the learning objective "Explain the current and projected health impacts of climate change on the Canadian population". This topic received one slide in the lecture and mentioned several examples of how climate change can harm mental health, such as PTSD after extreme weather events, and emotional distress from the threat of future climate-related disasters.

8. Does your medical school curriculum address the relationships between health, individual patient food and water security, ecosystem health, and climate change?

3	This topic was explored in depth by the core curriculum.
2	This topic was briefly covered in the core curriculum.
1	This topic was covered in elective coursework.
0	This topic was not covered.

Score explanation: In the Environmental Health lecture in Year 3 there is mention of water and food security and the effects of contaminants on health. Concepts such as Tolerable Daily Intake and Acceptable Daily Intake are taught. The link between air pollution and water contamination is discussed. There are 4 slides on water and threats to water sources and there are 2 slides dedicated to pesticides. "Sustainable management practices for water quantity and quality" is also mentioned as "Climate Change & Health Solutions as Health Professionals". One slide also describes Canada's Top Climate Change risks which includes a paragraph on Ecosystems and one on Fisheries.

In the "Climate Change and Health" lecture, there is one slide dedicated to food and water security as part of health effects of climate change in Canada. Examples are provided such as drought affecting supplies, availability of food from the land based on changing climate as well as melting permafrost and ice roads restricting food transport

9. Does your medical school curriculum address the outsized impact of climate change on marginalized populations such as those with low SES, women, communities of color, Indigenous communities, children, homeless populations, and older adults?

3	This topic was explored in depth by the core curriculum.

2	This topic was briefly covered in the core curriculum.
1	This topic was covered in elective coursework.
0	This topic was not covered.

Score explanation: This topic was briefly discussed in the 1-hour "Climate Change and Health lecture" in Unit 2 of Year 2, as part of the learning objective "Illustrate how climate change adversely impacts different patient populations - specifically low SES individuals, the elderly, women, children, people of color and Indigenous Peoples". One slide highlights the health inequity in vulnerable populations. It mentions that climate change amplifies health inequities and vulnerabilities, and certain groups are listed such as people with low SES, older adults and young children, Indigenous people and people living in the North, individuals with illness or chronic diseases and people experiencing existing health inequities. The concept of environmental racism was introduced, with discussion of how marginalized populations disproportionately live in more polluted areas with less greenspace access, often due to institutional bias or prejudice. Concrete examples of environmental racism discussed were that of clean water in Indigenous reserves, and some general environmental contaminants disproportionately present around populations of people of color. Furthermore, a case-based study on a 4-year-old boy with an asthma exacerbation during a heat wave was presented. A slide was dedicated to showcasing a research article demonstrating the increase in pediatric emergency department visits during extreme heat in Southwestern Ontario. The topic of income, ethnicity, housing quality and location were discussed in the context of extreme heat exposure likelihood. A map of vulnerability of Ottawa based on low income and heat impacts was shared.

In the Environmental Health lecture there is one slide dedicated to the communities most impacted by the environment such as children, the elderly, and the poor. Also, in the Air Pollution and the Lungs self-learning module, there is a specific tab dedicated to the effects of air pollution on babies.

10. Does your medical school curriculum address the unequal regional health impacts of climate change globally?	
3	This topic was explored in depth by the core curriculum.
2	This topic was briefly covered in the core curriculum.
1	This topic was covered in elective coursework.
0	This topic was not covered.

Score explanation: In the Environmental Health lecture in Year 3, one slide is a graph from the World Health Organization which shows the number of deaths linked to the environment. It highlights the disproportionate unequal number of deaths in different regions of the world.

However, this score is generous as this is the only mention in the curriculum. The emphasis on the unequal global impact is not made clear considering the burden of the issue.

Curriculum: Environmental Health & the Effects of Anthropogenic Toxins on Human Health

11. Does your medical school curriculum address the reproductive health effects of industry-related environmental toxins (e.g. air pollution, pesticides)?	
3	This topic was explored in depth by the core curriculum.
2	This topic was briefly covered in the core curriculum.
1	This topic was covered in elective coursework.
0	This topic was not covered.
Score explanation: The topic of reproductive health and toxins was not discussed in the curriculum or in elective coursework	

12. Does your medical school curriculum address important human-caused environmental threats that are relevant to the university's surrounding community?	
3	This topic was explored in depth by the core curriculum.
2	This topic was briefly covered in the core curriculum.
1	This topic was covered in elective coursework.
0	This topic was not covered.
Score explanation: Some examples of human-caused environmental threats in the region of Southern Ontario and Quebec were addressed in the Climate Change and Health lecture in Unit 2 of Year 2, as part of the learning objective "Explain the current and projected health impacts of climate change on the Canadian population". Examples given included heavy rainfall, floods, extreme heat events. For the Ottawa community specifically, the only human-caused environmental threat discussed was the expanding range of vector borne disease, and the detection of the West Nile virus in Ottawa, in 2021. Apart from the example of West Nile however, discussion about environmental threats around Ottawa specifically was limited.	

13. To what extent does your medical school emphasize the importance of Indigenous knowledge and value systems as essential components of planetary health solutions?	
3	Indigenous knowledge and value systems are integrated throughout the medical school's planetary health education
2	Indigenous knowledge and value systems as essential components of planetary health solutions are included briefly in the core curriculum.

1	Indigenous knowledge and value systems as essential components of planetary health solutions are included in elective coursework.
0	This topic was not covered.

Score explanation: In the Climate Change and Health lecture, one of the objectives is: "Illustrate how climate change adversely impacts different patient populations - specifically low SES individuals, the elderly, women, children, people of color and Indigenous Peoples". However, this objective was mainly addressed through explaining the concept of environmental racism, rather than discussing the importance of Indigenous knowledge as an essential component of planetary health solutions.
The documentary "There's Something in the Water" is showcased during the presentation and it was mentioned that Indigneous communities are the original leaders in planetary health and that they are leaders in planetary health solutions. However, this was not an explicit part of the presentation and therefore, would not constitute as included in the core curriculum.

14. Does your medical school curriculum address the outsized impact of anthropogenic environmental toxins on marginalized populations such as those with low SES, women, communities of color, children, homeless populations, Indigenous populations, and older adults?	
3	This topic was explored in depth by the core curriculum.
2	This topic was briefly covered in the core curriculum.
1	This topic was covered in elective coursework.
0	This topic was not covered.

Score explanation: As part of the learning objectives "Define environmental racism" and "Illustrate how climate change adversely impacts different patient populations - specifically low SES individuals, the elderly, women, children, people of color and Indigenous Peoples" in the Climate Change and Health lecture, there are two slides dedicated to social accountability. One slide explains the concept of environmental racism and the fact that ingrained institutional bias or targeted prejudice is causing marginalized populations to be more significantly affected by the disruption of our environment. Then, the next slide shows a graphic showcasing statistical proof that race is the most significant predictor of a person living near contaminated air, water, or soil. Examples such as toxic waste and nitrogen-dioxide exposure are provided.

