



Planetary Health Report Card:

University of Maryland School of Medicine



UNIVERSITY *of* MARYLAND
SCHOOL OF MEDICINE

2021-2022 Contributing Team:

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Summary of Findings

Overall	D
<u>Curriculum</u>	D+
<ul style="list-style-type: none"> • The University of Maryland School of Medicine (UMSOM) teaches planetary health through one standalone lecture delivered during the second year. We applaud the inclusion of this lecture but recognize it is insufficient. The disproportionate burden of climate change on disenfranchised communities is largely absent from the core curriculum. • Recommendations: Longitudinally incorporate planetary health and environmental justice into relevant lectures within each block and into patient cases to teach the management of environmentally-mediated disease. Maintain a commitment to a dedicated faculty position to oversee this part of the curriculum. 	
<u>Interdisciplinary Research</u>	F+
<ul style="list-style-type: none"> • There is a lack of planetary health research and institutional research grant support at UMSOM. Environmental justice groups do not currently contribute to the environmental health research agenda at UMSOM. • Recommendations: Join the Global Consortium on Climate and Health Education, prioritize environmental health research in seed grant programs, encourage recruitment of planetary health researchers and educators, and partner with local environmental justice groups to identify high-priority research needs. 	
<u>Community Outreach and Advocacy</u>	F-
<ul style="list-style-type: none"> • UMSOM has no environmental community partnerships, community outreach about the intersection of climate change and health, or continuing medical education for post-graduate providers. • Recommendations: Establish at least one environmental community partnership for the first-year service learning requirement, with organizations such as Blue Water Baltimore. Work towards an annual UMSOM community-oriented planetary health event. Partner with the Office of Sustainability to create a planetary health newsletter for the University of Maryland Baltimore (UMB) students and faculty. 	
<u>Support for Student-Led Initiatives</u>	D
<ul style="list-style-type: none"> • UMSOM does not promote environmental health research or projects to students, though it must be noted that the Office of Student Research (OSR) does not often promote specific research interests. • Recommendations: Host an Environmental Health Research roundtable through OSR, similar to the Health Equity roundtable hosted in early 2022. Expand funding and opportunities for students to create and implement sustainability QA/QC efforts in the campus community. 	
<u>Campus Sustainability</u>	C-
<ul style="list-style-type: none"> • The Office of Sustainability is leading major sustainability initiatives at UMB, including sustainable event guidance and greener lab spaces. However, the office is newly established and many of these projects are only in the beginning stages. Commendably, sustainability has recently been prioritized as part of UMSOM’s strategic planning. • Recommendations: Support the Office of Sustainability in their efforts to make the campus more green. Make this Office more accessible to students by holding a sustainability workshop for first-year students during orientation. 	

Statement of Purpose

Planetary health is human health.

The Planetary Health Alliance describes planetary health as “a solutions-oriented, transdisciplinary field and social movement focused on analyzing and addressing the impacts of human disruptions to Earth’s natural systems on human health and all life on Earth.” This definition is intentionally broad, intended to encompass the multitude of ways that the environment can affect health, including water scarcity, changing food systems, urbanization, biodiversity shifts, natural disasters, climate change, changing land use and land cover, global pollution, and changing biogeochemical flows. The health of humanity is dependent on our environment and our environment is changing rapidly and in disastrous ways. Although the World Health Organization has called climate change “the greatest threat to global health in the 21st century,” many medical school’s institutional priorities do not reflect the urgency of this danger to human health.

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

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

Definitions & Other Considerations

Definitions:

