Planetary Health Report Card (Medicine):

University of Cincinnati

2022-2023 Contributing Team:

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Summary of Findings

Overall	D

Curriculum	D

- UCCOM is beginning to include planetary health education in fourth-year elective coursework, but as of now there is little to no integration of this information into the core curriculum.
- **Recommendations:** Planetary health should be a part of the core curriculum across the preclinical years, in addition to clinical elective work. As a first step, lectures and panel discussions could be added to the Physician and Society courses in the M1 and M2 years, with eventual integration of environmental health topics into relevant organ system blocks.

Interdisciplinary Research	B-

- UCCOM is conducting ground-breaking research on the environment and health. However, much of this research is not integrated around the subject of planetary health or specifically highlighted for addressing the adverse health impacts of climate change.
- **Recommendations**: UCCOM could join the Planetary Health Alliance and the Global Consortium on Climate and Health Education and encourage more research on how our changing climate affects Ohioans. We would also recommend adding a health and sustainability focused organization into the possible community partners for the M1 Service-Learning project.

Community Outreach and Advocacy	D-

- UCCOM has limited outreach regarding planetary health. While the University of Cincinnati (UC) has partnerships and leadership able to foster outreach and advocacy, UCCOM does not directly participate in these efforts.
- **Recommendations**: UCCOM could create specific partnerships with organizations that currently work with UC, such as green umbrella. To foster these partnerships, UCCOM could designate a liaison for the medical school that connects with the Office of Sustainability at UC. Medical students occasionally receive information on topics related to sustainability, and this liaison could help provide our student body with more frequent updates.

Support for Student-Led Initiatives	D

- The University of Cincinnati and the medical school support student groups dedicated to planetary health (The Medical Student Sustainability Club) both financially and with administrative resources.
- **Recommendations**: Support for student-led initiatives mostly comes from the wider University rather than the medical school. We recommend that the medical school offers increased support to students interested in sustainability initiatives. One option would be to create a website that advertises mentors or opportunities for students relating to PH or ESH and prioritizes grants for related research.

Campus Sustainability	D-

- UCCOM has made progress to become a more sustainable campus in conjunction with the wider University. The LEED Gold certification of the Care-Crawley building is a huge accomplishment and other health sciences buildings are continually being upgraded to become more sustainable.
- **Recommendations**: UCCOM could begin working with UC to develop a sustainability plan that prioritized financial divestment from fossil fuels, waste reduction, and access to healthier foods on campus.

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 "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 minimizes 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 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: *UCCOM has a wilderness medicine elective and a teaching kitchen that are both available to M4 students as an elective. M4 students also have the opportunity to travel to Africa with an interdisciplinary global health team where planetary health issues are discussed. While these courses address aspects of planetary health, such as environmental health and diet, none address planetary health as a primary focus.* *Next year, UCCOM will introduce a new fourth-year elective, Planetary Health and Medicine, as a part of its Integrative Health program. This 4-week course is designed to address topics of climate change and its impacts on health equity and social justice. There is also an advocacy component to the course, where students draft and submit a proposal to community leaders or policymakers that addresses one of the following topics: medical waste, food sustainability, clean air, clean water, or energy utilization.*	

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: Material created by the Medical School Sustainability Club was included in the Cardiovascular and Lungs block as supplementary material. Additionally, a lecturer in the block covered material regarding climate change and heat risk and its effects on the lungs and related disorders briefly.

This topic is also covered in the fourth-year Planetary Health and Medicine elective.

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 not covered.

However, next year, UCCOM will introduce a new fourth-year elective, Planetary Health and Medicine, as a part of its Integrative Health program. The impacts of extreme weather events on global health, including human displacement and migration (climate refugees), are included in the curriculum of the elective.

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: Insert explanation here.

UCCOM includes discussions of changes in the spatial and temporal patterns of malaria and other parasites spread during the Foundations of Molecular Medicine course with reference to climate change expanding these areas of spread.

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: Material created by the Medical School Sustainability Club was included in the Cardiovascular and Lungs block as supplementary material. Additionally, a lecturer in the block covered material regarding climate change and heat risk and its effects on the lungs and related disorders briefly.

Topics related to air pollution and respiratory health were discussed, however they were not linked to climate change. These topics were taught during the Pulmonary course. Specifically, environmental hazards were taught as they contribute to respiratory disease, such as silicosis, asthma, emphysema, etc. None of these topics were interwoven with broader discussions of climate change.