Curriculum: Sustainability

15. Does your medical school curriculum address the environmental and health co-benefits of a plant-based diet?	
3	This topic was explored in depth by the core curriculum.
2	This topic was briefly covered in the core curriculum.

1	This topic was covered in elective coursework.
0	This topic was not covered.

Score explanation: The environment and health co-benefits of a plant-based diet are not discussed in the curriculum or in elective coursework.

16. Does your medical school curriculum address the carbon footprint of healthcare systems?

3	This topic was explored in depth by the core curriculum
2	This topic was briefly covered in the core curriculum.
1	This topic was covered in elective coursework.
0	This topic was not covered.

Score explanation: This topic was discussed in the 1-hour "Climate Change and Health lecture" in Unit 2 of Year 2, as part of the learning objectives (1) "Analyze the carbon footprint of healthcare and propose new approaches" and (2) "Describe how the CanMeds role Health Advocate is applicable to Planetary Health". In the lecture, the emissions of the healthcare system are discussed. Evidence-based data is given and specific examples such as waste generated from a blood sample tray are shown. Numerous evidence-based targets for reducing carbon footprint in healthcare were discussed such as using certain anesthetic gases. The exemplary efforts and actions from the NHS to reduce their healthcare emissions were showcased. The presentation highlights reasons why physicians are in a position to advocate for climate change solutions in the context of the Health Advocate CanMEDs role. There is a slide dedicated to the journey of a Family physician in Ottawa who is involved in climate advocacy and advice is provided on how to proceed with climate advocacy within the medical field. One example provided is the elimination of examination table paper in her family medicine practice clinic.

The best options for anesthetic gases are discussed in the Anesthesia lecture in Year 2. However anesthetic options in the context of sustainable healthcare is not part of a learning objective for that lecture.

The Environmental Health lecture in Year 3 goes over the role of physicians within the climate crisis and resources such as the Canadian Association of Physicians for the Environment (CAPE) are provided.

17. Does your medical school curriculum cover these components of sustainable clinical practice in the <u>core</u> curriculum? (1 point each)

1	Waste production within the healthcare system and strategies for reducing waste in clinical activities, such as in the operating room
1	The impact of inhalers on the healthcare carbon footprint and the environmental benefit of dry powdered inhalers over metered dose inhalers.
1	The impact of anaesthetic gases on the healthcare carbon footprint and ways to reduce anesthesia environmental impacts, such as total intravenous anaesthesia or choosing less environmentally anaesthetic gas options with reduced greenhouse gas emissions
1	The environmental impact of pharmaceuticals and over-prescribing as a cause of climate health harm. Alternatively teaching on deprescribing where possible and its environmental and health co-benefits would fulfill this metric.
1	The health and environmental co-benefits of non-pharmaceutical management of conditions where appropriate such as exercise or yoga classes for type 2 diabetes; social group activities such as gardening for mental health conditions; active transport such as bicycle schemes for obesity. This is commonly known as social prescribing in the UK.
1	The health and environmental co-benefits of avoiding over-medicalisation, over-investigation and/or over-treatment
Score explanation: Unfortunately, these topics are not included in the core curriculum. Anesthetic gases as well as different inhaler types in the context of sustainable clinical practice has been discussed, however, it is not part of the learning objectives. Without the learning objective, we cannot guarantee that it is being discussed, especially since we have a French stream and an English stream.	

Curriculum: Clinical Applications

18. In training for patient encounters, does your medical school's curriculum introduce strategies to have conversations with patients about the health effects of climate change?	
2	Yes, there are strategies introduced for having conversations with patients about climate change in the core curriculum.
1	Yes, there are strategies introduced for having conversations with patients about climate change in elective coursework.
0	No, there are not strategies introduced for having conversations with patients about climate change
Score explanation: In the training for patient encounters, there are no strategies taught to have conversations with patients about the health effects of climate change.	

19. In training for patient encounters, does your medical school's curriculum introduce strategies for taking an environmental history or exposure history?	
2	Yes, the core curriculum includes strategies for taking an environmental history.
1	Only elective coursework includes strategies for taking an environmental history.
0	No, the curriculum does not include strategies for taking an environmental history.
Score explanation: In the Environmental Health Lecture in Year 3, there is a slide dedicated to Taking an Occupational and Environmental Exposure History with associated resources. However, the details are not specific to climate change related issues.	

Curriculum: Administrative Support for Planetary Health

20. Is your medical school currently in the process of implementing or improving Education for Sustainable Healthcare (ESH)/planetary health education?	
4	Yes, the medical school is currently in the process of making major improvements to ESH/planetary health education.
2	Yes, the medical school is currently in the process of making minor improvements to ESH/planetary health education.
0	No, there are no improvements to planetary health education in progress.
Score explanation: The uOttawa Faculty of Medicine's new Vice Dean of Global Health, Dr Mark Walker, created a Planetary Health Director position which was appointed to Dr Husein Moloo in Summer 2021 (https://media.uottawa.ca/news/canadian-university-first-uottawa-appoints-director-planetary-health). Dr Husein Moloo and his research team are currently conducting a scoping review on Planetary Health Education within undergraduate and postgraduate medical education. This will provide data to implement an evidence-based Planetary Health curriculum at the Faculty of Medicine. With this leverage, Planetary Health has been included as a longitudinal topic within the current curriculum renewal process. A working group focused on strategies to implement this new curriculum is projected to be formed in April 2022. *The Faculty of Medicine will be hosting its first Planetary Health Conference in 2022 and Planetary Health and ESH is now a topic to be included in continuing medical education (CME) and community-facing events in the upcoming year.* *Furthermore, Dr Laura Muldoon, who is the unit leader for the Society Individualization and Medicine component, has made progress to improve the objective and the content of the Climate Change and Health Lecture. She was accompanied by local experts in the field, and she has utilized resources from the Canadian Association of Physicians for the Environment (CAPE).*	

The medical school is therefore putting a strong emphasis on Planetary Health Education via the creation of the Planetary Health Director position that will hopefully create a strong momentum for change.

21. How well are the aforementioned planetary health/Education for Sustainable Healthcare topics integrated longitudinally into the core curriculum?	
6	Planetary health/ESH topics are well integrated into the core medical school curriculum.
4	Some planetary health/ESH topics are appropriately integrated into the core medical student curriculum.
2	Planetary health/ESH is not integrated and is primarily addressed in (a) standalone lecture(s).
0	There is minimal/no education for sustainable healthcare.