- **Planetary Health:** is described by the *Planetary Health Alliance* as “a solutions-oriented, transdisciplinary field and social movement focused on analyzing and addressing the impacts of human disruptions to Earth’s natural systems on human health and all life on Earth.” For example, topics such as climate change, declining biodiversity, shortages of arable land and freshwater, and pollution would all fall under the realm of planetary health. Both planetary health and traditional ‘environmental health’ examine the relationship between human health and the external environment, including extreme temperatures, chemicals, vector-borne diseases, etc. Planetary health explicitly concerns itself with the potential health harms associated with human-caused perturbations of natural systems. Therefore, the human health focus of planetary health makes the field well-adapted for the context of medical school education. Throughout this report card, we use the term planetary health to refer to this broad swath of topics, but resources do not need to explicitly include the term “planetary health” to satisfy the metric.
- **Education for Sustainable Healthcare (ESH):** is defined as the process of equipping current and future health professionals with the knowledge, attitudes, skills and capacity to provide environmentally sustainable services through health professional education, thus working to decrease the enormous environmental impact of the healthcare industry. Planetary Health Education is an integral part of this education rather than an end in itself. This is because knowledge on Planetary Health is required to be able to fully understand the necessity of sustainable healthcare as well as being part of the broader knowledge needed to fully protect and promote health. In summary, ESH is covered by the three Priority Learning Outcomes of the Centre of Sustainable Healthcare below, and Planetary Health Education is embraced in the first learning objective and is a fundamental requirement to achieve learning outcomes 2 and 3:
 1. Describe how the environment and human health interact at different levels.
 2. Demonstrate the knowledge and skills needed to improve the environmental sustainability of health systems.
 3. Discuss how the duty of a doctor to protect and promote health is shaped by the dependence of human health on the local and global environment.
- **Medical School vs. Institution:** When “medical school” is specified in the report card, this only refers to curriculum and resources offered by the School of Medicine and does not include offerings from other parts of the university (for example, undergraduate departments, 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.

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

Planetary Health Curriculum

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

Curriculum: General

1. Did your medical school offer elective courses (student selected modules) to engage students in Education for Sustainable Healthcare or Planetary Health in the last year?	
3	Yes, the medical school has offered more than one elective whose primary focus is ESH/planetary health in the past year.
2	Yes, the medical school has offered one elective whose primary focus is ESH/planetary health in the past year.
1	The medical school does not have any electives whose primary focus is ESH/planetary health, but there are one or more electives that include a lecture on planetary health.
0	No, the medical school has not offered any electives on planetary health or electives that include ESH/planetary health topics in the past year.
<p><i>Score explanation: The University of Maryland, Baltimore hosts an interprofessional elective titled, "Critical Issues in Global Health" which dedicates two lectures to climate change ("Planetary Health or Environmental Health" and "Global Climate Change: Lessons Learned from China"). The School of Medicine offers a clerkship elective in Public Health, in which students may opt to participate in state or local public health agency activities pertaining to environmental health.</i></p>	

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: In the lecture, “Impact of Climate Change on Health”, Dr. Kerri Thom describes the link between climate change and the increasing frequency and duration of heatwaves. She also describes the health effects of heatwaves and provides links to a [NEJM Interactive Tool](#) for additional information.

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: In the lecture, “Impact of Climate Change on Health”, Dr. Kerri Thom briefly describes the health effects of extreme weather events, including physical injury, worsening mental health, and worsening of preexisting medical conditions. She links the [NEJM Interactive Tool](#) for additional information.

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: In a lecture on coronaviruses, the lecturer explained that climate change will continue to increase the zoonotic emergence of new viruses. In a skin and soft tissue infection lecture, Dr. Devang Patel teaches that hand foot mouth disease has increased global incidence due to the effects of climate change. This phenomenon was also covered in the lecture, “Impact of Climate Change on Health”, given by Dr. Kerri Thom in the Multisystems block.

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.
<p><i>Score explanation: The effects of air pollution on asthma and COPD is mentioned in the Pulmonary block by Dr. Kathryn Robinett. The impacts of air pollution on dementia risk is briefly covered in the Brain and Behavior block. The relationship between climate change and deteriorating air quality was also covered in “Impact of Climate Change on Health,” given by Dr. Kerri Thom in the Multisystems block.</i></p>	

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.
<p><i>Score explanation: In the lecture, “Impact of Climate Change on Health,” Dr. Kerri Thom briefly describes the climate change-mediated exposure pathways that lead to increased cardiovascular disease hospitalization, including heat stress and extreme weather events such as wildfires.</i></p>	

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.
<p><i>Score explanation: Air pollution is listed as a modifiable dementia risk factor in a lecture on Neurodegenerative Disorders in the Brain and Behavior block. Given the lack of elaboration and very minimal coverage of this topic, it was awarded 0 points.</i></p>	

