



Planetary Health Report Card: *Boston University School of Medicine*



Boston University School of Medicine

2020-2021 Contributing Team:

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Summary of Findings

Curriculum	D
<p>The Boston University School of Medicine (BUSM) Planetary Health Curriculum contains sessions on the impacts of pollution and environmental health on patients in the setting of asthma and other cardiopulmonary illnesses. The current planetary health curriculum is not integrated into other health system modules. The School of Public Health, however, has a robust offering of environmental health and sustainability courses. In a survey of 8 medical students and 2 public health students, the public health students rated their education as more robust in each of the curriculum metrics collected by the PHRC. In addition to further integration and the addressing of areas not yet covered such as the disproportionate impact on marginalized communities and the psychological effects of climate change, it is hoped that the medical school can better collaborate with the school of public health to enhance the core curriculum and offer relevant electives.</p>	
Interdisciplinary Research	B+
<p>Boston University School of Public Health, who works in tandem with BUSM, makes a significant effort to promote interdisciplinary research for planetary health. They have a dedicated program for population health research focusing on climate and health, with 4-5 ongoing projects and frequent symposia and lectures regarding topics in planetary health. Specific areas of improvement include the process of community input into the research agenda and communication with the larger university's Office of Sustainability to centralize resources related to health and environment in a medical-school specific context. Additionally, the medical school should consider joining the Planetary Health Alliance and/or the Global Consortium on Climate and Health Education.</p>	
Community Outreach and Advocacy	D+
<p>Boston University has some connection with sustainability organizations in the community, but has not promoted community based environmental partnerships that students can get involved in. Because of its vast network of community partners and partnering healthcare locations, it is thought that bringing in local groups working on planetary health initiatives would be well received by students and promote improved knowledge of said initiatives throughout the BUSM network.</p>	
Support for Student-Led Initiatives	A-
<p>The medical school is supportive of student-led initiatives and are enthusiastic and engaged in helping develop improved content around planetary health. Student groups seeking funding for their activities and individuals wanting to fund research have appropriate avenues to do so.</p>	
Sustainability	B-
<p>Sustainability is a main area of focus for Boston University, which has a robust Climate Action Plan with goals to be carbon neutral for our operations by 2040. There is a strong sustainability team within the University who work to coordinate different aspects of sustainability. The Medical School has also taken on significant steps to improve the energy efficiency of their buildings and labs. In the future, divestment from fossil fuels will be a major step towards achieving a higher sustainability score.</p>	

Statement of Purpose

Planetary health is human health.

The Planetary Health Alliance defines planetary health as “a field focused on characterizing the human health impacts of human-caused disruptions of Earth's natural systems.” 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 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.

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 change. Therefore, it is critical that medical students are trained to understand the health effects of climate change, as well as planetary health 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 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: 8 pre-clinical medical students and 2 Public Health students were surveyed on their experiences with the curriculum. Medical students were not aware of any elective offerings that addressed ESH / planetary health, but some acknowledged student groups focused on ESH/Planetary health. Public Health students were offered more than one elective whose primary focus on ESH/planetary health. A score of 0 is assigned because medical school students do not have access to any elective course on this topic.</i></p> <p><i>Calculated survey score: 0.75</i> <i>Medical Student Score: 0.43</i></p>	

Curriculum: Health Effects of Climate Change

2. Does your medical school curriculum address the relationship between extreme temperature health risks and climate change, as well as the socioeconomic/racial disparities in extreme heat exposure?	
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>One dedicated lecture regarding environmental health was presented to first-year medical students. In that lecture, one learning objective aimed to “discuss climate change and the potential impacts on human health.”</i></p> <p><i>Survey Score explanation: 8 pre-clinical medical students and 2 Public Health students were surveyed on their experiences with the curriculum. While Public Health students both felt the topic was explored in depth by their core curriculum, only one medical student felt the topic was covered in the core curriculum through one epidemiology lecture that addressed climate and spread of disease / air quality and chronic illness.</i></p> <p><i>Calculated survey score: 1.1</i> <i>Medical Student score:0.625</i></p>	

