Planetary Health Report Card (Medicine):

Harvard Medical School

2024-2025 Contributing Team:

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Land acknowledgment: Harvard University is located on the traditional and ancestral land of the Massachusetts, the original inhabitants of what is now known as Boston and Cambridge. We pay respect to the people of the Massachusett Tribe, past and present, and honor the land itself which remains sacred to the Massachusett People.

Summary of Findings

Overall Grade	B

Curriculum	B

- Harvard Medical School (HMS) has a formal, longitudinal Climate Change, Environment and Health curriculum that has been launched for the first year Pathways curriculum. Some gaps still remain in addressing all of the areas of the PHRC.
- **Recommendations:** We will continue working to strengthen the curriculum across both the Pathways and HST programs with a particular focus on strengthening content around patient counseling and local Boston-specific impacts.

Interdisciplinary Research	B+

- HMS and the wider university offer a robust network of faculty and funding opportunities for medical students to take advantage of. Because there are many places where climate research is conducted across the university, there is no unifying resource that captures the full breadth of this work. Progress has been made with the development of the Salata Institute but this initiative has not gone far enough to capture all of the research initiatives throughout the university. We are unaware of any formal integration between local environmental justice communities and the medical school.
- **Recommendations**: We continue to bring students and faculty together in conversation to support the creation of a more centralized community. We will also advocate for inclusion of community representatives on committees that oversee research activities at the medical school.

Community Outreach and Advocacy	B

- Harvard University and its affiliated hospitals have a number of initiatives and resources for outreach to the broader community, and many faculty are engaged in initiatives with the community. The hospitals generally provide good information on their websites, but patient-oriented counseling resources could be improved.
- **Recommendations**: The institution and medical school specifically could benefit from more sustained and committed relationships with planetary health and climate change focused organizations in the surrounding community.

Support for Student-Led Initiatives	A

- As discussed in the Interdisciplinary Research category, there are multiple resources available to students to pursue research, as well as advocacy, education, and community building projects with the support of both the medical school and the wider university system. At the institution level, there are many initiatives and activities that touch on planetary health, providing students with a wide breadth of exposure to the multidisciplinary field of planetary health.
- **Recommendations**: Further engagement of students in planetary health research across schools within the institution could be a potential area for improvement

Campus Sustainability	B

- Harvard University has a robust network of sustainability efforts. The university has a plan to achieve fossil fuel neutrality by 2026 and be fossil fuel free by 2050. HMS has initiatives to support public transit, composting/recycling, lab sustainability and its facilities department is reducing campus emissions. Progress has been made in pilot programs to incentivize sustainable food procurement for student organizations but this has not yet become a formal policy for the institution
- **Recommendations**: Support the development of renewable energy infrastructure on the HMS campus, incentivize and/or require sustainable food/procurement/events per published guidelines, continue fossil fuel divestment efforts, continue to make progress towards carbon neutrality goals

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 analysing 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, urbanisation, 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 colour, 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 health professional schools, we have created a Planetary Health Report Card that students internationally can use to grade and compare their institutions on an annual basis. This student-driven initiative aims to compare health professional 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 centred on environmental health impacts 5) medical school campus sustainability.

Instructions for Completing the PHRC

Thank you! We are really pleased to have you and your team on board to complete the PHRC at your institution. Many of you will have already been part of a completed report card or even lead the team at your school but please take a moment to read the instructions below.

For a full comprehensive step-by-step guide to completing your report card please refer to the PHRC User Guide. This page serves as a brief overview of the important methodology.

Completing the report card:

The Planetary Health Report Card is a self assessment tool designed to identify an institution's strengths and areas in need of improvement in regards to its planetary health education. The metric-based report card consists of five sections; 1. Curriculum, 2. Interdisciplinary Research, 3. Community Outreach, 4. Support for Student-Led Initiatives and 5. Campus Sustainability.

- **Metrics.** There are roughly 55 metrics (depending on your discipline). Sections 2-5 are the same across all disciplines. Each metric has different criteria for either scoring 1, 2 or 3 points. Participants should read each metric carefully and answer the question with as much accuracy as possible, drawing upon multiple sources where possible. It is vital sufficient investigation is completed for each metric to give a fair and accurate representation of your institution.

  Most of the Curriculum metrics are graded by inclusion in **elective** coursework, **brief** coverage in the **core curriculum** or **in depth** coverage in the **core curriculum.**

  > **Elective coursework:** This score applies to material that is actively selected by the students such as a module choice, or additional lecture series. By implication, only a given proportion of the cohort will receive this taught material.
  >
  > **Brief** coverage in the **core curriculum**: This score applies where a topic is covered only briefly in a core curriculum session. This implies that the entire cohort receives the same material. Brief inclusion would qualify as inclusion in a single lecture slide in a single year.
  >
  > **In depth** coverage in the **core curriculum:** This score applies where a topic is taught in significant detail or where a topic is repeatedly brought up in different years. This might look like several dedicated lecture slides, or inclusion of the same topic in different lectures and teaching formats. Please consider amongst your team that this is the highest score awarded and a subjective decision must be made as to whether the topic should be awarded this score.
  >
  > (A full list of definitions is provided on the below pages)

- **Types of evidence.** Acceptable forms of evidence include: lecture titles, learning objectives, module descriptions, descriptions of the intended learning, case titles, seminar titles, project titles, webpages, researcher profiles / biographies, news articles, publications, social media output, institutional policy documents. Please be as specific as possible.