Score explanation: The lectures solely dedicated to Planetary Health topics are the following: Air Pollution and the Lungs in Year 1 Respirology Block, Climate Change and Health in the context of the Society, Individualization and Medicine (SIM) curriculum in Year 2, and Environmental Health lecture in the context of the Mandatory selective clerkship rotation in Year 3.

Some Planetary Health concepts were integrated in the following lectures: Anesthesia, COPD, Asthma, Coagulation, Nutrition, Emerging Infectious Disease, and Rhinosinusitis.

Although there is some integration, the topics of climate change are only briefly mentioned and there is a need for more substantial and strategic integration. The link between climate change and health is not clearly reinforced and therefore students are not aware of the intersectionality of the climate crisis and the health of their future patients by the end of their educational journey. Furthermore, specific objectives should be incorporated into the curriculum in order to keep the professors accountable. We decided to score a 2 since the longitudinal learning is not appropriately integrated and there are no specific learning objectives except for the standalone Climate Change and Health lecture.

22. Does your medical school employ a member of faculty to specifically oversee and take responsibility for the incorporation of planetary health and sustainable healthcare as a theme throughout the course?	
1	Yes, the medical school has a specific faculty/staff member responsible for overseeing curricular integration of planetary health and sustainable healthcare
0	No, the medical school does not have a specific faculty/staff member responsible for overseeing curricular integration of planetary health and sustainable healthcare.

Score explanation: In Summer 2021, the University of Ottawa Faculty of Medicine has appointed Dr Husein Moloo as Planetary Health Director. He is a strong contributor to applying pressure for change within the faculty and the curriculum. This fulfills the criteria for 1 point.

Section Total (36 out of 69)	**36**

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Are there additional curriculum resources offered at your medical school or institution not yet asked about that you would like to describe? If so, please do so below.

Interdisciplinary Research

Section Overview: ***This section evaluates the quality and quantity of interdisciplinary planetary health research at the medical school and broader institution.*** *Interactions between health and the environment are complex and multifactorial. While climate change has been extensively studied from an environmental science perspective, planetary health is an emerging field. As leading health institutions with talented researchers and research resources, medical schools should fund research studying the health effects of climate change and anthropogenic environmental toxins. This obligation is particularly strong because the public and policymakers are more attentive to climate change when its implications for human health are emphasized.*

1. Are there researchers engaged in planetary health research and healthcare sustainability research at your medical school?	
3	Yes, there are faculty members at the School of Medicine who have a primary research focus in planetary health or healthcare sustainability.
2	Yes, there are individual faculty members at the School of Medicine who are conducting research related to planetary health or healthcare sustainability, but it is not their primary research focus.
1	There are planetary health and/or healthcare sustainability researchers at the institution, but none associated with the medical school.
0	No, there are no planetary health and/or healthcare sustainability researchers at the institution or medical school at this time.
Score explanation: Following his Summer 2021 appointment as the Director of Planetary Health, Dr. Husein Moloo's primary research focus is now planetary health. Dr Husein Moloo, has initiated multiple research projects dedicated to Planetary health topics such as Planetary Health education and Sustainable Healthcare. Examples of the projects include a scoping review on medical education in Planetary Health and an analysis of the carbon footprint of colorectal surgical site infections. A short communication on the importance of Planetary Health education in medical schools has been published in August 2021 (https://doi.org/10.1016/j.joclim.2021.100044). *Dr. Curtis Lavoie also has a primary focus of planetary health and healthcare sustainability. He is the chair of the CHEO Hospital Green Team, and his biography on the uOttawa Faculty of Medicine Website (https://med.uottawa.ca/pediatrics/people/lavoie-curtis) lists "environmental sustainability in health care" among his clinical and research interests.*	

2. Is there a dedicated department or institute for interdisciplinary planetary health research at your institution?	
3	There is at least one dedicated department or institute for interdisciplinary planetary health research.

2	There is not currently a department or institute for interdisciplinary planetary health research, but there are plans to open one in the next 3 years.
1	There is an Occupational and Environmental Health department, but no interdisciplinary department or institute for planetary health research.
0	There is no dedicated department or institute.

Score explanation: There is an interdisciplinary Institute of the Environment at the University of Ottawa, directed by Professor Stewart Elgie, environmental Research director at the University of Ottawa.

Although there is not currently a department dedicated to planetary health research, Dr. Husein Moloo has shared that there is strong momentum and interest within the Faculty of Medicine to establish a dedicated planetary health department within the next few years. However, no timeline has been established for this.

3. Is there a process by which communities disproportionately impacted by climate change and environmental injustice give input or make decisions about the research agenda at your medical school?	
3	Yes, there is a process in which community members impacted by climate and environmental injustice have decision-making power in the climate + environmental research agenda.
2	Yes, there is a process in which community members impacted by climate and environmental injustice advise the climate + environmental research agenda.
1	No, but there are current efforts to establish a process for community members to advise or make decisions on the research agenda.
0	There is no process, and no efforts to create such a process.

Score explanation: There is no process by which communities disproportionately impacted by climate change and environmental injustice give input or make decisions about the research agenda at the medical school.

The social accountability mandate for undergraduate medical education does not mention communities disproportionately affected by climate change and environmental injustice. Their priorities lie in Indigenous health and Francophone health.

4. Does your institution have a planetary health website that centralizes ongoing and past research related to health and the environment?

3	There is an easy-to-use, adequately comprehensive website that centralizes various campus resources related to health and the environment including all of the following: upcoming events, leaders in planetary health at your institution, and relevant funding opportunities.
2	There is a website that attempts to centralize various campus resources related to health and the environment, but it is hard-to-use, not updated, or not adequately comprehensive.
1	The institution has an Office of Sustainability website that includes some resources related to health and the environment.
0	There is no website.
Score explanation: There is a website that attempts to centralize campus resources - it can be found on the uOttawa Sustainability Office website under "Resources." (https://sustainable.uottawa.ca/resources). The News section is not updated frequently. However, the news section does mention some planetary health leaders and their activities. Funding is not specified on the website. *The Sustainability and Climate Change Committee website has only one landing site and it comes with a few resources (https://www.uottawameds.com/resources.html) The webpage mentions that the resources section is frequently updated.* *There are efforts being made by the International and Global Health Office (IGHO) to create a planetary health website (pending).*	

5. Has your institution recently hosted a conference or symposium on topics related to planetary health?	
4	Yes, the **medical school** has hosted at least one conference or symposium on topics related to planetary health in the past year.
3	Yes, the **institution** has hosted at least one conference or symposium on topics related to planetary health in the past year.
2	Yes, the institution has hosted a conference on topics related to planetary health in the past three years.
1	The institution has not hosted any conferences directly, but they have provided financial support for a local planetary health event.
0	No, the institution has not hosted a conference on topics related to planetary health in the past three years.
Score explanation: So far, the institution has not held any conferences related to topics on Planetary Health. We reached out to the VP Global Health student representative to confirm that no global health	

related conference was held in the last year. After screening the Webinar Series page on the IGHO website, there were no planetary health related conferences/talks.