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.
<p><i>One dedicated lecture regarding environmental health was presented to first-year students. One component of the lecture focused on extreme weather days and their impacts on individual health as well as emergency preparedness and response.</i></p> <p><i>Survey score explanation: 8 pre-clinical medical students and 2 Public Health students were surveyed on their experiences with the curriculum. Some students recalled an infectious disease lecture that addressed extreme weather and natural disasters and their influence on health. Because content was included in the core curriculum, a score of 2 was assigned.</i></p> <p><i>Calculated survey score: 0.9</i> <i>Medical Student Score: 0.625</i></p>	

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.
<p><i>Upon reviewing the second year course content, a brief mention on the climate-related life cycle of certain parasites was found. However, this did not cover the larger impact of climate change and its impact on infectious disease patterns.</i></p> <p><i>Survey score explanation: 8 pre-clinical medical students and 2 Public Health students were surveyed on their experiences with the curriculum. While Public Health students felt this was explored in the core curriculum, no medical students recalled this topic being addressed. Because no medical students recalled this being addressed, a score of 0 was assigned.</i></p> <p><i>Calculated survey score: 0.5</i> <i>Medical student score: 0</i></p>	

5. Does your medical school curriculum address the cardiorespiratory health effects of climate change, including 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>This year, we had a dedicated mandatory case-based learning activity addressing asthma and community health. The root causes of asthma were discussed, including “the role of socioeconomic, environmental, cultural, and other population-level determinants of health on the health status and health care of individuals with asthma.”</i></p> <p><i>Survey score explanation: 8 pre-clinical medical students and 2 Public Health students were surveyed on their experiences with the curriculum. Air pollution and pulmonary health was briefly covered in a pulmonary lecture. Some students had ad-hoc conversations about pollution in their anatomy labs in the context of donor lung conditions. Because this was addressed in the core curriculum, a score of 3 was assigned.</i></p> <p><i>Calculated survey score: 1.56</i> <i>Medical student score: 1.625</i></p>	

6. 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>After reviewing the learning objectives and course content for the first and second year courses, this topic was not covered. It was also not found to be covered in any current electives.</i></p> <p><i>Survey score explanation: 8 pre-clinical medical students and 2 Public Health students were surveyed on their experiences with the curriculum. While both public health students felt this topic was covered briefly in the core curriculum, only one medical student recalled the topic being covered. Because the majority of students felt this was not covered in any capacity, a score of 0 was assigned. Despite the one student recalling the topic being presented in class, our review of the curriculum yielded no content.</i></p> <p><i>Calculated survey score: 0.6</i> <i>Medical student score: 0.25</i></p>	

7. 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>Upon reviewing the public health course curriculum for medical students, we identified a lecture addressing food insecurity. Though topics on agricultural policy were discussed, the relationship between food/water insecurity and ecosystem health was not addressed.</i></p> <p><i>Survey score explanation: 8 pre-clinical medical students and 2 Public Health students were surveyed on their experiences with the curriculum. While both public health students felt the topic was covered, only 2 medical students recalled the topic being covered. Despite their recall, content covering the entire scope of this metric was not found.</i></p> <p><i>Calculated survey score: 0.9</i> <i>Medical student score: 0.5</i></p>	

8. 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, 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>Survey score explanation: 8 pre-clinical medical students and 2 Public Health students were surveyed on their experiences with the curriculum. While both public health students felt the topic was covered in depth, only 2 medical students felt the topic was covered in any capacity. One recalled discussing this in the CLEAR elective in M1. A score of 1 is given because of content included in the CLEAR elective on outsized impacts of climate change on communities of color.</i></p> <p><i>Calculated survey score: 0.9</i> <i>Medical student score: 0.375</i></p>	

9. Does your medical school curriculum address the unequal 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>Survey score explanation: 8 pre-clinical medical students and 2 Public Health students were surveyed on their experiences with the curriculum. While both public health students felt this topic was covered, only one medical student recalled addressing this in elective coursework. A score of 0 is assigned since this topic was not found in a review of the curriculum, nor was it covered but student led elective groups. The majority of students reported no exposure to this topic.</i></p> <p><i>Calculated survey score: 0.6</i> <i>Medical student score: 0.125</i></p>	

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

10. 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.