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.
<p><i>Score explanation: In the lecture, “Impact of Climate Change on Health”, Dr. Kerri Thom describes the effects of climate change on the nutritional value of major food crops, and the effects of climate change on harmful algal blooms and gastrointestinal illness.</i></p>	

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.
<p><i>Score explanation: The curriculum does not cover the disproportional impact of climate change on marginalized communities.</i></p>	

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.
<p><i>Score explanation: In the Renal Block, a lecture on nephrolithiasis covered the northward migration of the “kidney stone risk belts” due to climate change.</i></p>	

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.
<i>Score explanation: The curriculum does not cover the reproductive impacts of industrial toxins.</i>	

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.
<i>Score explanation: Dr. Kerri Thom refers to air pollution generated by Baltimore's Wheelabrator (a trash-to-electricity incinerator) in her lecture, "Impact of Climate Change on Health" in the Multisystems block.</i>	

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.
<i>Score explanation: The medical school curriculum does not incorporate Indigenous knowledge or value systems.</i>	

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.
<i>Score explanation: The medical school does not cover this topic.</i>	

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.
<i>Score explanation: In the Primary Care Track elective lecture about weight management, Dr. Mihir Patel teaches how to integrate a discussion on the health and planetary co-benefits of a plant-based diet into patient encounters. In several other parts of the curriculum, the health benefits of a plant-based diet are mentioned without discussing the accompanying environmental benefit. For example, in the Cardiovascular Block of the second year curriculum, plant-based diets were highlighted as a significant evidence-based heart-healthy diet practice. In the longitudinal Practice of Medicine course, Dr. Chris D'Adamo teaches evidence-based approaches to nutrition and healthy diets, including the benefits of plant-based diets.</i>	

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.
<i>Score explanation: The need to reduce the carbon footprint of healthcare was mentioned in one bullet point in a concluding slide of Dr. Kerri Thom's presentation, "Impact of Climate Change on Health." Specific information on the extent of the problem and solutions for decarbonization were omitted, and thus combined with the minimal coverage of this topic, this was awarded 0 points.</i>	

17. Does your medical school curriculum cover these components of sustainable clinical practice in the <u>core</u> curriculum? (1 point each)	
1	Waste production within the healthcare system and strategies for reducing waste in clinical activities, such as in the operating room
1	The impact of inhalers on the healthcare carbon footprint and the environmental benefit of dry powdered inhalers over metered dose inhalers.
1	The impact of anaesthetic gases on the healthcare carbon footprint and ways to reduce anaesthesia environmental impacts, such as total intravenous anaesthesia or choosing less environmentally anaesthetic gas options with reduced greenhouse gas emissions
1	The environmental impact of pharmaceuticals and over-prescribing as a cause of climate health harm. Alternatively teaching on deprescribing where possible and its environmental and health co-benefits would fulfill this metric.
1	The health and environmental co-benefits of non-pharmaceutical management of conditions where appropriate such as exercise or yoga classes for type 2 diabetes; social group activities such as gardening for mental health conditions; active transport such as bicycle schemes for obesity. This is commonly known as social prescribing in the UK.
1	The health and environmental co-benefits of avoiding over-medicalisation, over-investigation and/or over-treatment.
<p><i>Score explanation:</i> 4. In the “Blood, Host, and Defense” block, antibiotic prescription etiquette is discussed as a tool to prevent antibiotic resistance in the environment, which in turn benefits human health in preventing clinical antibiotic resistance.</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 no strategies introduced for having conversations with patients about climate change.
<p><i>Score explanation: There is no component of the curriculum that teaches strategies for discussing the health effects of climate change with patients.</i></p>	

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.
<p><i>Score explanation: Students are taught strategies for gathering a complete and accurate environmental/exposure/occupational history in Dr. Marianne Cloeren’s occupational health lecture during Practice of Medicine II. Dr. Cloeren also offers an elective to first and second-year medical students on Occupational and Environmental Medicine topics. This elective offers 100 hours of education and includes environmental medicine topics such as environmental toxin exposure and heat-related conditions.</i></p>	