However, the International and Global Health Office (IGHO), Office of Social Accountability and Planetary Health of the Faculty of Medicine are currently planning a symposium for April 2022 that includes a focus on Planetary Health. This conference, called "Leading Innovation for a Healthier World", includes multiple presentations dedicated to planetary health.

Moreover, the Planetary Health Interest Group, which is a student-led group, has organized multiple events during the 2020-2021 school year. The Planetary Health Interest Group received funding from the faculty via the Aesculapian Society. They invited experts in the field to discuss topics such as Climate Change and Health, Public Health within the Climate Crisis, Sustainable Healthcare and they also organized discussions on Environmental Racism and Advocacy challenges.

6. Is your medical school a member of a national or international planetary health or ESH organization?	
1	Yes, the medical school is a member of a national or international planetary health or ESH organization
0	No, the medical school is not a member of such an organization
Score explanation: The School of Epidemiology and Public Health, which is a part of the Faculty of Medicine, has joined the Global Consortium on Climate and Health Education. Dr. Moloo is currently making official the partnership of the larger Faculty of Medicine with the Global Consortium	

Section Total (8 out of 17)	**8**

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Are there additional research resources offered at your medical school or institution not yet asked about that you would like to describe? If so, please do so below.

Community Outreach and Advocacy

<u>Section Overview:</u> This section evaluates medical school engagement in community outreach and advocacy efforts associated with planetary health. *Researching and teaching planetary health is necessary but not sufficient. It is critical that institutions also directly engage with communities most affected by environmental health harms. Although climate change is a problem largely created by those with power and resources, its impacts fall disproportionately on under-resourced populations and communities of color. Institutions should partner with local communities affected by climate change and pollution to share information about environmental health threats, advocate together for change, and provide opportunities for students to be a part of this work.*

1. Does your medical school partner with community organizations to promote planetary and environmental health?	
3	Yes, the medical school meaningfully partners with multiple community organizations to promote planetary and environmental health.
2	Yes, the medical school meaningfully partners with one community organization to promote planetary and environmental health.
1	The institution partners with community organizations, but the medical school is not part of that partnership.
0	No, there is no such meaningful community partnership.
Score explanation: For the renewal of the Climate Change and Health Lecture, 2 founders of MOMS4HealthyRecovery were involved and one of the founders presented the lecture in partnership with the Faculty. Also, Dr Curtis Lavoie the Chair of the Children's Hospital of Eastern Ontario (CHEO) Green Team, is involved with the Faculty with the Mindfulness curriculum, with the Leadership elective, with the Planetary Health Interest Group, the Sustainability and Climate Change Committee and he has been teaching the Climate Change and Health lecture. *However, although these connections represent a strong potential for partnership to promote planetary health and environmental health within the community, these individual implications are done through networking and availability of some of the staff. It does not represent a meaningful partnership between the faculty and a specific community organization.*	

2. Does your medical school offer community-facing courses or events regarding planetary health?	
3	The medical school offers community-facing courses or events at least once every year.

2	The medical school offers courses or events open to the community at least once per year, but they are not primarily created for a community audience.
1	The institution has offered community-facing courses or events, but the medical school was not involved in planning those courses or events.
0	The medical school has not offered such community-facing courses or events.

Score explanation: The Faculty of Medicine does not currently offer any community-facing courses or events on Planetary Health. However, this may change in the near future, with the next iteration of the Faculty of Medicine's annual "Mini Medical School". This six-week course is held for members of the public and community that seek to learn more about the human body, the health care system, and current health challenges faced by society. Planetary Health Director Dr. Moloo has shared that for this fall's Mini Medical school, the Faculty of Medicine is planning to incorporate planetary health into the program.
Furthermore, there have been discussions to include Climate Change and Health as a session for the "Mini-ecole de medicine" that is offered by the Francophone Affairs at the Faculty of Medicine. These sessions are aimed to educate the French-Canadians across Canada about the topic of health.

3. Does your medical school have regular coverage of issues related to planetary health and/or sustainable healthcare in university update communications?

2	Yes, all students regularly receive communication updates dedicated to planetary health and/or sustainable healthcare.
1	Yes, planetary health and/or sustainable healthcare topics are sometimes included in communication updates.
0	Students do not regularly receive communications about planetary health or sustainable healthcare.

Score explanation: In 2021, the Faculty of Medicine has started a new newsletter for all students and staff, called MedFlash. While this publication is not specifically dedicated to planetary health or sustainable healthcare, it has occasionally been used to communicate about such topics in the past. For example, MedFlash was used to communicate the upcoming April 2022 "Leading Innovation for a Healthier World" symposium (which has a strong focus in Planetary Health) to all staff and students in the Faculty of Medicine. MedFlash was also used to communicate the appointment of Dr. Moloo to the position of Planetary Health Director (https://media.uottawa.ca/news/canadian-university-first-uottawa-appoints-director-planetary-health)

4. Does the institution or main affiliated hospital trust engage in professional education activities targeting individuals post graduation with the aim of ensuring their knowledge and skills in planetary health and sustainable healthcare remain up to date during their professional career?

2	Yes, the institution or main affiliated hospital trust offers multiple in-person or online courses relating to planetary health and/or sustainable healthcare for post-graduate providers, including at least one with a primary focus of planetary health.
1	Yes, the institution or main affiliated hospital trust offers one course relating to planetary health and/or sustainable healthcare for post-graduate providers
0	There are no such accessible courses for post-graduate providers
Score explanation: Currently there are no such accessible courses for post-graduate providers. *However, the Faculty of Medicine will be offering a CME-accredited seminar on April 19th, 2022, which will include speakers presenting on topics of planetary health and sustainable healthcare.*	

5. Does your medical school or its primary affiliated hospital have accessible educational materials for patients about environmental health exposures?	
2	Yes, all affiliated hospitals have accessible educational materials for patients.
1	Some affiliated hospitals have accessible educational materials for patients.
0	No affiliated medical centers have accessible educational materials for patients.
Score explanation: For the Bruyere hospital, there were online patient education resources on preventing ulcers and falls. However, we could not find anything on environmental health exposures. For the Ottawa Hospital, there is a page on Education and Learning for patients and their families, however, there are no educational materials on environmental health exposures. There is also a website on prevention of infectious diseases, but no educational materials. *The same applied to Montfort Hospital.*	

6. Does your medical school or its primary affiliated hospital have accessible educational materials for patients about climate change and health impacts?	
2	Yes, all affiliated hospitals have accessible educational materials for patients.
1	Some affiliated hospitals have accessible educational materials for patients.
0	No affiliated hospitals have accessible educational materials for patients.
Score explanation: The Bruyere Hospital, Ottawa Hospital and Montfort Hospital did not have any accessible patient education resources on climate change and health impacts.	