Core curriculum in embryology as well as OB-GYN and pediatrics clerkship rotation courses include content on pesticides and other teratogens, but lack holistic content around pollution and impacts of climate change specifically on health.

Survey score explanation: 8 pre-clinical medical students and 2 Public Health students were surveyed on their experiences with the curriculum. Both public health students and half of medical students recalled discussing this topic as it pertained to the impacts of teratogens on fetal development. A score of 2 is assigned because of its inclusion in the public health core curriculum lecture on environmental health.

Calculated survey score: 1.2

Medical student score: 0.7

11. 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.

Upon reviewing course material for this year's public health course, we identified that the case-based discussion on asthma and community health allowed us to briefly cover these topics, but this was dependent on our own research and some students may not have investigated these topics.

Survey score explanation: 8 pre-clinical medical students and 2 Public Health students were surveyed on their experiences with the curriculum. Two felt this was covered briefly in the core curriculum and one recalled this topic being offered in elective coursework.

Calculated survey score: 0.55

Medical student score: 0.375

12. Does your medical school curriculum address the unique climate and environmental health challenges that have impacted and are impacting Indigenous communities?

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.

Health of indigenous communities is minimally covered within the core curriculum as a whole.

Survey score explanation: 8 pre-clinical medical students and 2 Public Health students were surveyed on their experiences with the curriculum. While both public health students felt the topic was covered, only one medical student recalled discussing this in elective coursework. A score of 0 is given because most students did not recall this being covered in the medical school curriculum.

Calculated survey score: 0.6

Medical student score: 0.125

13. 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, and older adults?

3	This topic was explored in depth by the core curriculum.
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2	This topic was briefly covered in the core curriculum.
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1	This topic was covered in elective coursework.
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0	This topic was not covered.
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The outsized health impacts of anthropogenic environmental toxins on children and older adults are discussed in core curriculum, but the curriculum does not address the outsized impact of these factors on other marginalized populations including homeless populations, those with low SES, and communities of color.

Survey score explanation: 8 pre-clinical medical students and 2 Public Health students were surveyed on their experiences with the curriculum. While both public health students felt the topic was covered in the core curriculum, only 2 medical students recalled the topic being covered in the context of water resource contaminants. Because this was addressed so briefly, we are assigning a score of 2.

Calculated survey score: 0.9

Medical student score: 0.5

Curriculum: Sustainability

14. 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.
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2	This topic was briefly covered in the core curriculum.
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1	This topic was covered in elective coursework.
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0	This topic was not covered.
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Upon review of the course material, the health benefits of plant based diets were briefly mentioned in the GI/nutrition course during M1.

Survey score explanation: 8 pre-clinical medical students and 2 Public Health students were surveyed on their experiences with the curriculum. One medical student recalled plant-based diets and their benefits being taught in the GI/nutrition course of M1. Because this was addressed briefly, a score of 2 was given.

Calculated survey score: 0.3

Medical student score: 0.375

15. Does your medical school curriculum highlight the waste generated by the healthcare system and identify ways to advocate for and implement sustainable best practices in health care?

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.

Upon review of course content, this topic is not addressed in the core curriculum or electives.

Survey score explanation: 8 pre-clinical medical students and 2 Public Health students were surveyed on their experiences with the curriculum. 2 medical students recalled this topic being discussed in elective coursework or briefly in the core curriculum as “vague preferences for sustainable practice.” A score of 0 is given because this content was not found in the curriculum. Of note, most students did not feel this topic was addressed.

Calculated survey score: 0.33

Medical student score: 0.375

Curriculum: Clinical Applications

16. In training for patient encounters, does your medical school’s curriculum introduce strategies to have conversations with patients about the health effects of climate change?

2	Yes, there are strategies introduced for having conversations with patients about climate change in the core curriculum.
1	Yes, there are strategies introduced for having conversations with patients about climate change in elective coursework.