  It is essential that you have clearly justified the score for each metric, outlining in the box provided the specific content delivered in your curriculum and why you have assigned the

score. Each report card is reviewed by a member of the leadership team for accuracy and consistency across report cards. An example of the sufficient level of evidence is provided below each metric.

Please do not include **lecturers' names** without permission. The title of the lecture or module with a brief description of the material will suffice.

Where material is publicly available via an institution's website, please include hyperlinks to the webpages.

- **Evidence deadline.** Any material from the previous academic year and the current academic year up to the draft deadline of the **17th February 2025** may be included in this report card. Any teaching planned after this date should not be scored in this report card but can be included in the 2025/26 report. You may wish to make a note of any such teaching for your colleagues producing next year's report card.

Definitions & Other Considerations

Definitions:

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

- **Sustainable Healthcare:** As defined by the Academy of Royal Colleges, sustainable healthcare involves ensuring the ability to provide good quality care for future generations by balancing the economic, environmental, and social constraints and demands within health care settings. A sustainable healthcare system maintains population health, reduces disease burden and minimises use of healthcare services.

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

    1. Describe how the environment and human health interact at different levels.
    2. Demonstrate the knowledge and skills needed to improve the environmental sustainability of health systems.
    3. Discuss how the duty of a doctor to protect and promote health is shaped by the dependence of human health on the local and global environment.

- **Medical School/Department vs. Institution:** When "Medical school" is specified in the report card, this only refers to curriculum and resources offered by the School/department of Medicine and does not include offerings from other parts of the university (e.g. undergraduate departments (USA), other related departments (e.g. Public Health, Population Health departments). In contrast, when "institution" is specified in the report card, we are referring to the university more broadly including all of its campuses. 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 students 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 mould 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. Please be as specific as possible when providing evidence for this metric.

- **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.

- **Core Curriculum:** This refers to taught material that is develiered to the entire cohort of students in one year.

- **Clerkship / Outreach:** 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, outreach or placements. This is a relatively short (approximately 4-8 weeks) period of study and patient-centred clinical experience that takes place as part of the undergraduate programme.

- **Clinical rotation:** This is a term used to refer to placements that students go on (e.g., ophthalmology, surgery, cardiology).

- **Physiotherapy vs Physical Therapy:** For the purposes of this report card these terms are considered interchangeable. However, physiotherapy will be used primarily.

- **Community organisations:** For most institutions, there are existing groups that are not directly affiliated with the university and exist as a product of what the community the institution exists in cares about or needs. These specific community organisations relevant to this report include those that are focused around some aspect of climate and health preservation. These community organisations can include but are not limited to local mutual aid initiatives, underserved-resource distribution groups, clean-up and nature conservation groups, community gardeners, and other environmental-related organisations. If your institution does not have access to local volunteerships with community groups, please report any community organisations your institution or school has collaborated with.

- **Climate justice:** The idea that certain population groups and geographical locations which are disproportionately more impacted by climate change are already economically and socially disadvantaged. This double vulnerability sits alongside pre-existing social justice concerns and should therefore shift policy and practice to mitigate the inequitable effects of the climate crisis.

- **Extractivisim:** The removal of natural resources typically in large quantities. Within anthropology this term is often used in the context of colonialism to refer to

the historic seizing of natural resources, a practice which has developed business models tied to ecological degradation and loss of biodiversity.

- **Global South:** Nations that often have less economic and industrial development and are typically in the southern hemisphere. These nations have been found to be disproportionately impacted by the climate crisis.

- **Low socioeconomic status (SES):** An individual or geographical area that across a variety of socioeconomic factors (e.g., income, education, race/ethnicity) is considered vulnerable. This vulnerability has been correlated to more adverse health outcomes often as a consequence of encountering more barriers in accessing and receiving healthcare.

- **Low and Middle-Income Countries (LMIC):** Countries that have lower degrees of economic affluence.

- **Anthropogenic:** Created through human activity

- **Marginalized communities:** Groups excluded from mainstream economic, educational, social, and/or cultural experiences due to race, gender identity, sexual orientation, age, physical ability, language, and/or immigration status (Sevelius et al., 2020).

Other considerations:

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

Completed in 2022 a Literature Review by Metric is available for the 2022 medicine report card metrics. We are in the process of updating this review and making it more applicable to all the disciplines. However the review serves as a rough 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

1.1. 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?

Pathways	HST	
3	3	Yes, the medical school has offered **more than one** elective whose primary focus is ESH/planetary health in the past year.
2	**2**	Yes, the medical school has offered **one** elective whose primary focus is ESH/planetary health in the past year.
1	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	0	No, the medical school has **not** offered any electives on planetary health or electives that include ESH/planetary health topics in the past year.

Score explanation: There is one elective at the medical school HO705, entitled "Climate Change, Justice, and Beneficence" which touches on philosophy and ethics related to climate change. This falls within the ESH definition of knowledge/attitudes that promote environmentally-friendly healthcare. Notably, this elective does not align well with medical students' schedules as it is a full semester seminar course. Also, a previously held course cross-listed at the School of Public Health and the medical school, EH278, was not offered in Spring 2023 due to personnel changes, but will be offered again in Spring 2025. There are also lectures in the core curricula that touch on these concepts. In the HST curriculum, Essentials II is offered as an elective (but is core curriculum for Pathways) and includes a lecture titled "Climate Change and Health" which touches on planetary health.

Curriculum: Health Effects of Climate Change

1.2. Does your medical school curriculum address the relationship between extreme heat, health risks, and climate change?

