



Planetary Health Report Card (Medicine):

*The Ohio State University College of
Medicine*



THE OHIO STATE UNIVERSITY
COLLEGE OF MEDICINE

2022-2023 Contributing Team:

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Summary of Findings

Overall	B
<u>Curriculum</u>	B-
<ul style="list-style-type: none"> The Ohio State University College of Medicine (OSUCOM) currently has some planetary health-focused curriculum, but is working with students on major curriculum changes. There are many existing lectures that allow for seamless integration of climate health and social determinants of health materials. Recommendations: Planetary health can be further integrated into M1-M2 through lectures, e-modules, and Community service projects. In M3-M4, it can be included in case based small group discussions. 	
<u>Interdisciplinary Research</u>	A-
<ul style="list-style-type: none"> OSUCOM has several faculty researchers in climate health and the Byrd Polar and Climate Research Center but lacks a centralized department forming interdisciplinary projects or a partnership with the Byrd Center. Our CCTS Community Engagement Program allows community members advocacy. Recommendations: OSUCOM could work to make climate focused research more accessible to medical students and centralize their work on a more visible, unified website. OSUCOM should continue to support the <i>Climate Change and Health: Implications for Clinical Practice</i> conference annually. 	
<u>Community Outreach and Advocacy</u>	B-
<ul style="list-style-type: none"> OSUCOM offered the <i>Climate Change and Health: Implications for Clinical Practice</i> conference as available to the public. OSUWMC website offers articles about climate health that are free to patients. Recommendations: OSUCOM could establish partnerships with community organizations focused on planetary health. OSUCOM should include climate focused information in regular communications to faculty and students and create internal Planetary health courses for CME credits. 	
<u>Support for Student-Led Initiatives</u>	A
<ul style="list-style-type: none"> OSUCOM supports student groups dedicated to planetary health, particularly the registered student group, Sustainability in Medicine (SiM). SiM works closely with faculty to expand student engagement in sustainability and is a registered affiliate with Medical Students for a Sustainable Future. At OSUWMC, students can join the Green Team, the Interprofessional Council, and the President & Provosts Council on Sustainability. Recommendations: OSUCOM should continue to work closely with Sustainability in Medicine. We also recommend that SiM continues to build partnerships with other student organizations to ensure maximum participation by students. OSUCOM should create a website to promote ongoing programs, including, but not limited to, one-off volunteer opportunities, planetary health events, wilderness outings, etc. 	
<u>Campus Sustainability</u>	C
<ul style="list-style-type: none"> OSUWMC aligns with university goals and has a dedicated sustainability program including: full-time Sustainability Program Manager, a Commodity Manager, and an energy engineer. Highlights in the 2022 fiscal year include: 4.7% reduction in energy usage in OSUWMC and OSUCOM buildings, 29% of the electricity supplied to the medical center at main campus and off-site medical center locations was carbon neutral, 37% waste diversion, and expansion of our Green Team. Recommendations: Sustainability needs to be embedded into the core of operational decision-making in order to accomplish carbon neutrality by 2050, and can't just be for a few people to accomplish. 	

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 rapidly changing 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 on 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 “the health of human civilisation and the state of the natural systems on which it depends.” 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.
- **Sustainable Healthcare:** As defined by the Academy of Royal Colleges, sustainable healthcare involves ensuring the ability to provide good quality care for future generations by balancing the economic, environmental, and social constraints and demands within health care settings. A sustainable healthcare system maintains population health, reduces disease burden and minimises use of healthcare services.
- **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 (e.g. undergraduate departments (USA), other related departments (e.g. 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 examples).

Added to our resources last 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 <u>medical school</u> 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.
<p><i>Score explanation:</i> First year students have the opportunity to take a two-day selective - Environmental Justice, Climate Change, and Health: An Introduction - to learn the foundations of climate change & health and how to make sustainable changes in cooking and the OR, advocate for policy changes, and get more involved in sustainability projects at OSUCOM. Fourth year students can choose to take the 4-week Climate Health Advanced Competency elective course which is organized by weekly themes including Climate Change Scientific and Medical Knowledge, Acute Illness and Climate Change, Chronic Illness and Climate Change, and Advocacy and Application. It incorporates lectures, reading and podcast assignments, small group discussions, field trips to local organizations (sustainable farms, recycling center, OSUWMC waste flow, etc.), and assignments, including a final project. Students present their projects at the annual Byrd Center Symposium on Climate Change Research in October.</p> <p><i>Resource: M1 Climate Change and Health selective and M4 Climate Health Advanced Competency</i></p>	