6. Does your <u>medical school</u> 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: Material created by the Medical School Sustainability Club was included in the Cardiovascular and Lungs block as supplementary material. Additionally, a lecturer in the block covered material regarding climate change and heat risk and its affects on the lungs and related disorders briefly.

7. Does your <u>medical school</u> 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: This topic was not covered.

Next year, UCCOM will introduce a new fourth-year elective, Planetary Health and Medicine, as a part of its Integrative Health program. This topic is a part of the planned curriculum.

8. Does your <u>medical school</u> 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: *This year, informational slides were provided to second-year students as optional supplemental material to accompany lectures in the Cardiovascular/Pulmonary and Renal/GI blocks. However, this information was not part of the material tested in these core courses.* *This topic will be covered in the fourth-year Planetary Health and Medicine elective beginning next year.*	

9. Does your <u>medical school</u> 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 not covered. *However, this subject will be included in the fourth-year Planetary Health and Medicine elective beginning next year. There are discussions and plans with the second year course director of Physician and Society to include a lecture on climate change, particularly its impact on marginalized communities.*	

10. Does your <u>medical school</u> 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: This topic was not covered. *However, this subject will be included in the fourth-year Planetary Health and Medicine elective beginning next year.*	

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

11. Does your <u>medical school</u> 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: This topic was not covered.	

12. Does your <u>medical school</u> 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: *UCCOM's Physician and Society 101 course features a lecture for M1s on the topic of lead poisoning. This lecture specifically discussed the levels of lead in various local (Cincinnati) neighborhoods. The lecture also discussed lead abatement processes, and which processes had been/are being used in these neighborhoods, as well as their relative effectivenesses. Additionally, students learned about the health impacts of lead poisoning. Lectures from this course also included information about pediatric asthma rates and how they relate to air pollution in our urban community.*	

13. To what extent does your <u>medical school</u> 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: Indigenous perspectives or knowledge are not incorporated into the curriculum.	

14. Does your <u>medical school</u> 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: *UCCOM's Physician and Society 101 course features a lecture for M1s on the topic of lead poisoning, and its prevalence in low SES communities and communities of color. This lecture covered the barriers families in these communities face in identifying lead poisoning in their children, and in going through the process of removing lead from their homes and properties. A local community member spoke about her experience with repeatedly treating her children for lead poisoning, and with their repeated displacement from their home during multiple rounds of lead abatement.* *This topic will also be covered in the upcoming Planetary Health and Medicine fourth-year elective.*	

Curriculum: Sustainability

15. Does your <u>medical school</u> 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: Insert explanation here. *UCCOM does include brief discussions of plant-based diets during the M2 Cardiovascular course. However, the benefits of a plant-based diet did not include environmental benefits.* *Mind-Body Medicine Fourth Year Elective will be covering how a plant-based diet benefits a person's health.*	

16. Does your <u>medical school</u> 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 not covered. *However, medical waste and environmental impact of the healthcare system will be included in the curriculum of the upcoming Planetary Health and Medicine elective.*	

17. Does your <u>medical school</u> curriculum cover these components of sustainable clinical practice in the <u>core</u> 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 **anesthetic** gasses on the healthcare carbon footprint and ways to reduce anesthesia environmental impacts, such as total intravenous anesthesia or choosing less environmentally harmful anesthetic 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)
Score explanation: 1. *UCCOM does mention throughout the curriculum the benefits of avoiding unnecessary testing. These discussions address the health and monetary benefits of avoiding over-treatment. However, these discussions have not been tied to environmental health.* 2. *UCCOM's preclinical curriculum highlights in several lectures the risks associated with over-prescription of antibiotics, particularly for conditions in which there is little or no benefit to antibiotic use. These discussions focus on the development of drug-resistant organism*	

strains and the resulting detriment to health, but the connection to global or environmental health is not explored.

Therefore, none of these areas were covered in relation to climate change and no points can be awarded.

Curriculum: Clinical Applications

18. In training for patient encounters, does your <u>medical school's</u> 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: This topic is not discussed within the curriculum.	

19. In training for patient encounters, does your <u>medical school's</u> 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: UCCOM's Clinical Skills course series includes instruction on taking environmental and occupational patient histories. Students are highly encouraged to ask each patient about their work, and whether they encounter any known carcinogens, toxins, fumes, chemicals, etc. at their job (when potentially relevant). These questions are then to be followed up with appropriate secondary questions about symptoms related to conditions arising from exposure to the specific entity.	

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.