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

Score explanation: Heat and health is explored through multiple disciplines in the Pathways curriculum, including during respiratory, cardiovascular, renal, and psychiatry coursework. Heat is also mentioned in an introductory lecture in the "Introduction to the Profession" course that all medical students take in the first week of medical school, and the Essentials I course that all medical students take in their first year. Pathways students are also given a heat screening guide in their first year clinical skills course, and heat is touched upon in a mandatory video on climate change and psychiatry in the Mind, Brain, and Behavior course. HST students discussed a case of heat stroke with systemic causes and implications in the Innovations and Integrations in Medical Science I course.

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

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

Score explanation: In the Introduction to the Profession course that all students take, natural disasters and extreme weather are mentioned briefly as one of the ways that climate change impacts health. In Mind, Brain, and Behavior, a mandatory course for Pathways, a required video touches on the links between climate disasters (including extreme heat) and mental health. HST students received a lecture in their Innovations and Integrations in Medical Science I course on how outpatient clinics and the medical supply chain are especially vulnerable to disasters made worse by climate change and how medical systems must plan and adapt to keep vital services available.

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

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

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

Score explanation: In the Introduction to the Profession course, taken by both Pathways and HST students, infectious disease patterns is mentioned as one of the pathways by which climate change impacts health. Foundations Microbiology, part of the core curriculum for Pathways students, includes a discussion of changing patterns of vector-borne diseases, using malaria as an example, due to land use changes. During Essentials II, which is required for Pathways and elective for HST, a lecture discusses the climate drivers of emerging infectious diseases (2024-2025 school year). In addition, HST students receive a lecture in the required Microbiology course regarding the way climate change is driving new patterns in infectious disease exposure and susceptibility, which is also discussed on a case-by-case basis for many of the organisms covered in the course.

1.5. Does your <u>medical school</u> curriculum address the respiratory health effects of climate change and air pollution?

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

Score explanation: Pathways's Integrated Human Pathophysiology 2 course includes a lesson on obstructive lung disease and links it to air pollution and climate change. Air pollution is also discussed as a risk factor for respiratory disease during the Transitions to the PCE course for Pathways students. Both Pathways and HST take the Essentials 1 course, which briefly discusses PM2.5 air pollution. In the HST curriculum there is a lecture on environmental lung disease.

1.6. Does your <u>medical school</u> curriculum address the cardiovascular health effects of climate change, including increased heat?

Pathways	HST	
3	3	This topic was explored **in depth** by the **core** curriculum.
2	2	This topic was **briefly** covered in the **core** curriculum.

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

Score explanation: Pathways's Integrated Human Pathophysiology 2 course includes a discussion of air pollution and coronary artery disease mini-case. The Transitions to the PCE course includes patient cases on ACS where heat and pollution are discussed as risk factors. A previously held session on CVD outcomes in Boston and air pollution in HST did not occur. There are planned additions to the HST cardiovascular physiology course but these have not been finalized at the time of writing.

1.7. Does your <u>medical school</u> curriculum address the mental health and neuropsychological effects of environmental degradation and climate change?

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

Score explanation: Pathways's Mind, Brain, and Behavior course includes pre-work and an exam question on the effects of climate change on mental health. There is no required coursework for HST students that discusses this topic.

1.8. Does your <u>medical school</u> curriculum address the relationships between health, individual patient food and water security, ecosystem health, and climate change?

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

Score explanation: Water scarcity is mentioned briefly in an introductory lecture on climate change and health advocacy in the Introduction to the Profession course that all students take. In addition, the water crisis in Flint, Michigan is mentioned in the Essentials I course that all students take. Further sessions have been incorporated into the Essentials I course discussing topics such as environmental ethics.

1.9. Does your <u>medical school</u> curriculum address the outsized impact of climate change on marginalized populations such as those with low SES, women, communities of color, Indigenous communities, children, homeless populations, and older adults?		
Pathways	HST	
3	3	This topic was explored **in depth** by the **core** curriculum.
2	**2**	This topic was **briefly** covered in the **core** curriculum.
1	1	This topic was covered in **elective** coursework.
0	0	This topic was **not** covered.
Score explanation: The inequitable impacts of climate change on marginalized populations are discussed at multiple points during the Pathways curriculum, including during the Social Medicine and Ethics components of Essentials I and Essentials II, which discuss environmental justice, in Introduction to the Profession, and in Transitions to the PCE course highlights the inequities that lead to disproportionate climate exposures through case discussions. Essentials II is an elective course for HST and is mandatory for Pathways. Introduction to the Profession and Essentials I are mandatory for both Pathways and HST.		

1.10. Does your <u>medical school</u> curriculum address the unequal regional health impacts of climate change globally?		
Pathways	HST	
3	3	This topic was explored **in depth** by the **core** curriculum.
2	**2**	This topic was **briefly** covered in the **core** curriculum.
1	1	This topic was covered in **elective** coursework.
0	0	This topic was **not** covered.
Score explanation: There was a discussion in Essentials I that mentioned the unequal impacts of climate change globally, but the conversation was limited to a brief slide indicating that those who contribute least to greenhouse gas emissions will be disproportionately impacted. Essentials I is mandatory for all medical students.		

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

1.11. Does your <u>medical school</u> curriculum address the reproductive health effects of industry-related environmental toxins (e.g. air pollution, pesticides)?		
Pathways	HST	

3	3	This topic was explored **in depth** by the **core** curriculum.
2	**2**	This topic was **briefly** covered in the **core** curriculum.
1	1	This topic was covered in **elective** coursework.
0	0	This topic was **not** covered.
Score explanation: In the Introduction to the Profession lecture on climate change advocacy, birth outcomes risks due to the effects of climate change and air pollution are briefly touched upon. All students take this course.		