Curriculum: Health Effects of Climate Change

2. Does your <u>medical school</u> 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.
<p><i>Score explanation:</i> <i>Within the Lead.Serve.Inspire (LSI) curriculum, there are no lectures dedicated to the relationship between extreme heat, health risks, and climate change.</i> <i>However, in the brief Foundations 1 e-module as part of the core curriculum, there are two slides that mention the increased deaths and disease burden due to heatwaves.</i> <i>During the last block of second year; Host Defense, one Longitudinal Group session, a group discussion course for M1s and M2s, is dedicated to discussing climate change and health. Students are assigned to learn about and present one of five climate-based cases. One case discusses extreme heat and heat intolerance in older adults.</i> <i>The fourth year Climate Health Advanced Competency elective course includes two 1-hour lectures on inequitable exposure to extreme heat in US urban areas and the role of heat stress and uric acid, respectively.</i></p> <p><i>Resource: Foundations 1 e-module, Host Defense Longitudinal Group Session, M1 Climate Change and Health selective, M4 Climate Health Advanced Competency</i></p>	

3. Does your <u>medical school</u> 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.
<p><i>Score Explanation:</i> <i>OSUCOM's core curriculum does not include any lectures on extreme weather events and its effects on health or the healthcare system.</i> <i>During Host Defense, in the Longitudinal Group session that covers climate change and health, one of five cases discusses the impact of extreme weather, including heat, on health.</i> <i>One lecture that could, but currently does not, include climate change when mentioning seasonal distribution was "Coronaviruses and Noroviruses" in the Host Defense Block for M2s.</i> <i>The fourth year Climate Health Advanced Competency elective course includes two lectures on wildfires and natural disasters and one pre-reading on Hurricane Dorian and the impact in the Bahamas.</i> <i>The fourth year Global Health Advanced Competency elective course includes one lecture on reproductive justice with a few slides regarding environmental justice.</i></p> <p><i>Resource: Host Defense Longitudinal Group Session, Host Defense Corona and Norovirus Lecture M4 Climate Health Advanced Competency, M4 Global Health Advanced Competency</i></p>	

4. Does your <u>medical school</u> 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.
<p><i>Score explanation:</i> In the Foundations 1 e-module as part of the core curriculum, there is one slide on the exacerbation of infectious diseases due to climate change. During Host Defense, in the Longitudinal Group session that covers climate change and health, the standardized patient encounter discusses the climate-related migration of the Ixodes tick, leading to changes in the patterns of Lyme disease, an infectious disease. The Host Defense block lectures discuss the geographical distribution of viral and bacterial infectious diseases and changes in the causes and epidemiology of infectious diseases. However, there is no discussion of climate change specifically on these changing patterns of infectious diseases. Several lectures that discuss the geographical distribution of disease but exclude a mention of climate change include: “Tick-Borne Diseases” “Syphilis & Leptospirosis” “Mycoplasma, Ureaplasma, & Chlamydia” “Francisella, Brucella, Bartonella, & Coxiella” “Viral Hemorrhagic Fevers” “Hepatitis Viruses” “CNS Viruses” “Influenza” “Introduction to Medical Microbiology & Clinical Infectious Diseases” “Sjogren’s Syndrome and Mixed Connective Tissue Disease” The fourth year Climate Health Advanced Competency elective course includes three lectures on vector-borne illnesses and one pre-reading on tick-borne diseases.</p> <p><i>Resource: Foundations 1 e-module, Host Defense Longitudinal Group Session, Host Defense Lectures, M4 Climate Health Advanced Competency</i></p>	

5. Does your <u>medical school</u> 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.
<p><i>Score explanation:</i> The OSUCOM curriculum discusses the effect of lifestyle on respiratory health but not on the social determinants of health as related to climate change and air pollution.</p>	

During Host Defense, in the Longitudinal Group session that covers climate change and health, one of five cases discusses how climate change exacerbates air pollution, pollen, and mold allergens, and thus worsens asthma and allergic rhinitis.

The fourth year Climate Health Advanced Competency elective course includes one lecture on wildfires and respiratory health.

Resource: Host Defense Longitudinal Group Session, M4 Climate Health Advanced Competency

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:

The core curriculum lectures do not address the cardiovascular health effects of climate change, including increased heat. The lectures only discuss the effects of smoking and alcohol on cardiovascular health. There is one lecture on the impact of climate change on women's health that has one slide that includes cardiovascular health, among other organ systems, as negatively impacted by excess heat but does not connect that excess heat to climate change.

The second year longitudinal group class during the Host Defense block, which is a part of the core curriculum, discusses this topic in one of the five cases.

The first year 1 week climate health elective covered this topic.

The fourth year Climate Health Advanced Competency elective course includes one lecture on the impact of climate change and heat on cardiovascular health and surgical outcomes.

Resource: Host Defense Longitudinal Group Session, M1 Climate Change and Health selective, M4 Climate Health Advanced Competency

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:

During Host Defense, in the Longitudinal Group session that covers climate change and health, one of five cases discusses climate change's impact on mental health.

The one week Climate Change and Health selective for first year students discusses the effect of global climate change and mental health.

The fourth year Climate Health Advanced Competency elective course includes one lecture and two pre-readings on the psychological aspects of climate change and impacts on mental health, respectively.

Resource: Host Defense Longitudinal Group Session, M1 Climate Change and Health selective, M4 Climate Health Advanced Competency

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:

The curriculum briefly addressed the effects of social determinants of health and food security in the Foundations 1 block for M1s in relation to the nutrition and eating disorders in the “Nutrition and Obesity” lecture but did not connect either to climate change. The curriculum also included a patient panel that discussed social determinants of health but no mention of climate change was made during this panel.