Curriculum: Administrative Support for Planetary Health

20. Is your medical school currently in the process of implementing or improving Education for Sustainable Healthcare (ESH)/planetary health education?	
4	Yes, the medical school is currently in the process of making major improvements to ESH/planetary health education.
2	Yes, the medical school is currently in the process of making minor improvements to ESH/planetary health education.
0	No, there are no improvements to planetary health education in progress.
<p><i>Score explanation: The Preclerkship Committee received a presentation on climate change and health education from two PHRC coauthors on Nov. 8 2021. Preclerkship Committee leadership was widely supportive of including climate change in the curriculum. As of April 2022, the Committee has appointed a Climate Change and Health Education Lead to begin curriculum revision.</i></p>	

21. How well are the aforementioned planetary health/Education for Sustainable Healthcare topics integrated longitudinally into the core curriculum?	
6	Planetary health/ESH topics are well integrated into the core medical school curriculum.
4	Some planetary health/ESH topics are appropriately integrated into the core medical student curriculum.
2	Planetary health/ESH is not integrated and is primarily addressed in (a) standalone lecture(s).

0	There is minimal/no education for sustainable healthcare.
<p><i>Score explanation: Planetary health is taught in a standalone lecture called “Impact on Climate Change on Health” given by Dr. Kerri Thom. It is not systematically integrated into the other lectures within the core curriculum, though it appears rarely in various preclerkship curriculum lectures.</i></p>	

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.
<p><i>Score explanation: As of April 2022, the UMSOM has an appointed Climate & Health Educational Lead. This professor will work in collaboration with student leaders to integrate planetary health into existing coursework.</i></p>	

Section Total (26 out of 69)	D+
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Interdisciplinary Research

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

1. Are there researchers engaged in planetary health research and healthcare sustainability research at your medical school?	
3	Yes, there are faculty members at the School of Medicine who have a primary research focus in planetary health or healthcare sustainability.
2	Yes, there are individual faculty members at the School of Medicine who are conducting research related to planetary health or healthcare sustainability, but it is not their primary research focus.
1	There are planetary health and/or healthcare sustainability researchers at the institution, but none associated with the medical school.
0	No, there are no planetary health and/or healthcare sustainability researchers at the institution or medical school at this time.
<p><i>Score explanation: There are no researchers with a primary focus on planetary health or healthcare sustainability at the medical school, but there are researchers and professors who have engaged in relevant research in the School of Law, School of Nursing, and the Graduate School.</i></p>	

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.
<p><i>Score explanation: There is an Occupational and Environmental Medicine department at UMSOM, but the vast majority of research focuses on the field of Occupational Medicine.</i></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 medical school?	
3	Yes, there is a process in which community members impacted by climate and environmental injustice have decision-making power in the climate + environmental research agenda.
2	Yes, there is a process in which community members impacted by climate and environmental injustice advise the climate + environmental research agenda.
1	No, but there are current efforts to establish a process for community members to advise or make decisions on the research agenda.
0	There is no process, and no efforts to create such a process.
<i>Score explanation: There is no process, and no effort to create such a process.</i>	

4. Does your institution have a planetary health website that centralizes ongoing and past research related to health and the environment?	
3	There is an easy-to-use, adequately comprehensive website that centralizes various campus resources related to health and the environment including all of the following: upcoming events, leaders in planetary health at your institution, and relevant funding opportunities.
2	There is a website that attempts to centralize various campus resources related to health and the environment, but it is hard-to-use, not updated, or not adequately comprehensive.
1	The institution has an Office of Sustainability website that includes some resources related to health and the environment.
0	There is no website.
<i>Score explanation: The Office of Sustainability website centralizes resources and information on sustainability at the University of Maryland, Baltimore but does not include information about events, research, planetary health leadership, or funding opportunities.</i>	

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.
<i>Score explanation: No, the institution has not hosted a conference on topics related to planetary health in the past three years.</i>	

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.
<i>Score explanation: The medical school is not a member of any such organization.</i>	

Section Total (3 out of 17)	F+
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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: Neither the medical school nor the institution has meaningful community partnerships focused on planetary health.</i></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 medical school has not offered such community-facing courses or events.
<p><i>Score explanation: The medical school has not organized any community-facing courses or events to educate the community on planetary health.</i></p>	

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

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

Score explanation: There are no regular updates about planetary health/sustainable healthcare in the student newsletters.