0	No, there are not strategies introduced for having conversations with patients about climate change
<p><i>These strategies are not addressed in the core curriculum.</i></p> <p><i>Survey score explanation: 8 pre-clinical medical students and 2 Public Health students were surveyed on their experiences with the curriculum. None felt communication or role-play exercises regarding climate change had been integrated into the curriculum.</i></p> <p><i>Calculated survey score: 0</i> <i>Medical student score: 0</i></p>	

17. 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>This year, medical students discussed environmental history taking as part of our environmental health lecture as well as in a case-based discussion about “the role of socioeconomic, environmental, cultural, and other population-level determinants of health on the health status and health care of individuals with asthma.”</i></p> <p><i>Survey score explanation: 8 pre-clinical medical students and 2 Public Health students were surveyed on their experiences with the curriculum. One public health student and 2 medical students felt this topic was addressed through asking patients about their living situations solely.</i></p> <p><i>Calculated survey score: 0.4</i> <i>Medical student score: 0.375</i></p>	

Curriculum: Administrative Support for Planetary Health

18. Is your medical school currently in the process of 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.

No concerted efforts to make improvements to the ESH / planetary health education programs were identified. However, after reviewing the course content and learning objectives between 2018 and 2021, it is clear that a few small changes have been made within the course content to include more planetary health topics.

19. 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.

During our week dedicated to public health, we had a standalone lecture addressing Environmental Health in addition to the case-based discussion about asthma.

Survey score explanation: 8 pre-clinical medical students and 2 Public Health students were surveyed on their experiences with the curriculum. 4 students felt that this topic was addressed in standalone lectures; 6 felt there was minimal / no education for sustainable healthcare.

*Calculates survey score: 0.8
Medical student score: 0.75*

20. Bonus: Does your medical school have a program that offers incentives for faculty/departments to develop new planetary health/ESH courses and/or incorporate planetary health/ESH into existing courses?

1	Yes, the medical school has an incentive program.
0	No, the medical school does not have an incentive program.

No incentive program has been identified.

Section Total (20 out of 58)

D

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?	
4	Yes, there are several faculty members at the School of Medicine who have a primary research focus in planetary health and healthcare sustainability.
3	Yes, there are some 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: The School of Public Health on the Medical Campus includes several staff members focused primarily on environmental health. There are currently 4-5 major ongoing projects in this space.</i></p> <p>https://www.bu.edu/sph/about/departments/epidemiology/research/research-areas/#infectious https://www.bu.edu/sph/education/degrees-and-programs/ma-ms-programs/master-of-science-in-population-health-research-climate-and-health/</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: The School of Public Health on the Medical Campus includes a department specifically dedicated to environmental health.</i></p> <p>https://www.bu.edu/sph/about/departments/environmental-health https://sites.bu.edu/climateandhealth/projects/</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.
<p><i>Score explanation: The School of Public Health Climate Research Team includes "community participatory research to build resilience to extreme heat in Boston area communities;" more about this project can be found at:</i></p> <p>https://sites.bu.edu/climateandhealth/projects/</p>	

4. Does your institution have a planetary health website, or a website centralizing various campus resources related to health and the environment?	
3	There is an easy-to-use, adequately comprehensive website that centralizes various campus resources related to health and the environment including all of the following: upcoming events, leaders in planetary health at your institution, and relevant funding opportunities.
2	There is a website that attempts to centralize various campus resources related to health and the environment, but it is hard-to-use, not updated, or not adequately comprehensive.
1	The institution has an Office of Sustainability website that includes some resources related to health and the environment.

0	There is no website.
<p><i>Score explanation: The Boston University Institution has a comprehensive office of sustainability website, but there is not a site specific to the medical school. Note: A Comprehensive Medical Campus Institutional Master Plan was submitted to the Boston Planning and Development Agency, but is not easily accessed via any medical student web platforms.</i></p> <p>https://www.bu.edu/community/files/2020/03/BU-Medical-Campus-IMPNF_2-25-2020.pdf</p>	

5. Has your institution recently hosted a conference or symposium on topics related to planetary health?	
4	Yes, the institution has hosted more than one conference or symposium on topics related to planetary health in the past year, including at least one on climate change.
3	Yes, the institution has hosted 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.
<p><i>Score explanation: The School of Public Health has hosted several events and seminars related to planetary health:</i></p> <p>https://www.bu.edu/sph/about/departments/environmental-health/ehseminars https://twitter.com/BUSPH/status/1352632121253367820/photo/1</p>	