During Host Defense, in the Longitudinal Group session that covers climate change and health, one of five cases discusses the impact of drinking water quality and food security on health in relation to climate change.

Additionally, the one week Climate Change and Health selective for first year students discusses the connection between health, food, and water security with climate change.

The fourth year Climate Health Advanced Competency elective course includes one lecture and three pre-readings on the impact of climate change on agriculture and food security. The lecture on the impact of climate change on women’s health addresses the impacts of water insecurity on women’s health specifically.

Resource: Foundations 1 lectures, Host Defense Longitudinal Group Session, M1 Climate Change and Health selective, M4 Climate Health Advanced Competency

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:

In the Foundations 1 e-module as part of the core curriculum, there is one slide on the disproportionate effects of climate change on Black people, people of color, and developing nations.

The curriculum also addresses the racial disparities in OB/GYN, for example, in the endocrinology and reproduction block. However, the material does not connect disparities to climate change.

One community organization available for M1-M2 students to partner with for a required service project is Moms2B, an organization focused on maternal wellness in vulnerable populations. However, climate change is not part of the scope of this organization. The curriculum also includes a patient panel that discussed social determinants of health but no mention of climate change was made during this panel.

During Host Defense, in the Longitudinal Group session that covers climate change and health, bonus resources for the five cases includes a podcast on health disparities and a physician guide to climate change, health, and equity.

The 30 min e-module in the Understanding Patients with Specialized Medical Needs (UPSMN) Ring discusses the social and economic factors connected to poor health outcomes, implicit bias, and sub-optimal care in relation to climate change. The 30 min e-module in the UPWP ring discusses impact of particulate matter on black and minority communities and children and impact of disease in the underserved Appalachian populations, and includes a case scenario on environmental justice.

Additionally, the one week Climate Change and Health selective for first year students discusses the outsized impact of climate change on marginalized communities.

The fourth year Climate Health Advanced Competency elective course includes 6 lectures and 9 pre-readings on the environmental justice, health equity, the disproportionate impact of climate change on marginalized populations such as women, children, those with low SES, minority races, urban populations, Intuit women, those who live in the Bahamas due to the impact of Hurricane Dorian, etc. Historically underrepresented and marginalized communities are discussed however, outsized impacts on unhoused populations, migrant workers, and Indigenous communities need to be expanded in this elective.

Outsized impact of climate change on Indigenous communities is only covered in elective work.

Resource: Foundations 1 e-module, Social Determinants of Health patient panel, Endocrine/Reproduction block lectures, Host Defense Longitudinal Group Session, Host Defense Lectures, UPSMN Ground School lectures, M4 Climate Health Advanced Competency

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 brief Foundations 1 e-module as part of the core curriculum, one slide discusses the disproportionate effect of climate-fueled extreme weather nations on the least developed nations. Otherwise, The core curriculum does not address the unequal regional health impacts of climate change globally.

There was a global health selective (1 week elective course for M1-2 students) offered this year that discussed refugee health but did not discuss climate change.

The fourth year Climate Health Advanced Competency elective course includes 1 lecture and 4 pre-readings that address how the impact of climate change varies by region globally.

Resource: Foundations 1 e-module, Global Health selective, M4 Climate Health Advanced Competency

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:

In the endocrinology and reproduction block, the “Nutrition in Pregnancy and Lactation” lecture briefly discussed the importance of pregnant women to avoid big game fish and tuna to avoid dangerous levels of mercury, as it is teratogenic. No other mention of environmental toxins in reproductive health were made.

The fourth year Climate Health Advanced Competency elective course includes 1 lecture on the impact of climate change on women’s health and discusses the impacts of extreme weather events, infectious diseases, and extreme heat on fertility and pregnancy outcomes. However, it does not cover the effect of industry-related environmental toxins on reproductive health. There is one lecture about reproductive justice, including environmental toxins.

Resource: Endocrine/Reproduction block lectures, M4 Climate Health Advanced Competency

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:

The M2 Longitudinal Group required (core curriculum) climate change student presentations on Water Pollution discussed the specific corporations in the MidWest area contributing to the crisis.

The 30 min e-module in the UPWP ring discusses the major locoregional sources of greenhouse gas emissions, environmental and health effects of natural gas production, and the current regulation of fossil fuels and radioactive waste in Ohio and impact of disease on the underserved Appalachian populations.

Both the fourth year Climate Health Advanced Competency elective course and the one week Climate Change and Health selective for first year students discussed extreme heat & its immediate effects in Columbus, water in Flint, Michigan, and floods in Kentucky.

Resource: Host Defense Longitudinal Group Session, UPWP Ground School lecture, MI Climate Change and Health selective, M4 Climate Health Advanced Competency

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:

The curriculum and elective coursework do not address planetary health in the context of the Indigenous perspective. It would also be helpful to discuss unequal effects of climate change on reservation land due to pipeline construction, lack of funding/resources, etc.

Resource: LSI 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:

The core curriculum does not 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.