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: There are no accessible courses for post-graduate providers to ensure their planetary health knowledge and skills remain up to date.

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: The University of Maryland School of Medicine's primary affiliated hospital, the University of Maryland Medical Center, does not have online materials educating their patients on environmental health exposures. Healthcare providers at the hospital can include some degree of environmental health exposure information in discharge summaries, but it is unclear how detailed these are and how often they are actually used. Availability of educational materials was not assessed for other clinical affiliates.

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: There are no accessible educational materials about climate change and its health impacts provided to patients at our primary affiliated hospital, the University of Maryland Medical Center. Availability of educational materials was not assessed for other clinical affiliates.

Section Total (0 out of 14)	F-
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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 institution offer support for medical students interested in enacting a sustainability initiative/QI project?	
2	Yes, the 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 encourages sustainability QI projects (to fulfill clerkship or longitudinal requirements) and offers resources to help students succeed in these projects, but there is no student funding available and there is no requirement to participate.
0	No, the institution does not offer opportunities or support for sustainability initiatives or QI projects.

Score explanation: The University of Maryland School of Medicine's Office of Student Research offers funding to student research projects through the [Program for Research Initiated by Students and Mentors \(PRISM\)](#), though sustainability projects are not targeted for funding. There are no student research funding awards earmarked exclusively to sustainability initiatives/QI projects at the School of Medicine.

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: There are a few researchers interested in environmental health topics within the School of Medicine, however; it is tremendously difficult to find them using the faculty research directory. Other planetary health researchers exist in the School of Law and School of Nursing, but students in the School of Medicine must (1) be aware of these opportunities, and (2) pursue them in their spare time.

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: There is no medical-school specific webpage for locating planetary health and/or sustainable healthcare projects or mentors.

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: There is a chapter of the Medical Students for a Sustainable Future at the University of Maryland School of Medicine.

5. Is there a student liaison representing sustainability interests who serves on a medical school or institutional decision-making council to advocate for curriculum reform and/or sustainability best practices?

1	Yes, there is a student representative that serves on a medical school or institutional decision-making council/committee.
0	No, there is no such student representative.

Score explanation: There is no formal student representative on a medical school or institutional decision-making council. Students may choose to join the Office of Sustainability's Working Groups, but otherwise, students do not have a directly appointed role in influencing curriculum reform/sustainability best practices.

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: The Wilderness Medicine Interest Group has hosted several events in Patapsco State Park that involve hiking in addition to wilderness medicine training.

Section Total (5 out of 15)	D
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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
<p><i>Score explanation: University of Maryland, Baltimore has an Office of Sustainability. The University of Maryland Medical Center has a Green Team with a Sustainability Manager.</i></p>	

2. How ambitious is your medical school/institution’s plan to reduce its own carbon footprint?	
4	The institution has a stated goal of carbon neutrality by 2030 or earlier and the medical school / institution has a well-defined and adequate plan in place to achieve this goal.
3	Yes, there is a stated carbon neutrality goal by at least 2040 and the medical school/institution has a well-defined and adequate plan in place to achieve this goal.
2	Yes, there is a stated carbon neutrality goal by at least 2040, but the medical school/institution has not created a plan to reach that goal or the plan is inadequate.
1	There is a CO2 emission reduction goal, but it is not one of carbon neutrality.
0	There is no stated goal for reduction of CO2 emissions.

Score explanation: The University of Maryland, Baltimore has a [stated carbon neutrality goal by 2050](#) with a well-defined and adequate plan in place to achieve this goal. Given the fact that these carbon neutrality goals are not ambitious enough per PHRC guidance, this section was awarded 1 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: In 2020, as per communication with the UMB Office of Sustainability, 27% of the University of Maryland, Baltimore buildings operated using renewable energy. There is a goal in place to increase this to 60% in the coming years.

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: All new University of Maryland, Baltimore buildings are required to meet at least LEED Silver requirements. All of the old buildings have been retrofitted with upgrades to LED, adjustments to the Building Automation System, updates to the HVAC and plumbing systems, and reduction of air and water temperatures during off-hours.