Score explanation:

Next academic year, UCCOM will introduce a new fourth-year elective, Planetary Health and Medicine, as a part of its Integrative Health program. This 4-week course is designed to address topics of climate change and its impacts on health equity and social justice. There is also an advocacy component to the course, where students draft and submit a proposal to community leaders or policymakers that addresses one of the following topics: medical waste, food sustainability, clean air, clean water, or energy utilization.

Students are currently working with faculty to design and incorporate planetary health lectures and activities into the Physician and Society first- and second-year curriculum. These sessions are planned to be incorporated into the next academic year's schedule.

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.

Score explanation: Discussions of planetary health and healthcare sustainability are not incorporated into the core curriculum.

22. Does your <u>medical school</u> 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: Insert explanation here.

This year, UCCOM established a sustainability task force, which is overseen by the medical school's director of research. This task force is still in its early stages, but constitutes an initial step toward the University of Cincinnati's stated institutional goal of improved sustainability.

Section Total (21 out of 72)	**29.17%**

Back to Summary Page here

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 **medical school** who have a **primary r**esearch 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.
Score explanation: The Early Detection of Degenerative Disorders & Innovative Solutions (EDDI) lab at the UC College of Medicine conducts various research on environmental health and climate change, including studies on heat stress (a component of the impact of climate change on human health) and long-term health impacts of healthy metals. The latter study was recently published in the National Geographic Press Release Sept 1 2021, highlighting the department's research findings dating back to the 1970s. Cincinnati Children's and UC also have ongoing collaborations pertaining to planetary health. *Lab site: http://med.uc.edu/eh/research/labs/eddi*	

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: The EDDI department's research in occupational health and environmental health involves NIOSH/CDC sponsored training grants to support faculty, Occupational Medicine Residents, graduate students from the colleges of Medicine, Nursing and Engineering, as well as other 11 institutions from tristate (OH, KY, IN). They competitively fund transdisciplinary studies.

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.
Score explanation: There is not currently a process in place at UCCOM.	

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.
Score explanation: UCCOM does not have a specific, integrated planetary health website. However, on UCCOM's main research website, research is featured that addresses planetary health. For example, research addressing the connections between air pollution and COVID severity and information about leaders in the fields of environmental health are included. There is also a research directory that includes faculty from across the UC system with various backgrounds, including in sustainability, but are not currently affiliated with UCCOM.	

5. Has your <u>institution</u> 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 UC office of Sustainability regularly hosts lectures and discussions around climate change and planetary health topics.	

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: UCCOM has not yet joined such an organization. However, the Medical Student Sustainability Club (MSSC) is an affiliate member of the Medical Students for a Sustainable Future.	

Section Total (11 out of 17)	**64.71%**

Back to summary page here

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.
Score explanation: The University of Cincinnati is partnered with Green Umbrella and AASHE, among other organizations. The College of Medicine, however, does not currently partner with sustainability-minded community organizations.	

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.
Score explanation: UC has hosted several events pertaining to climate change and environmental health that have been supported by faculty at UCCOM and UCHealth. UC hosts regular presentations directly pertaining to planetary health. While UCCOM organizations have hosted presentations for medical students and faculty, we have not offered similar community-facing talks.	

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: UCCOM occasionally includes topics related to sustainability in their weekly updates. Students can choose to sign up for more frequent and focused updates from the UC Office of Sustainability or from the Osher Center for Integrative 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: These courses are not offered to post-graduates by UCCOM. However, post-graduate providers do have access to outside CME courses about planetary health that are not affiliated or sponsored by UCCOM or UC 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: No such educational materials currently exist.	

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: Per a UC family medicine physician and advisor to MSSC at UCCOM, no such materials exist at UC Health. The Osher Center for Integrative Health patient resources page includes some links to outside organizations such as Environmental Working Group and mindbodygreen, but these are not easily accessible to patients in-office. Mitchell Singstock and Brad Woodie at UCCOM (along with Hendrik Stegall and Tae-Hee Kim at OSUCOM) have submitted a resolution to the OSMA to help physicians in providing such information to their patients.	

Section Total (3 out of 14)	**21.43%**

Back to summary page here

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** *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** 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.
Score explanation: UCCOM does not fund or encourage sustainability QI projects.	

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: According to the Director of the UC Office of Medical Student Research, UCCOM does not currently offer research opportunities related to planetary health or sustainable healthcare. Students would be required to search for those opportunities through other institutions.	

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: UCCOM does not have a specific webpage for locating planetary health/sustainable healthcare projects or mentors. The COM does have a webpage that focuses on Environmental and Public Health Sciences research, but this primarily focuses on environmental and occupational medicine and epidemiology.	