6. Has your institution or medical school joined the Planetary Health Alliance and/or the Global Consortium on Climate and Health Education?	
2	Yes, the medical school has joined the Planetary Health Alliance and/or the Global Consortium on Climate and Health Education.
1	Yes, the institution has joined the Planetary Health Alliance and/or the Global Consortium on Climate and Health Education, but the medical school specifically has not.
0	No, the institution has not joined the Planetary Health Alliance or the Global Consortium on Climate and Health Education.
<p><i>Score explanation: The School of Public Health has taken this step, but the Medical School has not.</i></p>	

Section Total (15 out of 19)

B+

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: Sections 6.5 - 6.7 of the Medical Campus Institutional Master Plan documents partnerships with the green ribbon commission, zero waste boston, and carbon free boston. These are all hosted through Boston University as an overarching institution, but the medical campus is part of the partnerships.</i></p> <p><i>“Boston University has been a member and supporter of the City of Boston’s Green Ribbon Commission since its inception. President Brown sits on the Green Ribbon Commission and the Carbon Free Boston Working Group. The University is also actively participating in the Commission’s Higher Ed Working Group, a collaborative body of Boston area academic institutions convening around emerging and best practices on energy efficiency, large scale renewables procurement, climate preparedness, green labs, etc.</i></p> <p><i>Boston University’s Institute for Sustainable Energy developed the process and implemented the analysis and reporting for Carbon Free Boston to help the City understand the policies and programs that need to be put in place if the City is going to meet its goal to be carbon free by 2050.</i></p> <p><i>The University participated in the City of Boston’s Zero Waste Advisory Committee to make recommendations for nineteen Zero Waste options for implementation in the short-, medium- and long-term.”</i></p> <p>https://www.bu.edu/community/files/2020/03/BU-Medical-Campus-IMPNE_2-25-2020.pdf</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.

Score explanation: There have been no community-facing courses or events on planetary health in the past year.

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: Students receive regular communications from “Sustainability@BU” with institution-wide updates on upcoming events and opportunities.

4. Does the institution offer continuing medical education (CME) courses that address planetary health and/or sustainable healthcare?

2	Yes, multiple in-person or online CME courses relating to planetary health and/or sustainable healthcare are offered, including at least one with a primary focus on planetary health.
1	Yes, one in-person or online CME courses related to planetary health and/or sustainable healthcare is offered.
0	There are no CME courses on planetary health or sustainable healthcare topics.

Score explanation: A CME search yielded no courses on planetary health or sustainable healthcare.

5. Do hospitals affiliated with your medical school 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 educational material for patients have been identified at Boston Medical Center or any affiliated locations.

6. Do hospitals affiliated with your medical school 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: No educational material for patients have been identified at Boston Medical Center or any affiliated locations.

Section Total (5 out of 14)

D+

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?	
2	Yes, the institution offers grants available to medical students for students to enact sustainability initiatives.
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.
0	No, the institution does not offer opportunities or support for sustainability initiatives.

Score explanation: Avenues exist for students to access grants for various initiatives through the larger institution's Campus Climate Lab.

<https://www.bu.edu/urbanclimate/campus-climate-lab/>

2. Does your institution offer opportunities for medical students to do research related to planetary health and/or sustainable healthcare?	
3	The institution offers an explicit paid fellowship for medical students to do research related to planetary health and/or sustainable healthcare.
2	The institution offers paid research opportunities for students and planetary health/sustainable healthcare projects would be considered eligible.
1	There are unfunded research opportunities for students to perform research related to planetary health/sustainable healthcare.
0	There are no opportunities for students to receive funding for planetary health/sustainable healthcare research.

Score explanation: Medical students can apply specifically for summer funding for a research project in any BUMC healthcare setting through their MSSRP program. While not specific to healthcare sustainability, the scope of the research topics is not limited. Students can also fund research initiatives via the Campus Climate Lab.

https://twitter.com/UrbanClimate_BU/status/1356676321145839620/photo/1
<https://www.bumc.bu.edu/busm/education/medical-education/enrichment/mssrp/>

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 web page with specific information related to planetary health or sustainable healthcare that includes up-to-date information on relevant initiatives and contact information of potential mentors.
1	There is a medical school webpage that features some information on projects and mentors within planetary health and sustainable healthcare within the medical school, but it lacks key information.
0	There is no medical-school specific webpage for locating planetary health and/or sustainable healthcare projects or mentors.