The fourth year Climate Health Advanced Competency elective course includes 6 lectures and 9 pre-readings on environmental justice, health equity, the disproportionate impact of climate change on marginalized populations and includes discussions on anthropogenic environmental toxins, with a specific focus on increased air pollution. However, there is not a specific lecture on this topic. Specific populations such as children, pregnant people, those with mobility concerns, and older adults are discussed, but this should be expanded upon. We also lack discussions on the effects on indigenous communities.

Resource: M4 Climate Health Advanced Competency

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 core curriculum does not address the environmental and health co-benefits of a plant-based diet. However, in the gastroenterology and renal block, the B12 deficiency caused by a vegan diet was discussed but no direct relation to climate change was mentioned. A Culinary Medicine Elective course does cover nutritional benefits of plant-based diet but not planetary benefits, and this elective course had not been offered in 2020 and 2021, but began again in October 2022. However this class is an elective and does not contribute to medical school credit. The M1 Climate Change and Health selective includes 1 lecture on Climate-Smart Cooking. The M4 Climate Health Advanced Competency includes a lecture on the co-benefits of a plant-based diet and how to offer guidance to patients interested in eating plant-based, and a pre-reading on the EAT-Lancet Commission on healthy diets from sustainable food systems.

Resource: M1 Climate Change and Health selective, M4 Climate Health Advanced Competency

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:

The 1-hour live didactic in the UPRSN ring discusses the carbon footprint of the hospital, specifically of the perioperative environment and the role of infection. The e-module in the UPSMN ring discusses the environmental footprint of healthcare delivery and how clinicians can reduce the operational footprint in a hospital or clinic setting. The M1 Climate Change and Health selective discusses waste in the healthcare industry via an OR waste activity to illustrate strategies for waste reduction with a sterile suture kit and a lecture on greening the OR.

Resource: UPRSN and UPSMN Ground School lectures, M4 Climate Health Advanced Competency

17. Does your medical school curriculum cover these components of sustainable clinical practice in the core curriculum? (points for each)	
2	The health and environmental co-benefits of avoiding over-medicalisation, over-investigation and/or over-treatment
2	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. This is commonly known as social prescribing in the UK.
1	Environmental impact of surgical healthcare on planetary health and the climate crisis, and how can it be mitigated
1	The impact of anaesthetic gases on the healthcare carbon footprint and ways to reduce anaesthesia environmental impacts, such as total intravenous anaesthesia or choosing less environmentally harmful anaesthetic gas options with reduced greenhouse gas emissions
1	The impact of inhalers on the healthcare carbon footprint and the environmental benefit of dry powdered inhalers over metered dose inhalers.
1	Waste production within healthcare clinics and strategies for reducing waste in clinical activities (e.g. single use items in the inpatient or outpatient setting)
<p><i>Score explanation:</i></p> <p><i>The MI Climate Change and Health selective discusses waste in the healthcare industry and greening the OR.</i></p> <p><i>The live didactic in the UPRSN ring discusses the healthcare industry's and specifically the OR's contribution to the carbon footprint such as due to single-use devices and ways to decrease waste by using reusable equipment, recycling, medical supply donation, etc.</i></p> <p><i>No formal education exists on dry powder inhalers exists.</i></p> <p><i>The UPRSN ring didactic also addresses the impact of anesthetic gasses on the healthcare carbon footprint and strategies to reduce their environmental impact by choosing the gases, methods of administration, etc. with the least carbon footprint and recycling, etc.</i></p> <p><i>Pharmacy lectures and "Cost of Care" lecture during the UPWP ring do not include planetary impact of over-prescribing, over-investigating, or over-treating. The climate impact of anesthesia gases, pharmaceuticals, and over-investigation were not included in the neurology/psychiatry block, and this was confirmed over email by the neurology and psychiatry block leader.</i></p> <p><i>Finally, the health benefits of non-pharmaceutical management of conditions where appropriate, such as exercise or yoga classes for type 2 diabetes, are discussed. However, the environmental effects are not discussed.</i></p> <p><i>Resource: MI Climate Change and Health selective, UPRSN Ground School lectures</i></p>	

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:

Strategies for discussing climate change and health with patients are included in the current core curriculum during a required interprofessional standardized patient encounter (discussing mold exposure and effects of flooding and humidity changes).

During Host Defense, in the Longitudinal Group session that covers climate change and health, there is a standardized patient encounter with a patient who presents with symptoms of late disseminated Lyme disease due to climate-related migration of the Ixodes tick. The assessment includes a discussion of how climate change has contributed to the spread of Lyme disease beyond the northeast US. Additional strategies on how to have conversations with patients about the health effects of climate change are not included and if provided, would be preceptor-dependent.

The M4 Climate Health Advanced Competency includes a discussion on advocacy strategies and flash talks.

Resource: Interprofessional Education (IPE) Curriculum, Host Defense Longitudinal Group Session, M4 Climate Health Advanced Competency

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:

Throughout Longitudinal Group, a small group discussion during M1-2 years, students are taught to ask patients about occupational history to elicit exposures and environmental factors. The other aspect of environmental history students are taught to record is environmental allergies, and social factors (living arrangements, smoking, diet, etc.) that could be affected by the environment.