4. Does your <u>medical school</u> 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: MSSC is a student-led organization for medical students in their first and second years of study. The MSSC is supported by faculty mentors. The MSSC works to improve sustainability on campus as well as bringing in speakers to discuss sustainability, plant-based diets, and improvements in healthcare.	

5. Is there a student liaison representing sustainability interests who serves on a <u>medical school</u> or <u>institutional</u> 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 currently no standing role at UCCOM for a student on the curriculum committee with a focus on sustainability and planetary health.	

6. In the past year, has the <u>institution</u> 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. A fourth year elective on integrative and plant based medicine has been developed for the upcoming year of 2023-2024. This point is not to be awarded currently though the elective is in development.
2. The MSSC at UCCOM sponsors talks and events related to planetary health that are financially supported by UCCOM.
6. The UCCOM MSSC hosts presentations and speakers on topics including plant based medicine and climate change. In addition to the MSSC, the Wilderness Medicine Interest Group at UCCOM has hosted wilderness skills events and educational seminars for students.

Section Total (4 out of 15)	**26.67%**

Back to summary page here

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: There is no specific office of sustainability at UCCOM. The University of Cincinnati has an Office of Sustainability as a branch of the department of planning, design, and construction. The Office of Sustainability also has links to facilities management and central utilities. The office consists of a full-time sustainability coordinator and a team of undergraduate student workers known as sustainability advocates. The medical school itself has no direct link to this office and has no direct sustainability representative.	

2. How ambitious is your institution/medical school 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
Score explanation: The 2019 UC Sustainability and Climate Action Plan has a goal for carbon neutrality by the year 2075. The plan states additional carbon goals of 45% reduction by 2030 and 80% reduction by 2050. Based on the carbon neutrality goal being after 2040, this receives 0 point.	

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: UCCOM is on the same energy grid as the University of Cincinnati which imports its energy from 2 local natural gas plants. While a small portion may be generated from wind, this number is most likely less than 20%.	

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 UC College of Medicine is located primarily in one building, which was significantly renovated in 2008 and is LEED Gold certified. Any new constructions on the campus aim for LEED Silver certification at the minimum.	

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: The UC College of Medicine has a variety of multi-modal transportation initiatives to encourage alternative and sustainable transportation practices. These include, among others, bike racks both inside and outside of the building, subsidized bus passes to encourage public transportation, access to electronic vehicle chargers, and a campus shuttle to transport students. However, these options are not well utilized by students or particularly advertised.

6. Does your <u>medical school</u> 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 medical school has no recycling bins. University of Cincinnati facilities only makes compost available in the 2 largest dining halls on the main University campus; however, these are not accessible to college of medicine students or staff. There is recycling in hallways, libarries, and outside the student lounge. There are no recycling bins in classrooms or in study areas.

7. Does the <u>medical school</u> 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 a**dequate s**ustainability 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: The UC College of Medicine does not currently have any guidelines or criteria for decisions about food or beverage options at the medical school.

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.
Score explanation: The University of Cincinnati campus guidelines for procurement follow OMB Circular A-110 and are based on a competitive bidding process combined with the relative quality of the goods to be procured. There are currently no sustainability guidelines to the UC campus procurement process.	

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: No guidelines are given or accessible for hosted events.	

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: The UC Office of Research and Academic labs do not currently have any guidelines for sustainability and have no current efforts to become more sustainable. However, there is ongoing work at Cincinnati Children's hospital and associated research centers to create more sustainable lab spaces.	

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	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: There are historical efforts by University of Cincinnati students to encourage divestment from fossil fuels for the entire university; however, these efforts have not yet resulted in institutional changes and there is no active fossil free UC movement. No specific efforts have been made at UCCOM.	

Section Total (7 out of 32)	**21.88%**

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

Section	Raw Score %	Letter Grade
Planetary Health Curriculum (30%)	(21/72) x 100 = 29.17%	D
Interdisciplinary Research (17.5%)	(11/17) x 100 = 64.7%	B
Community Outreach and Advocacy (17.5%)	(3/14) x 100 = 21.43%	D
Support for Student-led Planetary Health Initiatives (17.5%)	(4/15) x 100= 26.67%	D
Campus Sustainability (17.5%)	(7/32) x 100 = 21.88%	D-
Institutional Grade	**(8.75 + 11.32 + 3.75 + 4.67 + 3.83) = 32.32%**	**D**