Score explanation: The School of Public Health, who works in tandem with the School of Medicine, has a centralized webpage for students to connect with faculty mentors around this topic; however, the medical school on its own does not. Students are encouraged to perform interdisciplinary research activities with the students and faculty at School of Public Health.

4. Does your medical school have funded, 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 funded 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 and/or funding.
0	No, there is not a student organization at my institution dedicated to planetary health or sustainability in healthcare.

Score explanation: The Medical Campus hosts the Climate Action Group, where students from programs across the medical campus receive funding and faculty support to advance advocacy and planetary health engagement on campus.

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

1	Yes, there is a student representative that serves on a medical school or institutional decision-making council.
0	No, there is no such student representative.
<p><i>Score explanation: No student representative has been identified in this role through the medical school; there are undergraduate sustainability interns at the institutional level, but they do not serve in any decision-making capacity.</i></p>	

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) that follow Leave No Trace principles.
<p><i>Score explanation: BUSM supports a wilderness medicine student group that follow Leave No Trace principles and also hosts an annual LMSA/SNMA cultural show. The student Climate Action Group has hosted events with local members of the environmental justice community where medical campus students can learn more about how to get involved in their initiatives. Students have been the intended audience for speaker series with local community organizations to spark student engagement.</i></p>	

Section Total (12 out of 15)	A-
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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: The institutional supports many full time staff at sustainability @ BU. Sustainability Liaisons represent every school and college. They meet quarterly with sustainability@BU to “improve communication on the various campus sustainability issues, discuss potential projects within individual schools, and share challenges, solutions, and successes.”</i></p> <p>BU Sustainability team:: http://www.bu.edu/sustainability/about-us/sustainabilitybuteam/</p> <p>Content on medical school liaisons (section 6.2): https://www.bu.edu/community/files/2020/03/BU-Medical-Campus-IMPNF_2-25-2020.pdf</p>	

2. Does your medical school and/or institution have a stated goal of carbon neutrality by 2050?	
4	The medical school is already carbon neutral.
3	Yes, there is a stated carbon neutrality goal and the medical school has a well-defined and adequate plan in place to achieve this goal.
2	Yes, there is a stated carbon neutrality goal, but the medical school 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: BU has a robust climate action plan, which aims for carbon neutrality by 2040. BUSM Specific Goals are to:

- Reduce building energy use 31% by 2032, including growth,
- Match 100% of electrical demand with renewables (held as RECs) beginning in 2020 through a power purchase agreement for wind power in South Dakota (the project is now under construction), and
- Shift to fossil fuel free heating and cooling.

Medical Campus: See section 6.1
https://www.bu.edu/community/files/2020/03/BU-Medical-Campus-IMPNF_2-25-2020.pdf

BU overall Plan: <https://www.bmc.org/about-us/environmentally-friendly-campus>

Climate Action Plan recommendations: <https://www.bu.edu/climateactionplan/recommendations/>

3. Do buildings/infrastructure used by the medical school for teaching (not including the hospital) utilize renewable energy?	
3	Yes medical school buildings are 100% powered by renewable energy
2	Medical school buildings source >80% of energy needs from off-site and/or on-site renewable energy.
1	Medical school buildings source >20% of energy needs from off-site and/or on-site renewable energy.
0	Medical school buildings source <20% of energy needs from off-site and/or on-site renewable energy.

Score explanation: The BU Climate Action Plan document indicates as of 2020, there is a plan to have roughly 30% renewable energy allocated to medical campus teaching buildings with plans to improve by 2030. However, the current utilization is less than 30% renewables for the medical school specifically.

Of note, feasibility studies are currently underway to install solar panels on the main BU campus as well as the medical campus.

<https://www.bu.edu/sustainability/cleanpowerpurchasing/>

Also of note, the Medical Campus Community Files show that the medical campus aims to have 100% electrical demand met with renewables via the South Dakota windfarm purchase through RECs (see above).