1.12. Does your <u>medical school</u> curriculum address important human-caused environmental threats that are relevant to the university's surrounding community?		
Pathways	HST	
3	3	This topic was explored **in depth** by the **core** curriculum.
2	**2**	This topic was **briefly** covered in the **core** curriculum.
1	1	This topic was covered in **elective** coursework.
0	0	This topic was **not** covered.
Score explanation: In the Pathways IHP2 course, a case-based collaborative learning case related the history of a woman who grew up in Chelsea, Massachusetts, in an apartment by I-93 and has had asthma since she was a child. *Introduction to the Profession lecture on climate change advocacy, heat trends within Boston are mentioned specifically.* *Furthermore, Essentials I, which is required for all students, addressed the contribution of the built environment to social determinants of health, touching on access to clean air and water and how that might be different by neighborhood. There was also an ethics case in Essentials I about asthma in East Boston and inhaler types. In Essentials II, which is mandatory for Pathways students and an elective for HST students, there was a panel made up of representatives from local environmental justice organizations that discusses the impacts of climate change on their communities.*		

1.13. To what extent does your <u>medical school</u> emphasize the importance of Indigenous knowledge and value systems as essential components of planetary health solutions?		
Pathways	HST	
3	3	Indigenous knowledge and value systems are **integrated throughout** the medical school's planetary health education

2	**2**	Indigenous knowledge and value systems as essential components of planetary health solutions are included **briefly** in the core curriculum.
1	1	Indigenous knowledge and value systems as essential components of planetary health solutions are included in **elective** coursework.
0	0	This topic was **not** covered.
Score explanation:During Introduction the Profession, a required course for both tracks, a lecture mentions the importance of indigenous land stewardship and the risks of the energy transition on indigenous lands. During Essentials II, a required course for Pathways and elective course for HST, a guest speaker and community organizer from the Navajo community of central New Mexico detailed her work.		

1.14. 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?		
Pathways	HST	
3	**3**	This topic was explored **in depth** by the **core** curriculum.
2	2	This topic was **briefly** covered in the **core** curriculum.
1	1	This topic was covered in **elective** coursework.
0	0	This topic was **not** covered.
Score explanation: In the Introduction to the Profession lecture on climate change advocacy, birth outcomes risks due to the effects of climate change and air pollution are briefly touched upon, as well as structural racism, and exploitation of Indigenous communities. All students take this course. Essentials I is a course taken by all students as well, and there is discussion about environmental justice, using "cancer alley" and Flint, Michigan as examples. There is limited discussion of environmental toxin exposure in the neurology clerkship didactics which all students take.		

Curriculum: Sustainability

1.15. Does your medical school curriculum address the environmental and health co-benefits of a plant-based diet?		
Pathways	HST	
3	3	This topic was explored **in depth** by the **core** curriculum.
2	2	This topic was **briefly** covered in the **core** curriculum.
1	**1**	This topic was covered in **elective** coursework.
0	0	This topic was **not** covered.

Score explanation: An AISC course entitled "Metabolism, Nutrition, and Lifestyle Medicine" (AISC618) has included a lecture by Walter Willett on Food and Sustainability and associated reading was "Food in the Anthropocene: the EAT-Lancet Commission on healthy diets from sustainable food systems." in the past, but it is unclear if this has occurred again. The NCE522 elective course on culinary medicine does have a focus on plant-based diet.

1.16. Does your medical school curriculum address the carbon footprint of healthcare systems?		
Pathways	HST	
3	**3**	This topic was explored **in depth** by the **core** curriculum
2	2	This topic was **briefly** covered in the **core** curriculum.
1	1	This topic was covered in **elective** coursework.
0	0	This topic was **not** covered.
Score explanation: This topic is explored in depth in the Pathways curriculum during the Transitions to the PCE course through a workshop on healthcare systems sustainability and waste management in the operating room. The mandatory HST course Innovations and Integrations in Medical Science I includes a lecture from a medical director of sustainability at a Harvard-affiliated hospital on the ways the healthcare system contributes to waste and climate pollution and how some hospitals are working to address them.		

1.17. Does your medical school curriculum cover these components of sustainable clinical practice in the core curriculum? (points for each)		
Pathways	HST	
0	0	The health **and** environmental **co-benefits** of **avoiding** over-medicalisation, over-investigation and/or over-treatment
0	0	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.
0	0	The health **and** environmental **co-benefits** of **non-pharmaceutical management** of conditions where appropriate such as exercise or yoga classes for type 2 diabetes; social group activities such as gardening for mental health conditions; active transport such as bicycle schemes. This is commonly known as social prescribing in the UK.
1	0	Environmental impact of **surgical** healthcare on planetary health and the climate crisis, and how can it be mitigated