During Host Defense, in the Longitudinal Group session that covers climate change and health, there is a standardized patient encounter with a patient who presents with symptoms of late disseminated Lyme disease due to climate-related migration of the Ixodes tick. The details that students are expected to elicit on social history to aid in diagnosis and discussion with the patient include occupation, area of residence, exercise, diet, and travel history.

Resource: Host Defense Longitudinal Group Session

Curriculum: Administrative Support for Planetary Health

20. Is your <u>medical school</u> 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.
<p><i>Score explanation:</i> <i>The Ohio State University College of Medicine Administration is currently working with students to implement student driven curriculum change. Change includes adding climate health language and individual facts to existing lectures for longitudinal incorporation. This is a longitudinal project that will be implemented over the next few years and iteratively afterwards.</i> <i>In the last year, the medical school, with the leadership of the Sustainability in Medicine student group and faculty advisor, has added, adding one introductory climate change and health e-module in Foundations 1, created a small group discussion and standardized patient practice focused on a climate change- health chief complaint for one Longitudinal Group session for M2s, added three climate health lectures into the third year curriculum, and created elective options for first and fourth year students.</i> <i>The school is currently working on adding a climate change focused community charity organization as one option for students to complete a mandatory service project, Community Health Education project requirement.</i> <i>The group is applying for institutional funding to support dedicated students and programming, which was already approved for a match grant by the OSU Sustainability Institute and gained support of our Deans.</i> <i>The medical school also created a new faculty position, Director of Health Professions Sustainability Education, to continue this work.</i></p> <p><i>Resource: Sustainability in Medicine</i></p>	

21. How well are the aforementioned planetary health/Education for Sustainable Healthcare topics integrated longitudinally into the <u>core</u> 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.
<p><i>Score explanation:</i> <i>The planetary health/education for sustainable healthcare topics are mostly discussed in standalone lectures in the Foundations 1 e-module, Longitudinal Group climate change and health session, and</i></p>	

each lecture during Ground School before each ring in M3 year. We will be working on integration into the core curriculum more in the coming years as we identify how to modify existing lectures to include connections to planetary health for sustainable healthcare.

Resource: LSI Curriculum

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:

A Health Science and Rehabilitation professor and PhD was recently appointed to the newly created position of Director of Health Professions Sustainability Education to oversee and take responsibility for the incorporation of planetary health and sustainable healthcare as a theme throughout the curriculum. In general, the Ohio State University College of Medicine administration is interested in improving the inclusion of planetary health and sustainable health care in the curriculum. The Wexner Medical Center employs a Sustainability Project Manager of the hospital system however their role is not to oversee medical school curriculum development. The greater OSU administration has a Presidents and Provosts Council for Sustainability, but the medical school does not directly employ the members.

Section Total (44 out of 72)	61.11%
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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 <u>medical school</u> ?	
3	Yes, there are faculty members at the medical school who have a primary research focus in planetary health or healthcare sustainability.
2	Yes, there are individual faculty members at the medical school 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.
<p><i>Score explanation:</i></p> <p><i>The new Director of Health Professions Sustainability Education in the Ohio State University College of Medicine, studies how aspects of the physical environment, including ambient pollution, impact physical activity behaviors and disease risk in Central Ohio populations. An Associate Professor at OSUCOM studies air pollution and environmental exposure impact immune response. The Associate Dean for research operations and compliance in the OSU College of Medicine and is researching cardiac disease triggers and air pollution. A professor of Physiology and Cell Biology studies the role of lung epithelium in immune responses and host defense against bacterial and inhaled air pollution.</i></p> <p><i>Physicians for Climate Action from OSUCOM presented on Plant-Based Diets for Patient and Planetary Health and first “net zero” surgery, or setting carbon negative goals in medicine at the Annual Byrd Center Symposium on Climate Change Research at Ohio State in October 2022.</i></p> <p><i>The College of Public Health also has researchers studying planetary health, however these faculty have appointments in the College of Public Health.</i></p>	

2. Is there a dedicated department or institute for interdisciplinary planetary health research at your <u>institution</u> ?	
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.
<p><i>Score explanation:</i> The Ohio State University has the Sustainability Institute, which collaborates with academic and operations units across the university to advance sustainability and resilience scholarship and activities. While they have some exploratory research groups that include health impacts, they do not yet have one dedicated to planetary health or a core set of researchers. Additionally, Ohio State University has the Changing Climate Outreach Team, which seeks to connect multiple departments to share local climate change information and resources. While it is interdisciplinary and sometimes shares local research, the initiative is not currently building research teams.</p>	

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 <u>medical school</u>?	
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.
<p><i>Score explanation:</i> CCTS Community Engagement Program is aimed to improve the health of the communities in Ohio by engaging partnerships and conducting stakeholder-engaged research.</p>	

4. Does your <u>institution</u> 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.
<p><i>Score explanation:</i> The OSU Sustainability Institute has a place on their website where they centralize all researchers related to sustainability topics, and research by topics. Additionally, the OSUWMC Sustainability</p>	

department has a [website summarizing its initiatives](#) including a section on “Sustainability Program: Employee Engagement, Education and Research”

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:

The Byrd Polar and Climate Research Center held the Annual Byrd Center Symposium on Climate Change Research at Ohio State on October 21, 2022 with two lectures from Wexner Medical Center, College of Medicine, Physicians for Climate Action.