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.
<p><i>Score explanation: The University of Maryland, Baltimore is located in downtown Baltimore, and some students live walking or biking/scootering distance from the campus. There are environmentally-friendly transportation options available, such as a free shuttle service and a carpool program, but these are not all well-advertised. The biking infrastructure in and around campus can be developed further to encourage this mode of transportation.</i></p>	

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.
<p><i>Score explanation: The medical school has a recycling program but not a compost program accessible to students and faculty.</i></p>	

7. Does the medical school apply sustainability criteria when making decisions about the campus food and beverage selections (e.g. local sourcing, reduced meat, decreased plastic packaging)?	
3	Yes, the medical school has adequate sustainability requirements for food and beverages, including meat-free days or no red-meat, and is engaged in efforts to increase food and beverage sustainability.
2	There are sustainability guidelines for food and beverages, but they are insufficient or optional. The medical school is engaged in efforts to increase food and beverage sustainability.
1	There are sustainability guidelines for food and beverages, but they are insufficient or optional. The medical school is not engaged in efforts to increase food and beverage sustainability.
0	There are no sustainability guidelines for food and beverages.

Score explanation: The University of Maryland, Baltimore's Office of Sustainability is in the process of developing guidelines for campus food and beverage selections. However, no guidelines currently exist.

8. Does the medical school or associated institution apply sustainability criteria when making decisions about supply procurement?

3	Yes, the medical school has adequate sustainability requirements for supply procurement and is engaged in efforts to increase sustainability of procurement.
2	There are sustainability guidelines for supply procurement, but they are insufficient or optional. The medical school is engaged in efforts to increase sustainability of procurement.
1	There are sustainability guidelines for supply procurement, but they are insufficient or optional. The medical school is not engaged in efforts to increase sustainability of procurement.
0	There are no sustainability guidelines for supply procurement.

Score explanation: The University of Maryland, Baltimore's Office of Sustainability is in the process of developing guidelines for supply procurement. However, no guidelines currently exist.

9. Are there sustainability requirements or guidelines for events hosted at the medical school?

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

Score explanation: The University of Maryland School of Medicine does not have sustainability guidelines for their events. The Office of Sustainability is considering working with the school to create this resource; however, putting these guidelines into action right now would be challenging due to the COVID-19 pandemic.

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 University of Maryland, Baltimore's Office of Sustainability has started the conversation on ways to make the campus lab spaces more green and has encouraged participation in the 2022 Lab Freezer Challenge to reduce energy consumption. No definitive programs or initiatives have been implemented yet.

11. Does your institution's endowment portfolio investments include fossil-fuel companies?

4	The institution is entirely divested from fossil fuels and has made a commitment to reinvest divested funds into renewable energy companies or renewable energy campus initiatives.
3	No, the institution is entirely divested from fossil fuels.
2	The institution has partially divested from fossil fuel companies or has made a commitment to fully divest, but currently still has fossil fuel investments.
1	The institution has not divested from fossil-fuel companies, but faculty and/or students are conducting organized advocacy for divestment.
0	Yes, the institution has investments with fossil-fuel companies and there have been no efforts to change that.

Score explanation: In 2016, the [University System of Maryland Foundation](#) committed to not make direct investments in companies on the Carbon Underground 200 list. In 2020, the Foundation stopped allocating capital to managers that invest primarily in fossil fuel extraction and will allow existing investments in such managers to run off.

Section Total (13 out of 31)

C-

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 Maryland School of Medicine

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

Section	Raw Score	Letter Grade
Planetary Health Curriculum (30%)	$(26/69) \times 100 = 37.7\%$	D+
Interdisciplinary Research (17.5%)	$(3/17) \times 100 = 17.7\%$	F+
Community Outreach and Advocacy (17.5%)	$(0/14) \times 100 = 0\%$	F-
Support for Student-led Planetary Health Initiatives (17.5%)	$(5/15) \times 100 = 33.0\%$	D
Campus Sustainability (17.5%)	$(13/31) \times 100 = 41.9\%$	C-
Institutional Grade	27.6%	D