1	0	The impact of **anaesthetic** gases on the healthcare carbon footprint and ways to reduce anesthesia environmental impacts, such as total intravenous anaesthesia or choosing less environmentally harmful anaesthetic gas options with reduced greenhouse gas emissions
1	1	The impact of **inhalers** on the healthcare carbon footprint and the environmental benefit of dry powdered inhalers over metered dose inhalers.
1	**1**	**Waste production** within healthcare **clinics** and strategies for reducing waste in clinical activities (e.g. single use items in the inpatient or outpatient setting)
4	2	*Score explanation: In the Pathways and HST curricula, a case related on MDIs and their contribution to emissions was included in Essentials I. During Transitions to the PCE in the Pathways curriculum, there is a workshop on healthcare system waste that places particular emphasis on OR waste. There is also a case in the Transitions to the PCE course in Pathways that focuses on geriatrics which touches on overmedicalization. The case in Transitions to the PCE on abnormal uterine bleeding also focuses on climate change and surgery and has a required reading which discusses anesthetic gases and it's impact on climate change. The lecture in Innovations and Integrations in Medical Science I for HST students on healthcare sustainability includes a discussion of waste solutions.*

Curriculum: Clinical Applications

1.18. In training for patient encounters, does your <u>medical school's</u> curriculum introduce strategies to have conversations with patients about the health effects of climate change?		
Pathways	HST	
2	2	Yes, there are strategies introduced for having conversations with patients about climate change in the **core** curriculum.
1	1	Yes, there are strategies introduced for having conversations with patients about climate change in **elective** coursework.
0	**0**	No, there are **not** strategies introduced for having conversations with patients about climate change
Score explanation: There is currently no session on communicating with patients about divisive topics, but a planned session for this spring will focus on communicating about climate change with patients.		

1.19. In training for patient encounters, does your <u>medical school's</u> curriculum introduce strategies for taking an environmental history or exposure history?		
Pathways	HST	
2	2	Yes, the **core** curriculum includes strategies for taking an environmental history.

1	1	Only **elective** coursework includes strategies for taking an environmental history.
0	**0**	No, the curriculum does **not** include strategies for taking an environmental history.
Score explanation: During the Pathways Practice of Medicine course, session 4 of the Foundational Continuity Clinic series, "Social History and Substance Use History" includes instructions on how to take an environmental exposure history and assess for climate change related risk factors. It includes a screening tool for heat-related illness.		

Curriculum: Administrative Support for Planetary Health

1.20. Is your <u>medical school</u> currently in the process of implementing or improving Education for Sustainable Healthcare (ESH)/planetary health education?		
Pathways	HST	
4	4	Yes, the medical school is currently in the process of making **major** improvements to ESH/planetary health education.
2	**2**	Yes, the medical school is currently in the process of making **minor** improvements to ESH/planetary health education.
0	0	No, there are **no** improvements to planetary health education in progress.
Score explanation: HMS named Climate Change, Environment, and Health (CCEH) as one of its now 7 longitudinal societal themes, thereby institutionalizing climate and health education in perpetuity. This change came with financial and logistical support for faculty, including a thematic lead position. The HST curriculum is undergoing significant changes and efforts are underway to ensure that the CCEH theme plays a role in the next version of the HST curriculum.		

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

Score explanation: Climate and health is well integrated into the first year Pathways curriculum. At this time there are significant integrations within all pre-clerkship courses, along with several clerkship and post-clerkship courses. Some HST courses include climate and health integrations, including the respiratory course, Essentials I, and planned additions to the cardiovascular course. HST students experience the same clerkship integrations, and many of the same post-clerkship opportunities.

1.22. 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?		
Pathways	HST	
1	**1**	**Yes,** the **medical school** has a specific faculty/staff member responsible for overseeing curricular integration of planetary health and sustainable healthcare
0	0	**No**, the **medical school** does **not** have a specific faculty/staff member responsible for overseeing curricular integration of planetary health and sustainable healthcare.
Score explanation: There is a faculty member who oversees the Climate Change, Environment and Health theme as part of their full-time employment package and job title focusing on integrating climate change and health curricula across the School of Public Health and the Medical School.		

Section Total (out of 72)	**Pathways**	**HST**
	57 (78%)	**40 (55%)**

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Interdisciplinary Research

Section Overview: ***This section evaluates the quality and quantity of interdisciplinary planetary health research at the 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, institutions 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 emphasised.*

2.1. Are there researchers engaged in planetary health research and healthcare sustainability research at your medical school?	
3	Yes, there are faculty members at the **medical school** who have a **primary r**esearch focus in planetary health **or** healthcare sustainability.
2	Yes, there are individual faculty members at the **medical school** who are conducting research **related** to planetary health or healthcare sustainability, but it is not their primary research focus.
1	There are planetary health and/or healthcare sustainability researchers at the **institution**, but none associated with the medical school.
0	No, there are **no** planetary health and/or healthcare sustainability researchers at the **institution** or **medical school** at this time.
Score explanation: There are many faculty who are focused on healthcare sustainability and planetary health. For example, many faculty at C-CHANGE, who hold appointments from Harvard Medical School, focus their research on healthcare sustainability. Faculty at the Massachusetts General Hospital's Center for the Environment and at Brigham and Women's Hospital's sustainability working group, are also focused on healthcare sustainability. As a part of the Climate Change, Environment, and Health curricular theme, there is a faculty working group of faculty across the hospitals and schools focused on climate change and health research.	

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

0	There is **no** dedicated department or institute.
Score explanation: There are several planetary health focused institutes in the greater Harvard University ecosystem, including the Salata Institute, which funds interdisciplinary research clusters on topics related to planetary health, the Harvard University Center for the Environment, which includes ecology and biodiversity as a research area, and C-CHANGE at the Harvard School of Public Health. C-CHANGE hosts the Climate and Health Research Network (CHRN) to bring together researchers.	