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:

OSUCOM Global One Health Initiative is part of the Planetary Health Alliance. OSUCOM recently joined the Global Consortium on Climate and Health Education. Additionally, the medical center is a member of [Practice Greenhealth](#), joined the [Health Care Climate Challenge](#), and is working towards membership in the [Health Care Climate Council](#). The Sustainability in Medicine student organization is also affiliated with Medical Students for Sustainable Future.

Section Total (14 out of 17)

82.4%

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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

Section Overview: *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.
<p><i>Score explanation:</i> OSUCOM's Community Health Education (CHE) mandatory service project for M1-2 students does not include any partners that have a mission involving environmental health, according to the catalog of community partners. There are CHE partners who have a focus on providing community members with fresh, healthy produce related to diet but not planet. The COM Student Council started a new partnership with the Mid-Ohio Food Collective to promote food security, but not planetary health specifically. The Sustainability Institute at the Ohio State University has many community partnerships.</p>	

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 institution/medical school have not offered such community-facing courses or events.
<p><i>Score explanation:</i></p>	

The [Environmental Professionals Network \(EPN\)](#) is a service of the School of Environment and Natural Resources that connects and grows environmental professionals in-person and online. The EPN hosts a monthly speaker series on topics related to environment, climate change, and community resilience. Some of these lectures related to planetary health. Examples from this past year include "Changing Rivers: Enhancing the natural and social wellbeing of Ohio alongside more floods and warmer temperatures," "Managing tick and mosquito bite-based diseases in Ohio and beyond," and "Advancing environmental justice in extreme heat and adapting through collaborative networks."

The [2022 Byrd Center Symposium on Climate Change Research](#) is also open to the public however the primary audience is academic and it is not routinely advertised to the public. This was created in conjunction with the medical school.

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 receive communications about planetary health or sustainable healthcare.

Score explanation:

Staff and students receive regular communications via OSU Healthbeat and Healthbeat Hub emails from the Wexner Medical Center President and they do not consistently contain content related to sustainability. Students are able to sign up for the [Green Team](#), a sustainability focused group of practicing health professionals, at OSU Wexner Medical Center and sends biweekly emails with planetary health information. However, students are required to "opt-in" to get Green Team emails.

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:

Physicians for Climate Action from OSUCOM presented on Plant-Based Diets for Patient and Planetary Health and first "net zero" surgery, or setting carbon negative goals in medicine at the Annual Byrd Center Symposium on Climate Change Research at Ohio State in October 2022. No CME as available.

Additionally, an Internal Medicine grand rounds was given on Sept 22, 2022, on "The Intersection of Climate Change and Health".

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:

OSU Wexner Medical Center website includes a link to a [Patient Education Library](#), which includes the topic of environmental health and has individual education materials for a [variety of environmental illnesses](#).

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:

OSU Wexner Medical Center website includes one informative patient centered blog that explicitly mentions climate change. This article directly discusses the [impact of climate change on parasite migration and infectious disease patterns](#). Several other articles discuss topics related to climate change but do not explicitly make the connection between the topic and climate change ([one discussing extreme weather and disaster preparedness](#), others discuss air pollution). Nationwide Children's Hospital also features information about climate change on their [website](#). For the James Cancer Center and several other affiliated community hospitals, searching "climate change", "environmental justice", or "planetary health" in the search function yielded no patient information.

Section Total (9 out of 14)	64.3%
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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

Section Overview: *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 medical school or your institution offer support for medical students interested in enacting a sustainability initiative/QI project?	
2	Yes, the medical school or institution <i>either</i> offers grants for students to enact sustainability initiatives/QI projects <i>or</i> sustainability QI projects are part of the core curriculum.
1	The medical school or institution 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, neither the medical school or the institution offer opportunities or support for sustainability initiatives or QI projects.
<p><i>Score explanation:</i> Sustainability in Medicine student group was able to secure a grant in 2019 to replace browsers on Medical center to Ecosia, which plants trees for browser searches. The OSU Zero Waste team also works with the Sustainability in Medicine student group to provide at-home compost buckets for no charge, and set up a drop off location for compost. Finally, the Sustainability Institute provided match funding for the student-led effort to integrate climate and health into medical school curriculum. In the 2022 4-week Climate Health Advanced Competency elective course, M4s complete a sustainability QI project for the COM, medical center, or community. Students present their projects at the annual Byrd Center Symposium on Climate Change Research in October. Finally, students are able to apply for and pursue the Medical Student Research program, which could provide funding for a student to conduct a QI project with focus on sustainability.</p>	

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.
<p><i>Score explanation:</i> OSUCOM has numerous research opportunities within The Ohio State University system that students can seek out to pursue (for example, the Medical Student Research Scholarship is a funding program</p>	

for all OSUCOM students to apply to for 3 months of research between the first and second year). However, there is no department specific to or related to “Planetary Health” or “Sustainable Healthcare.” With numerous colleges at this institution, students would be able to carry out planetary health/sustainable healthcare research and qualify for medical student research funding, but medical students would need to find their research lab and mentor on their own.