Climate Action Plan recommendations: <https://www.bu.edu/climateactionplan/recommendations/>

Community Files Document:

https://www.bu.edu/community/files/2020/03/BU-Medical-Campus-IMPNF_2-25-2020.pdf

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 rating system or sustainable 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: BUSM has LEED Certification / Energy Star certification for old buildings and is pursuing LEED gold standards for new buildings. See section 6.3.

https://www.bu.edu/community/files/2020/03/BU-Medical-Campus-IMPNF_2-25-2020.pdf

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.
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: BU encourages public transit usage, shuttles, biking, and walkability. See sections 6.2.1 and 5.8.

https://www.bu.edu/community/files/2020/03/BU-Medical-Campus-IMPNF_2-25-2020.pdf

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: A compost program has been newly launched at the medical student residence. Recycling programs are in place currently; a 2017 Climate Action Group worked to improve recycling on campus. The Climate Action Group also communicates regularly with additional composting and recycling resources.</i></p> <p>https://bumccimateaction.wordpress.com/sustainability/bumc-recycling-petition/</p> <p>http://www.bumc.bu.edu/sustainability/focus-areas/reducing-waste/bumc-recycling/</p>	

7. Does the medical school apply sustainability criteria when making decisions about the campus food and beverage selections?	
3	Yes, the medical school has adequate sustainability requirements for food and beverages 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.
<p><i>Score explanation: Student government and the Climate Action Group are not aware of any guidelines for event planning purposes.</i></p>	

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.
<p><i>Score explanation: Guided Buying Supply Procurement resource ranks preferred vendors based on environmentally preferred options and diversity. Efforts to increase sustainability in purchasing decisions include the "green filter" option that will filter out certain suppliers who do not meet certain standards, but this feature is not available yet.</i></p> <p>https://www.bu.edu/sourcing/files/2020/07/Guided-BUYing-Purchase-Requisition-and-Approval-Training-Questions.pdf (Page 2)</p> <p>http://www.bu.edu/climateactionplan/files/2017/09/Supply-Chain-and-waste-2017-09-20.pdf</p>	

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.
<p><i>Score explanation: At the moment, there aren't any specific sustainability procedures/guidance for events hosted on campus.</i></p>	

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.
<p><i>Score explanation: The BU Environmental management division has issued guidelines and regulations that include minimizing waste production and pollution - there is a pollution prevention initiative with additional guidelines. The Climate Action Plan Campus Wide Programs includes the recommendation of a Green and Safe Labs Program.</i></p> <p>http://www.bu.edu/climateactionplan/files/2017/09/Community_engagement_2017-09-201.pdf (Page 3)</p> <p>Pollution Prevention Environmental Health & Safety</p>	

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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.
1	The institution has not divested from fossil-fuel companies, but faculty and/or students are conducting organized advocacy for divestment.
0	Yes, the institution has investments with fossil-fuel companies and there have been no efforts to change that.
<p><i>Score explanation: The Institution has not divested from fossil fuels. A 2016 Advisory committee on socially responsible investing submitted recommendations to divest completely; The board agreed to revisit the issue every 5 years. The BUMC medical campus has been specifically petitioned to divest as well and has invested in some renewable energy resources, including the South Dakota wind energy agreement.</i></p> <p><i>2016 BUMC divestment petition:</i> https://bumccclimateaction.wordpress.com/divestment/bumc-student-letter/</p> <p><i>2016 Summary of Recommendations to the BU Board of Trustees on Divestment:</i> http://www.bu.edu/trustees/boardoftrustees/committees/acsri/investment-issues/fossil-fuel/</p>	

Section Total (18 out of 29)	B-
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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 Boston University School of Medicine

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

Section	Raw Score	Grade
Planetary Health Curriculum (30%)	20 / 58 = 34.5%	D
Interdisciplinary Research (17.5%)	15 / 19 = 78.9%	B+
Community Outreach and Advocacy (17.5%)	5 / 14 = 35.7%	D+
Support for Student-led Planetary Health Initiatives (17.5%)	12 / 15 = 80%	A -
Campus Sustainability (17.5%)	18 / 29 = 62.1%	B-
Institutional Grade	55%	C+