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

2.4. Does your institution have a planetary health website that centralizes ongoing and past research related to health and the environment?	
3	There is an **easy-to-use, adequately comprehensive** website that **centralizes** various campus resources related to health and the environment including all of the following: upcoming events, leaders in planetary health at your institution, and relevant funding opportunities.
2	There is a website that **attempts to centralize** various campus resources related to health and the environment, but it is hard-to-use, not updated, or not adequately comprehensive.
1	The **institution** has an **Office of Sustainability website** that includes **some** resources related to health and the environment.
0	There is **no** website.
Score explanation: There are multiple websites across the Harvard University system that describe ongoing climate and health related research and events, including the Salata Institute, HUCE, and C-CHANGE, but not one website that combines all of this information.	

2.5. Has your institution recently hosted a conference or symposium on topics related to planetary health?	
4	Yes, the **medical school** has hosted at least one conference or symposium on topics related to planetary health in the past year.
3	Yes, the **institution** has hosted at least one conference or symposium on topics related to planetary health in the past year.
2	Yes, the **institution** has hosted a conference on topics related to planetary health in the past three years.
1	The **institution** has not hosted any conferences directly, but they have provided financial support for a local planetary health event.
0	No, the **institution** has not hosted a conference on topics related to planetary health in the past three years.
Score explanation: There are frequent climate and health related events held at Harvard University across the multiple related institutes. For example, the Harvard Chan C-CHANGE Youth Summit on Climate, Equity and Health, and the Harvard Business School Climate Symposium 2024, Student-led events through the medical school with funding from Salata have also focused on climate change and health bringing together students from PhD programs, the medical, and dental schools.	

2.6. Is your medical school a member of a national or international planetary health or ESH organization?	
1	Yes, the medical school is a member of a national or international planetary health **or** ESH organization
0	No, the medical school is **not** a member of such an organization
Score explanation: Harvard Medical School is a member of the Global Consortium on Climate and Health Education. The Harvard T.H. Chan School of Public Health and the Harvard University Center for the Environment are founding members of the Planetary Health Alliance.	

Section Total (13 out of 17)	**76%**

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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 colour. 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.*

3.1. Does your medical school partner with community organizations to promote planetary and environmental health?	
3	Yes, the **medical school** meaningfully partners with **multiple** community organizations to promote planetary and environmental health.
2	Yes, the **medical school** meaningfully partners with **one** community organization to promote planetary and environmental health.
1	The **institution** partners with community organizations, but the medical school is not part of that partnership.
0	No, there is **no** such meaningful community partnership.
Score explanation: The Harvard T.H. Chan School of Public Health (HSPH) hosts the Environmental Justice Student Organization, which partners with local community organizations to raise awareness of and address environmental injustices. The Harvard Chan-National Institute for Environmental Health Sciences (NIEHS) Center for Environmental Health's Community Engagement Core works with a number of community organizations to co-develop projects related to environmental health. Harvard Medical School (HMS) hosts the Office of Community Centered Medical Education, which partners with local community organizations, although these are not explicitly related to planetary or environmental health. Sessions in the curriculum (Essentials II) also focus on local environmental justice community leaders.	

3.2. Does your medical school offer community-facing courses or events regarding planetary health?	
3	The **medical school** offers community-facing courses or events at least once every year.
2	The **medical school** offers courses or events open to the community at least once per year, but they are not primarily created for a community audience.

1	The **institution** has offered community-facing courses or events, but the **medical school** was not involved in planning those courses or events.
0	The **institution/medical school** have not offered such community-facing courses or events.
Score explanation: HMS offers 'The Health Effects of Climate Change' to the general public through the online learning platform edX. Events hosted by Students for Environmental Action, including a recent discussion of "The Climate Crisis: Science, Impacts, Policy, Psychology, Justice, Social Movements" by the book's author, Adam Aron, and a series of climate and health networking events are open to the wider Harvard and Boston communities.	

3.3. Does your medical school have regular coverage of issues related to planetary health and/or sustainable healthcare in university update communications?	
2	Yes, all students **regularly** receive communication updates dedicated to planetary health and/or sustainable healthcare.
1	Yes, planetary health and/or sustainable healthcare topics are **sometimes** included in communication updates.
0	Students **do not** receive communications about planetary health or sustainable healthcare.
Score explanation: Students receive various newsletters from HMS that sometimes include climate and health related news and articles. Newsletters specific to climate and health are available from organizations in the wider Harvard University community, but are not by default sent to all medical students.	

3.4. 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: HMS is offering 'Climate Change, Planetary Health, and Medicine' as a CME course. Additionally, webinars offered by the MGH Center for the Environment serve as an additional source of information. The Climate and Human Health fellowship in Emergency Medicine offered through BIDMC provides a pathway for EM-trained physicians to gain experience in climate and health advocacy and research.	

3.5. Does your medical school or its affiliated teaching hospitals have accessible educational materials for patients about environmental health exposures?	
2	Yes, the **medical school** or **all affiliated hospitals** have accessible educational materials for patients.
1	**Some** affiliated hospitals have accessible educational materials for patients.
0	**No** affiliated medical centres have accessible educational materials for patients.
Score explanation: While none of the primary HMS-affiliated teaching hospitals have a comprehensive site tying environmental exposures to disease, all have patient-facing materials online making those connections for individual conditions. Beth Israel Deaconess Medical Center (BIDMC)'s Institute for Lung Health links pollution to chronic lung disease, and the hospital maintains blog posts on environmental exposures contributing to cancer and pregnancy health. Brigham and Women's Hospital (BWH) provides a robust accounting of environmental causes of lung disease and other chronic diseases as well as numerous press releases of relevant research. Massachusetts General Hospital (MGH) has a series of articles on lung diseases that prominently feature environmental exposures as a cause, as well as a press release on the cardiovascular impacts of air pollution	

3.6. Does your medical school or its affiliated teaching hospitals have accessible educational materials for patients about the health impacts of climate change?	
2	Yes, the **medical school** or **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: Patients can navigate to an article on managing health impacts of climate change on the MGB news website. Notably, the School of Public Health has been involved in developing "The Climate Resilience for Frontline Clinics Toolkit" , but this is not technically a part of the medical school or affiliated hospitals.	