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 medical student organization, Sustainability in Medicine, has a [webpage](#) for medical students to learn more about the organization, contact information for student leaders, and contact information for faculty leaders.

The Ohio State University Wexner Medical Center [website](#) describes interdisciplinary research Wexner Medical Center is conducting, such as a recent project to analyze the environmental impact of anesthesia gases during surgery. This website also posts about advances made in campus initiatives by the Sustainability in Medicine student organization (and provides the general sustainability@osu.edu email).

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 Ohio State University College of Medicine [Sustainability in Medicine \(SiM\)](#) student group is an organization at the medical school dedicated to reducing the environmental impact of the Wexner Medical Center and College of Medicine directly through sustainable initiatives and indirectly through

education on sustainable personal practices. This group receives funding from the [Ohio State University](#) and the Ohio State University College of Medicine student council, and is supported by numerous faculty members as well as dedicated COM faculty member time.

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 are multiple students at OSUCOM who are represented on institutional decision-making councils that advocate for sustainability best practices. Within OSUCOM, students can be active members of the green team at the medical center. Additionally, we have elected Student Council members on the Part 1, 2, and 3 curriculum committees. Outside of OSUCOM, students can voice concerns regarding sustainability to the Interprofessional Council's (IPC) dedicated sustainability committee. Lastly, one student from IPC is appointed to serve on the President & Provosts Council on Sustainability (PPCS).

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:

Agriculture - This fall, there was a [2022 National Soil Moisture Workshop](#) hosted by the Byrd Center that was open to students. OSUCOM Sustainability in Medicine (SiM) has an OSUCompost Program that teaches and trains students how to properly compost. Between January and June 2021, the Ohio State College of Medicine's student-led Sustainability in Medicine group recruited 120 households with

180 individuals to participate in a composting and recycling program. This initiative diverted 6 tons of recycling and 24 tons of compostable materials from the waste stream in just six months.

Panels and Speakers:

Many lectures were available to students through the Byrd Center throughout this past year (see list below):

[Virtual Access - 4th Annual Byrd Center Symposium on Climate Change Research](#)

[Freshwater Science: A Toxin Forecast for Lake Erie's Harmful Algal Blooms](#)

[Freshwater Science: The Value of Lake Erie Beaches](#)

[Wild Ohio Weekend 2023](#)

[Lake Erie Awareness Day](#)

[Intersections of Climate Change and Health](#)

Local Service:

In 2022, the medical center's Green Team hosted a tree planting service event for students and staff to increase tree and biodiversity in Columbus.

Cultural Arts:

Two art exhibits are up for viewing at the campus Wexner Center for the Arts, which is a modern art museum dedicated to providing students free art museum experience. [One exhibit focuses](#) on the narrative surrounding Central Ohio Native Indigenous identity and forced migration (open 2/11/23 - 7/09/23). [A second exhibit](#) looks at the intersection of humans and environmental healing and advocates for climate justice (open 2/11/23 - 7/09/23).

Wilderness Programs:

OSUCOM has a Wilderness Medicine Interest Group (WMIG) that hosts multiple student outings and workshops related to practicing wilderness medicine. OSUCOM Student Council hosted student canoe trips as an outing for students to attend. Further, part of the M4 and M1 Climate Health Electives involved organized hikes.

Section Total (13 out of 15)	86.7%
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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 <u>medical school</u> and/or <u>institution</u> 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
<p><i>Score explanation:</i> Ohio State University has a Sustainability Institute that serves the entire campus. We have a wonderful full time Sustainability Program Manager at the Ohio State University Wexner Medical Center, reporting to our fantastic Senior Director of Sustainability for campus. Additionally, a team of five works across campus: zero waste (2 FTEs), assistant director of sustainability, sustainability analyst, and a water resources engineer. At the medical center, there is also a full time Commodity Manager for Sustainability and Supplier Diversity. The medical center facilities team is adding an energy engineer to their team in 2022, and we're working towards dedicating a few physicians' time (10% or so) to sustainability in various areas: Hematology, General Internal Medicine, and Anesthesiology.</p>	

2. How ambitious is your <u>institution/medical school</u> plan to reduce its own carbon footprint?	
5	The institution/medical school has a written and approved plan to achieve carbon neutrality by 2030
3	The institution/medical school has a written and approved plan to achieve carbon neutrality by 2040
1	The institution/medical school has a stated goal of carbon neutrality by 2040 but has not created a plan to reach that goal or the plan is inadequate
0	The institution/medical school does not meet any of the requirements listed above

	<p><i>Score explanation:</i> The Ohio State University currently has a carbon neutrality goal by 2050. The institution has a climate action plan, in which it is stated that if their recommendations are followed, they could reach carbon neutrality ahead of goal; by 2030. This plan is scheduled to be updated in spring 2023.</p>
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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:
On-campus electricity is at about [16% renewable energy](#) sources through the use of renewable energy credits (RECs). The offsite community hospital and outpatient locations are all at 100% renewable electricity through RECs. About 18% of the university’s motor vehicle power is from alternative fuel (CNG, electric, or hybrid).