Section Total (1 out of 14)	1

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Are there additional community engagement and advocacy resources offered at your medical school or institution not yet asked about that you would like to describe? If so, please do so below.

Support for Student-Led Planetary Health Initiatives

***<u>Section Overview:</u>* This section evaluates institutional support for student-led planetary health initiatives, such as funding, fellowships, programming, and student groups.** *Planetary health is a young field and, as young people facing a future deeply shaped by climate change, students are often some of the first at an institution to engage with it. Institutions should provide support for students to engage in sustainability quality improvement (QI) initiatives, discover mentors in their area of interest, and receive funding for planetary health projects.*

1. Does your institution offer support for medical students interested in enacting a sustainability initiative/QI project?	
2	Yes, the institution *either* offers grants for students to enact sustainability initiatives/QI projects *or* sustainability QI projects are part of the core curriculum.
1	The medical school encourages sustainability QI projects (to fulfill clerkship or longitudinal requirements) and offers resources to help students succeed in these projects, but there is no student funding available and there is no requirement to participate.
0	No, the institution does not offer opportunities or support for sustainability initiatives or QI projects.

Score explanation: The University of Ottawa currently does not offer any grants to medical students specifically enabling them to enact sustainability initiatives, or specifically geared towards planetary health projects. However, there are clear examples of the Faculty of Medicine encouraging medical students to get involved with sustainability initiatives and supporting those that do. This year, the Faculty of Medicine added placements in Planetary Health work through their mandatory Community Service Learning (CSL) program. Through these placements, students are encouraged to find and enact projects in Planetary Health and sustainability and are supported by the direct supervision and mentorship of the university's new Planetary Health Director, Dr. Husein Moloo.

Moreover, the University of Ottawa also offers non-clinical electives including a leadership elective, a patient safety and quality improvement elective as well as a research elective. Sustainability related initiatives are not specifically encouraged through these electives. However, students can potentially utilize these opportunities to pursue such projects if they choose. This academic year, a fourth-year medical student (Nathan Chiarlitti) has used this non-clinical elective opportunity to pursue a project in healthcare sustainability. All projects must secure the support of a supervisor. Nathan's project has received supervision and support from Dr. Curtis Lavoie. This is the only form of official support offered to students pursuing projects, although Nathan notes that his project has still received significant assistance from the Planetary Health Director Dr. Moloo, regardless.

Additionally, residency programs at The Ottawa Hospital now include teaching about sustainability, in collaboration with the Quality Improvement department at the hospital. Following this education, some residents have been motivated to take on sustainability initiatives, such as an inventory on the carbon footprint of interviews in medicine, and a publication led by a medical student (Nièvе Séguin) on the

importance of planetary health education in all medical school curricula (https://doi.org/10.1016/j.joclim.2021.100044). The projects have generally received significant support and assistance from the Planetary Health Director, Dr. Moloo.

2. Does your institution offer opportunities for medical students to do research related to planetary health and/or sustainable healthcare?	
2	The institution has a specific research program or fellowship for students interested in doing planetary health/sustainable healthcare research.
1	There are research opportunities for students to perform research related to planetary health/sustainable healthcare but these require student initiative to seek these out and carry them out in their spare time.
0	There are no opportunities for students to engage in planetary health/sustainable healthcare research.

Score explanation: The faculty's International and Global Health Office offers the Advancements in Global Health Studentship program which can be used to "support projects that advance global health through innovative approaches to global health challenges and improvements in global health education".
(https://med.uottawa.ca/international-global-health-office/global-health/funding-opportunities)

The faculty also provides potential funding through the Summer Studentship Program. "The Faculty of Medicine's Summer Studentship Program provides up to 54 first- and second-year undergraduate students the opportunity to participate in research projects." It provides funding of $5,000 to support the student's 10-week summer research project. However, research supervisors must submit their project for the grant. The list of selected projects then gets distributed to 1st and 2nd year medical students who directly contact the project supervisor to apply. That being said, a research supervisor from the University must submit a proposal for a planetary health or sustainability project for a student to be able to participate in such an opportunity. For the Summer 2021, a research opportunity in Planetary Health was offered by the Vice-Dean of Global Health, Dr Mark Walker. The opportunity was taken on by a second-year student (Nièvе Séguin) and the newly appointed Planetary Health Director (Dr Husein Moloo) who worked on multiple Planetary Health education and Sustainable Healthcare projects. They recently published a short communication on the importance of Planetary Health education in medical school (https://doi.org/10.1016/j.joclim.2021.100044)

Although this research is organized by the Faculty of Medicine, there is no program of fellowship that is specific to planetary health or sustainable healthcare research. In the last year there were such projects but there is no well-established program to ensure the continuity of projects focused on those topics. Therefore we gave the score of 1.

3. Does the medical school have a webpage where medical students can find specific information

related to planetary health and/or sustainable healthcare activities and mentors within the medical school? For example, projects achieved, current initiatives underway at the medical school and/or contact of information of potential mentors.	
2	The medical school has a webpage with specific information related to planetary health or sustainable healthcare that includes up-to-date information on relevant initiatives and contact information of potential mentors.
1	There is a medical school webpage that features some information on projects and mentors within planetary health and sustainable healthcare within the medical school, but it lacks key information.
0	There is no medical-school specific webpage for locating planetary health and/or sustainable healthcare projects or mentors.
Score explanation: The only page dedicated to planetary health and sustainability is the student-run Sustainability and Climate Change (SACC) Committee page through the Aesculapian Society (official student council) website (https://www.uottawameds.com/local-projects-at-uottawa-medicine.html). This page outlines the committee's local sustainability projects as well as limited resources and research opportunities for students. This page is unfortunately lacking details and ways to find more information about opportunities. It is also not up to date. There are no official faculty resources for planetary health and sustainability.	