Section Total (10 out of 14)	**72%**

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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.*

4.1. Does your medical school or your institution offer support for medical students interested in enacting a sustainability initiative/QI project?	
2	Yes, the **medical school** or **institution** *either* offers grants for students to enact sustainability initiatives/QI projects *or* sustainability QI projects are part of the core curriculum.
1	The **medical school** or **institution** encourages sustainability QI projects (to fulfill clerkship or longitudinal requirements) and offers resources to help students succeed in these projects, **but** there is no student funding available and there is no requirement to participate.
0	No, **neither** the medical school or the institution offer opportunities or support for sustainability initiatives or QI projects.
Score explanation: The Salata Institute offers multiple funding opportunities for student groups interested in launching sustainability initiatives, including research, community engagement, and climate internship support.	

4.2. 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: HMS' Office of Scholarly Engagement provides funding for medical students to pursue research, clinical, and service projects, including in planetary health. The Radcliffe Institute's Radcliffe Engaged Student Grant Program offers funding to support student research, creative, and service work related to climate change. The Salata Institute provides funding as mentioned in 4.1. There is now a summer break incorporated into the curriculum and increasing numbers of planetary health and sustainability research projects offered to medical students. There is also a concentration in	

climate change and planetary health at the Harvard T.H Chan School of Public Health that is accessible to medical students completing an MPH.

4.3. Does the medical school have a webpage where medical students can find specific information related to planetary health and/or sustainable healthcare activities and mentors within the medical school? For example, projects achieved, current initiatives underway at the medical school and/or contact of information of potential mentors.	
2	The **medical school** has a webpage with specific information related to planetary health or sustainable healthcare that includes up-to-date information on relevant initiatives and contact information of potential mentors.
1	There is a **medical school** webpage that features some information on projects and mentors within planetary health and sustainable healthcare within the medical school, but it lacks key information.
0	There is **no medical-school** specific webpage for locating planetary health and/or sustainable healthcare projects or mentors.
Score explanation: The Harvard Catalyst portal allows students to search for faculty across interest areas, including climate change and planetary health, which returns a list of faculty and their related projects.	

4.4. Does your medical school have registered student groups dedicated towards fostering a culture of planetary health engagement, scholarship, and advocacy on campus, supported by faculty advisors?	
2	Yes, there is a student organization **with faculty support** at my medical school dedicated to planetary health or sustainability in healthcare.
1	Yes, there is a student organization at my medical school dedicated to planetary health or sustainability in healthcare but it **lacks faculty support.**
0	No, there is **not** a student organization at my institution dedicated to planetary health or sustainability in healthcare.
Score explanation: The Students for Environmental Action in Medicine (SEAM) group at HMS, a member organization of Medical Students for a Sustainable Future, advances planetary health and climate change education, research and advocacy initiatives from within the student body.	

4.5. 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: Harvard University has a Presidential Committee on Sustainability through the Office for Sustainability has included student representatives from the medical school in the past, but currently there is no medical student serving.	

4.6. 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.
0	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: *While not exhaustive, we detail a few examples of activities happening around the institution that fulfill these categories. There is a food and agriculture club at the Harvard Business School. The HMS Countway library hosts multiple garden plots that students can use to grow plants. There are multiple climate and planetary health events (panels, talks, etc.) across the institution aimed at a student audience. There are multiple hiking and outdoors clubs across the institution including the Harvard College First-Year outdoor program. The Intersectional Earth Week featured a power mural. There has also been at least one event through the Harvard Radcliffe Institute on "Art, Activism, and Climate Change". These events, while difficult to keep up with across the university, have been centralized into the Salata Institute which provides a newsletter to disseminate information about various activities across the University relating to environmentalism and climate change.*	

Section Total (13 out of 15)	**86%**

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Campus Sustainability

Section Overview: ***This section evaluates the support and engagement in sustainability initiatives by the 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 endeavour, the healthcare sector is well poised to lead the world to a more sustainable future. This will involve scrutinising 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 minimising environmental impact.*

5.1. Does your medical school and/or institution have an Office of Sustainability?	
3	Yes, there is an Office of Sustainability with multiple full-time staff dedicated to campus sustainability. If the Office of Sustainability serves the entire campus, there is **at least one designated staff member** for sustainability at the hospital and/or medical school.
2	There is an Office of Sustainability with one or more full-time staff dedicated to campus sustainability, but **no specific staff member** in charge of medical school and/or hospital sustainability.
1	There are **no salaried sustainability staff,** but there is a sustainability task force or committee
0	There are **no** staff members **or** task force responsible for overseeing campus sustainability
Score explanation: Harvard University has an Office of Sustainability that coordinates university wide sustainability initiatives. HMS has a Sustainability Manager within the Facilities department.	