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:
The Ohio State University launched its new [Sustainable Design and Construction Policy](#) in February 2021. All construction projects now incorporate more sustainability elements based on project type, project scope, jurisdiction and budget and require suppliers to be more transparent around sourcing, material content and the carbon footprint of materials. One exciting example of the impact these standards have already had is the under-construction inpatient hospital that’s diverting 86 million pounds of materials – which translates to 98% of the waste materials being recycled.

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:

Ohio State University offers free public transportation to students on the COTA buses (city of [Columbus bus system](#)) and on the university's bus system, CABS, which operates on campus and to popular [housing locations](#). Ohio State University also has robust biking infrastructure with [bike racks](#), and [discounted rentable bikes](#) all over campus, making it a Silver Level Bicycle Friendly University. Electric charging stations are also featured on [campus](#). These resources are readily available online, well publicized, and utilized often by students and faculty. Team Buckeye and the Spin Doctors hosted Bike to Work day on 6/3/22.

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 Zero Waste team at OSU can provide whatever recycling or composting infrastructure needed in any medical school buildings. Additionally, they supported students who wanted to compost or recycle at home by providing drop-off locations for those materials on campus. OSUCOM's Student-led Sustainability in Medicine organization has created medical-student specific compost/recycling program through OSUCompost program and has been active since 2021.

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.
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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.
<p><i>Score explanation:</i> <i>There are sustainable procurement guidelines, but they are not mandatory. There has been great work done to improve local food procurement, and increase offerings of vegetarian/vegan meals as well as decrease sugar sweetened beverages but there are no formal guidelines or goals.</i></p>	

8. Does the <u>medical school</u> or <u>institution</u> 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.
<p><i>Score explanation:</i> <i>The medical center adopted Sustainable Procurement Guidelines in 2019, which has helped integrate sustainability into most purchasing decisions. Additionally, on the Wexner Medical Center “About Us: Sustainability” page, Sustainable Procurement is publicly shared.</i> <i>We developed sustainable procurement guidelines and integrated sustainability criteria into the request for proposal (RFP) scoring matrix.</i> <i>In fiscal year 2022, 99% of the medical center’s spending through its group purchasing organization, Vizient, had at least one environmental attribute, such as a product containing forest stewardship certified wood or a plastic that’s recyclable.</i> <i>In the fall of 2021, the Ohio State Wexner Medical Center successfully trialed its first product made of 90% recycled blue wrap: the BlueCON bedpan. This bedpan is made of melted blue wrap collected from our operating rooms. As of today, the more than 34,000 bedpans purchased annually by the medical center will now be BlueCON bed pans. In FY22, the medical center expanded its blue wrap recycling initiative, resulting in 2.9 tons of blue wrap being diverted from the waste stream, up from not even 1 ton in FY20. Today, the initiative is active in five facilities spanning 57 operating rooms.</i></p>	

9. Are there sustainability requirements or guidelines for events hosted at the <u>medical school</u>?	
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.
<p><i>Score explanation:</i> The university does offer support for zero waste events to encourage students to host sustainable events, however, they are optional. OSUCOM has no requirements for events.</p>	

10. Does your <u>medical school</u> 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.
<p><i>Score explanation:</i> The university does have a Green Lab certification, but it is currently getting updated as it needs to be much more comprehensive. The medical school could access resources particularly on environmental sustainability in lab spaces, however the current link does not provide direct access to information on lab sustainability, nor is this flier directly from OSUCOM.</p>	

11. Does your <u>institution's</u> 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	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.
<p><i>Score explanation:</i> OSUCOM has not made a public effort to divest with fossil-fuel companies, nor have student organizations taken on this initiative.</p>	

Section Total (15 out of 32)	46.9%
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Back to summary page [here](#)

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 Ohio State University College of Medicine

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

Section	Raw Score %	Letter Grade
Planetary Health Curriculum (30%)	$(44/72) \times 100 = 61.1\%$	B-
Interdisciplinary Research (17.5%)	$(14/17) \times 100 = 82.4\%$	A-
Community Outreach and Advocacy (17.5%)	$(9/14) \times 100 = 64.3\%$	B-
Support for Student-led Planetary Health Initiatives (17.5%)	$(13/15) \times 100 = 86.7\%$	A
Campus Sustainability (17.5%)	$(15/32) \times 100 = 46.9\%$	C
Institutional Grade	$(61.1 \times 0.3 + 82.4 \times 0.175 + 64.2 \times 0.175 + 86.6 \times 0.175 + 46.8 \times 0.175) = 67.36\%$	B

Report Card Trends

Section Overview

This graph demonstrates trends in overall and section grades for the years in which OSUCOM has participated in the Planetary Health Report Card initiative.