4. Does your medical school have registered student groups dedicated towards fostering a culture of planetary health engagement, scholarship, and advocacy on campus, supported by faculty advisors?	
2	Yes, there is a student organization with faculty support at my medical school dedicated to planetary health or sustainability in healthcare.
1	Yes, there is a student organization at my medical school dedicated to planetary health or sustainability in healthcare but it lacks faculty support.
0	No, there is not a student organization at my institution dedicated to planetary health or sustainability in healthcare.
Score explanation: The Sustainability and Climate Change Committee (SACC) is a student-run committee dedicated to "to inspire a shift within the uOttawa Faculty of Medicine's culture towards more sustainable and waste-reduction practices and increase planetary health and climate justice awareness". It was founded in the Fall of 2019 and became an Aesculapian Society (official student council) Committee in March 2020. Unfortunately, this group is not financially supported. *In September 2020, the Planetary Health Interest Group (PHIG) was created to promote Planetary Health within the student population. This student-led group is supported by Dr Curtis Lavoie and has received funding from the faculty via the Aesculapian Society. PHIG organized multiple events*	

throughout the school year. They invited experts in the field to discuss topics such as Climate Change and Health, Public Health within the Climate Crisis, Sustainable Healthcare, and they also organized discussions on Environmental Racism and Advocacy challenges. *The Faculty of Medicine also runs a community service learning program, which just this year, has provided opportunities for medical students to get involved with planetary health and sustainability projects. Students assigned to planetary health placements worked together, under the supervision of a faculty advisor (Dr. Husein Moloo) in order to plan and run planetary health-focused projects. This program is thereby helping to foster a culture of advocacy engagement with Planetary Health in each new class of medical students at the University of Ottawa.*

5. Is there a student liaison representing sustainability interests who serves on a medical school or institutional decision-making council to advocate for curriculum reform and/or sustainability best practices?	
1	Yes, there is a student representative that serves on a medical school or institutional decision-making council/committee.
0	No, there is no such student representative.
Score explanation: There is not currently an official student liaison representing sustainability interests who serves on a medical school or institutional decision-making council. Despite the fact that the Sustainability and Climate Change (SACC) Committee is a formally recognized subcommittee of the Aesculapian Society, its representative remains a non-voting member.	

6. In the past year, has the institution had one or more co-curricular planetary health programs or initiatives in the following categories? (1 point each)	
1	Projects where students are able to gain experience in organic agriculture and sustainable food systems, such as gardens, farms, community supported agriculture (CSA), fishery programs, or urban agriculture projects.
1	Panels, speaker series, or similar events related to planetary health that have students as an intended audience.
1	Events in which students learn directly from members of a local environmental justice community about the climate and environmental challenges they face, and how health professionals can partner with their community to address these exposures and impacts.
1	Cultural arts events, installations or performances related to planetary health that have students as an intended audience.
1	Local volunteer opportunities related to building community resilience to anthropogenic environmental impacts.

1	Wilderness or outdoors programs (e.g., that organize hiking, backpacking, kayaking, or other outings for students)

Score explanation:

1. *The Sustainability and Climate Change (SACC) student-run Committee is working towards the approval of a community garden project at the local Children's Hospital of Eastern Ontario (CHEO). They hope to have this project running as a Community Service Learning (CSL) opportunity for students. The future of the program depends on the restrictions for CSL placements put in place due to the pandemic, as they are currently all taking place virtually.*

2. *Multiple events were organized in the 2020-2021 school year by the Planetary Health Interest Group (PHIG). The events ranged from conferences, group discussion and sustainability challenges. There were a total of 13 hours of conferences, talks and self-learning modules delivered throughout the year.*

3. *In April 2021, the Planetary Health Interest Group organized a viewing event of the documentary "There's Something in the Water" which denounces the events of environmental racism in Nova Scotia, Canada. Following that event, the students had a discussion on the topics highlighted in the documentary. Although this was a good event to discuss environmental racism, the students didn't have the opportunity to discuss directly with community members affected by climate and environmental challenges.*

4. *The Sustainability and Climate Change (SACC) student-run Committee is currently working on an art project which encourages the use of used medication cap to create art pieces which will be displayed in the Children's Hospital of Eastern Ontario. This project is actively in development.*

5. *The Sustainability and Climate Change (SACC) student-run Committee is working towards the approval of a community garden project at the local Children's Hospital of Eastern Ontario (CHEO). They hope to have this project running as a Community Service Learning (CSL) opportunity for students. The future of the program depends on the restrictions for CSL placements put in place due to the pandemic, as they are currently all taking place virtually. Additionally, the Office of Campus Sustainability operates four community gardens, and any students (including medical students) can contact the Community Garden Coordinator via the Office of Campus Sustainability website in order to sign up for a plot at a garden. However, these community gardens are located only at the main uOttawa campus, and no such gardens exist at the medical school campus (RGN).*

6. *The Faculty of Medicine does not currently have an outdoors club. However, the University of Ottawa has an outdoors club, called the University of Ottawa Outdoors Club, that medical students can join based on their interest (https://www.instagram.com/outdehors/?hl=en). After reaching out to this club, they confirmed that they promote Leave No Trace principles*

Section Total (10 out of 15)	10

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Are there additional student-led initiative resources offered at your medical school or institution not yet asked about that you would like to describe? If so, please do so below.

Campus Sustainability

Section Overview: ***This section evaluates the support and engagement in sustainability initiatives by the medical school and/or institution.*** *The healthcare industry is a major contributor to greenhouse gas emissions as well as pollution that harms local, regional, and global ecosystems. While healthcare is, by nature, a resource-intensive endeavor, the healthcare sector is well poised to lead the world to a more sustainable future. This will involve scrutinizing every aspect of how our systems operate, from where we source our energy, to how we build our infrastructure, to what companies we invest in. Our medical schools, clinics, and hospitals must set the standard for sustainable practices, and show other sectors what is possible when it comes to minimizing environmental impact.*

1. Does your medical school and/or institution have an Office of Sustainability?	
3	Yes, there is an Office of Sustainability with multiple full-time staff dedicated to campus sustainability. If the Office of Sustainability serves the entire campus, there is at least one designated staff member for sustainability at the hospital and/or medical school.
2	There is an Office of Sustainability with one or more full-time staff dedicated to campus sustainability, but no specific staff member in charge of medical school and/or hospital sustainability.
1	There are no salaried sustainability staff, but there is a sustainability task force or committee
0	There are no staff members or task force responsible for overseeing campus sustainability
Score explanation: The University of Ottawa has a well-established Office of Campus Sustainability with multiple full-time staff dedicated to campus sustainability and advocacy; however, there is no specific staff member in charge of the medical school. The Faculty of Medicine is located at a different location (Roger Guindon Hall), which is considerably far from the Main Campus where the Office of Sustainability is located. Even though the Office includes this building in their mandate, they often experience barriers because of the physical distance. A full-time staff member dedicated to the sustainability of the medical school would be an important initiative to lead change for the school.	

2. How ambitious is your medical school/institution's plan to reduce its own carbon footprint?	
4	The institution has a stated goal of carbon neutrality by 2030 or earlier and the medical school / institution has a well-defined and adequate plan in place to achieve this goal.
3	Yes, there is a stated carbon neutrality goal by at least 2040 and the medical school/institution has a well-defined and adequate plan in place to achieve this goal.
2	Yes, there is a stated carbon neutrality goal by at least 2040, but the medical school/institution has not created a plan to reach that goal or the plan is inadequate.

1	There is a CO2 emission reduction goal, but it is not one of carbon neutrality.
0	There is no stated goal for reduction of CO2 emissions.

Score explanation: The University of Ottawa has a goal of becoming carbon neutral by the year 2040. This would specifically apply to direct emissions (scope 1) produced by burning natural gas and fuel (20,018 tons produced in 2019). The institution adopted Policy 72 Environmental Management and Sustainability in 2017, which led to the Campus Sustainability Plan. Under this policy, each faculty (including the Faculty of Medicine) and service is required to create a sustainability plan.

The broad plan to reach carbon neutrality, according to the Office of Campus sustainability, is to reduce campus emissions as much as possible, followed by offsetting whatever emissions cannot be eliminated. However, a well-defined plan has not been created, possibly because an inventory of the university's greenhouse gases has not been completed and priorities have not been set. As of February 2022, the University is in scope 2 of a greenhouse gas inventory and plans to complete the inventory within the next year. The Office of Campus Sustainability also notes that the biggest areas of focus for emissions reductions will likely be building retrofits and electrifying the campus.

3. Do buildings/infrastructure used by the medical school for teaching (not including the hospital) utilize renewable energy?

3	Yes medical school buildings are 100% powered by renewable energy
2	Medical school buildings source >80% of energy needs from off-site and/or on-site renewable energy.
1	Medical school buildings source >20% of energy needs from off-site and/or on-site renewable energy.
0	Medical school buildings source <20% of energy needs from off-site and/or on-site renewable energy.

Score explanation: The electricity used by medical school buildings is supplied by the province. As of 2016, over 30% of the electricity supplied by the Ontario electric grid is renewable (https://www.cer-rec.gc.ca/en/data-analysis/energy-commodities/electricity/report/2017-canadian-renewable-power/province/canadas-renewable-power-landscape-2017-energy-market-analysis-ontario.html#:~:text=Index%20Next%20Page%20%3E-,Ontario,of%20Ontario's%20generation%20in%202016). Although it is possible that the exact percentage of renewable energy supplied by the province may vary throughout the year, the electricity used by the medical school is still over 30% renewable on average.

4. Are sustainable building practices utilized for new and old buildings on the medical school campus, with design and construction of new buildings and remodeling of old buildings conforming to a published sustainability rating system or building code/guideline?

3	Yes, sustainable building practices are utilized for new buildings on the medical school campus and the majority of old buildings have been retrofitted to be more sustainable.
2	Sustainable building practices are utilized for new buildings on the medical school campus, but most old buildings have not been retrofitted.
1	Sustainable building practices are inadequately or incompletely implemented for new buildings.
0	Sustainability is not considered in the construction of new buildings.

Score explanation: Roger Guindon Hall, the medical school's building, is an older construction at the university. However, efforts have been made to renovate the institution in 2016 which led to saving 5 million kilowatt hours of electricity a year. This following article describes the project: https://www.uottawa.ca/gazette/en/news/uottawa-surpasses-energy-goals. At the University of Ottawa, all new university buildings must now be built to a LEED silver certification standard. There is also a requirement to consider (or add) a green roof to new constructions or in the retrofitting process (weight permitting).

5. Has the medical school implemented strategies to encourage and provide environmentally-friendly transportation options for students and reduce the environmental impact of commuting?	
2	Yes, the medical school has implemented strategies to encourage and provide environmentally-friendly transportation options such as safe active transport, public transport, or carpooling and these options are well-utilized by students. Alternatively, the campus location is not amenable to unsustainable forms of transportation by default.
1	The medical school has implemented some strategies to provide environmentally-friendly transportation options, but the options are unsatisfactorily accessible or advertised.
0	The medical school has not implemented strategies to encourage and provide environmentally-friendly transportation options.

Score explanation: Our medical school building provides some bike racks, but no electric vehicle charging stations. However, it is worth noting the Office of Campus Sustainability hopes to install charging stations during 2022.
The University of Ottawa Students' Union advocated for student bus passes, so students have unlimited use of both the city bus system and light rail (O-Train). However, city public transit is not sufficient, accessible or regular enough for most students to rely on it for commuting to campus. There is a bus stop located right on campus, but it is serviced only by one bus route, which only comes every 15 minutes. Moreover, the route of this bus is relatively limited, and makes commuting to many areas of the city impractical (especially in directions away from downtown). There are also shuttle buses between the medical campus and main campus, yet these come only every 30 minutes. Most medical students find their own way to campus, with a large portion of them driving.
This year the Sustainability and Climate Change Committee started a carpool group exclusive to medical students. The group has seen only moderate use, and so far, has only been used by students

looking to leave the city on one-time trips, and there are no examples of students using it to organize daily commuting.

6. Does your medical school have an organics recycling program (compost) and a conventional recycling program (aluminum/paper/plastic/glass)?	
2	Yes, the medical school has both compost and recycling programs accessible to students and faculty.
1	The medical school has either recycling or compost programs accessible to students and faculty, but not both.
0	There is no compost or recycling program at the medical school.
Score explanation: The Faculty of Medicine building, Roger Guindon Hall, has both compost and recycling programs available for Faculty and students. The Office of Sustainability has been receptive to adding more compost stations throughout the building.	

7. Does the medical school apply sustainability criteria when making decisions about the campus food and beverage selections (e.g. local sourcing, reduced meat, decreased plastic packaging)?	
3	Yes, the medical school has adequate sustainability requirements for food and beverages, including meat-free days or no red-meat, and is engaged in efforts to increase food and beverage sustainability.
2	There are sustainability guidelines for food and beverages, but they are insufficient or optional. The medical school is engaged in efforts to increase food and beverage sustainability.
1	There are sustainability guidelines for food and beverages, but they are insufficient or optional. The medical school is not engaged in efforts to increase food and beverage sustainability.
0	There are no sustainability guidelines for food and beverages.
Score explanation: A new cafeteria was recently completed at Roger Guindon Hall and the following sustainability initiatives will be incorporated: the menu has mainly made-to-order items instead of pre-packaged food, no bottled water will be sold, packaging will be a mix of recyclable and compostable products, and all equipment is EnergyStar rating. *However, no food sustainability criteria are applied to any externally franchised food vendors (such as Tim Hortons, Starbucks, etc.), or external caterers of campus events. According to the Office of Campus Sustainability, although there is a strong desire to increase the sustainability of on-campus catering, no policies have been introduced to address this, and none are planned.*	

The medical school could be more engaged in food and beverage sustainability alongside the Office of Campus Sustainability and the Sustainability and Climate Change Committee so that the cafeteria and any events that involve food or catering are environmentally friendly. The Office of Campus Sustainability has shared that they are currently exploring various initiatives to increase food sustainability on campus, such as increasing vegetarian/vegan options, increasing the amount of produce sourced from community gardens, and reducing consumption of single-use plastics. However, the office also notes that these efforts have not yet progressed beyond exploration. No new policies are being implemented, and none are under development.

8. Does the medical school or associated institution apply sustainability criteria when making decisions about supply procurement?	
3	Yes, the medical school has adequate sustainability requirements for supply procurement and is engaged in efforts to increase sustainability of procurement.
2	There are sustainability guidelines for supply procurement, but they are insufficient or optional. The medical school is engaged in efforts to increase sustainability of procurement.
1	There are sustainability guidelines for supply procurement, but they are insufficient or optional. The medical school is not engaged in efforts to increase sustainability of procurement.
0	There are no sustainability guidelines for supply procurement.
Score explanation: In early 2021, two Faculty members under the Administrative Services Modernization Program reached out to the Sustainability and Climate Change Committee (SACC) to begin a Sustainable Supply Chain Committee. Their first project was to implement PPE recycling boxes across the Faculty of Medicine which was a successful initiative. They are continuing their work in sustainable supply procurement and collaboration with the Faculty's Executive Leadership Team, but progress has been slow during the COVID-19 pandemic. Furthermore, the university has a policy regarding ethical purchasing (https://www2.uottawa.ca/about-us/policies-regulations/policy-98-ethical-purchasing) and mentions sustainability in the procurement policy (https://www2.uottawa.ca/about-us/policies-regulations/policy-36-procurement)	

9. Are there sustainability requirements or guidelines for events hosted at the medical school?	
2	Every event hosted at the medical school must abide by sustainability criteria.
1	The medical school strongly recommends or incentivizes sustainability measures, but they are not required.
0	There are no sustainability guidelines for medical school events.

Score explanation: The Aesculapian Society is adopting sustainability guidelines as policy for student-lead events. These guidelines were created by students involved with the Sustainability and Climate Change Committee and will be implemented for the 2021-2022 school year and onwards.

However, these guidelines are not yet implemented for faculty events. According to the Office of Campus Sustainability, there is currently no enforcement of sustainability guidelines or policies on groups that do not "belong" to the campus. As it relates to sustainability, no guidelines are enforced when campus groups/events seek services from external organizations, with food catering being perhaps the most notable example. There is no enforcement of what foods can be served, or how they can be served (i.e., with single use plastics).

10. Does your medical school have programs and initiatives to assist with making lab spaces more environmentally sustainable?	
2	Yes, the medical school has programs and initiatives to assist with making lab spaces more environmentally sustainable.
1	There are guidelines on how to make lab spaces more environmentally sustainable, but not programs or initiatives.
0	There are no efforts at the medical school to make lab spaces more sustainable.

Score explanation: There are no guidelines or programs to make Faculty of Medicine lab spaces more sustainable, aside from a PPE recycling program that is promising and allows for recycling of gloves, masks, safety glasses and several other forms of PPE (https://www2.uottawa.ca/campus-life/campus-sustainability/waste-diversion/personal-protective-equipment-recycling-ppe). However, this program does not constitute a guideline and is not enforced. Moreover, the boxes allowing for PPE disposal are primarily located at main building entrances and not around lab facilities, meaning many students dispose of their PPE in more accessible garbage cans. This recycling program has had further difficulties with usage especially because each lab is run independently, and inter-lab communication is scarce. The Sustainability and Climate Change Committee has recruited graduate student leaders to create guidelines and initiate programs inspired by the University of British Columbia's Green Labs Program (https://sustain.ubc.ca/green-labs).

11. Does your institution's endowment portfolio investments include fossil-fuel companies?	
4	The institution is entirely divested from fossil fuels and has made a commitment to reinvest divested funds into renewable energy companies or renewable energy campus initiatives.
3	No, the institution is entirely divested from fossil fuels.
2	The institution has partially divested from fossil fuel companies or has made a commitment to fully divest, but currently still has fossil fuel investments.

1	The institution has not divested from fossil-fuel companies, but faculty and/or students are conducting organized advocacy for divestment.
0	Yes, the institution has investments with fossil-fuel companies and there have been no efforts to change that.

Score explanation: On February 17th, 2022, the University of Ottawa announced that it will divest all of its direct equity in fossil fuel holding by 2023, followed by all indirect holdings by 2030 (https://www.uottawa.ca/gazette/en/news/university-ottawa-continuing-its-efforts-reduce-its-carbon-footprint). Moreover, since the University signed the Montreal Carbon Pledge in 2015, requiring them to measure and publicly share the carbon footprint of their investment portfolio, the University has reported a $94 million increase in sustainable investments ($19 million in renewable energy, $64 million in low carbon equities, and $11 million in "green" bonds). The University has also set the target of having 10% of its long-term investment portfolio in sustainable investments by the end of 2025. Fossil fuel companies currently make up 2% of the University's equity portfolio.

The University has further announced that it will be matching a $2 million investment from the Jarislowsky Foundation to create the new Jarislowsky Chair in Clean Economy and Innovation. This research Chair will work to further our understanding of the role that humans play in climate change, as well as the resulting impact on communities, economies, Canadian ecosystems, and Canadian species.

Section Total (17 out of 31)	**17**

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Are there additional sustainability resources offered at your medical school or institution not yet asked about that you would like to describe? If so, please do so below.

Grading

Section Overview

This section focuses on the grading of the report card. The institution received a grade for each of the individual sections as well as an overall institutional grade. Section point totals were tallied, divided by the total points available for the section, and converted to a percentage. The overall institutional grade is a weighted average of the section grades, with curriculum receiving a higher weight owing to its larger number of metrics. Letter grades for each section and the institution overall were then assigned according to the table below.

Letter Grade*	Percentage
A	80% - 100%
B	60% - 79%
C	40% - 59%
D	20% - 39%
F	0% - 19%

Planetary Health Grades for the University of Ottawa Facultyof Medicine

The following table presents the individual section grades and overall institutional grade for the University of Ottawa Faculty of Medicine on this medical-school-specific Planetary Health Report Card.

Section	Raw Score	Letter Grade
Planetary Health Curriculum (30%)	(36 / 69) x 100 = 52.17%	C
Interdisciplinary Research (17.5%)	(8 / 17) x 100 = 47.06%	C
Community Outreach and Advocacy (17.5%)	(1 / 14) x 100 = 7.15%	F
Support for Student-led Planetary Health Initiatives (17.5%)	(10 / 15) x 100= 66.67%	B
Campus Sustainability (17.5%)	(17 / 31) x 100 = 54.84%	C +
Institutional Grade	**46.40 %**	**C**