5.2. How ambitious is your institution/medical school plan to reduce its own carbon footprint?	
5	The institution/medical school has a **written and approved plan** to achieve carbon neutrality by **2030**
3	The institution/medical school has a **written and approved plan** to achieve carbon neutrality by **2040**
1	The institution/medical school has a stated goal of carbon neutrality by **2040** but has **not created a plan** to reach that goal or the **plan is inadequate**
0	The institution/medical school does **not** meet any of the requirements listed above
	Score explanation: Harvard University, including HMS, has published a plan to achieve fossil fuel neutrality with respect to Scope 1 and 2 emission by 2026 and fossil fuel free by 2050.

5.3. 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: Harvard Medical School recently installed solar panels on the roof of the New Research Building. However, these panels generate a very small percentage of the school's energy. The percentage of the buildings' energy that comes from renewables is well below 20%. While this has not been demonstrated through an impact directly on the building energy needs, the university has joined a consortium to advance renewable energy projects.	

5.4. 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: Harvard University has Green Building Standards that were last updated in 2017. These standards cover both new buildings and projects to retrofit or improve the sustainability of existing infrastructure. The medical school facilities team regularly conducts energy audits to improve the sustainability of HMS's buildings, which has allowed them to cut greenhouse gas emissions by about 32% between 2006 and 2022. Also according to the 2022 HMS Sustainability report, facilities have undertaken substantial retrofitting projects focused on heating and cooling valve replacements, compressed air leak detection and repairs, and optimization of heating, ventilation and air conditioning. Lighting upgrades have also been undertaken at a majority of medical campus buildings.	

5.5. Has the medical school or institution implemented strategies to encourage and provide

environmentally-friendly transportation options for students and reduce the environmental impact of commuting?	
2	Yes, the medical school or institution 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 or institution has implemented **some** strategies to provide environmentally-friendly transportation options, but the options are **unsatisfactorily** accessible or advertised.
0	The medical school or institution has **not** implemented strategies to encourage and provide environmentally-friendly transportation options.
Score explanation: Harvard Medical School has several programs to encourage sustainable commuting, including offering students discounted MBTA subway passes and BlueBikes bike sharing memberships. Bike lanes around the medical school campus have also been recently upgraded. Given the campus location in the middle of Boston, it is rare that students use their own cars to commute to campus. Harvard also has a shuttle that runs between the medical school and main university campuses. In 2021, Harvard purchased four 100% electric buses, representing 30% of the total shuttles, which are likely mostly focused around the main campus and not the medical campus.	

5.6. Does your medical school have an organics recycling program (compost) and a conventional recycling program (aluminum/paper/plastic/glass)?	
2	Yes, the medical school has **both** compost **and** recycling programs accessible to students and faculty.
1	The medical school has **either** recycling **or** compost programs accessible to students and faculty, but not both.
0	There is **no** compost or recycling program at the medical school.
Score explanation: Compost and recycling are available throughout the medical school buildings.	

5.7. 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 a**dequate s**ustainability requirements for food and beverages, including meat-free days or no red-meat, and **is engaged** in efforts to increase food and beverage sustainability.

2	There are sustainability guidelines for food and beverages, but they are **insufficient or optional**. The medical school **is engaged** in efforts to increase food and beverage sustainability.
1	There are sustainability guidelines for food and beverages, but they are **insufficient or optional.** The medical school is **not** engaged in efforts to increase food and beverage sustainability.
0	There are **no** sustainability guidelines for food and beverages.
Score explanation: Cafeterias at HMS are stocked by Restaurant Associates. Harvard University is a signatory of the Coolfood Pledge which aims to reduce GHG from campus food by 25% by 2030, reduce food waste, and enable sustainable food systems. In 2019, Harvard University published the Sustainable and Healthful Food Standards which guides vendors on sustainable sourcing.	

5.8. Does the medical school or 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 Harvard University Office of Sustainability published sustainable procurement guidelines for the University.	

5.9. 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 Harvard Office of Sustainability published updated guidance on hosting sustainable and inclusive meetings in 2023, however these are not strongly recommended or incentivized requirements.	

5.10. 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 Harvard Office of Sustainability has published several white papers on lab sustainability. The HMS Facilities office has focused on reducing lab-derived campus emissions, as demonstrated by the 2022 report. The MGH Center for the environment offers a 'Greening the Lab' consult service.	

5.11. Does your institution's endowment portfolio investments include fossil-fuel companies?	
4	The institution is **entirely divested** from fossil fuels **and** has made a **commitment to reinvest divested funds** into renewable energy companies or renewable energy campus initiatives.
3	The institution is **entirely divested** from fossil fuels.
2	The institution has **partially divested** from fossil fuel companies **or** has made a **commitment to fully divest**, but **currently** still has fossil fuel investments.
1	The institution has **not divested** from fossil-fuel companies, but faculty and/or students are **conducting organized advocacy** for divestment.
0	Yes, the institution has investments with fossil-fuel companies and there have been **no efforts** to change that.
Score explanation: In February 2020, Harvard Medical School's Faculty Council voted 23-5 on a resolution supporting divestment. This was followed in 2021 by a statement by then university president, Larry Bacow, that the endowment has no direct investments in fossil fuel companies and will not pursue further direct or indirect investments in fossil fuels. Harvard University has made a commitment that its investments will produce net zero carbon emissions by 2050, and efforts are underway to reduce the endowment's investment in fossil fuels.	

Section Total (22 out of 32)	**69%**

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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%

**Within each grade bracket, a score in the top 5% (_5 to_9%), receives a "+", and a score in the bottom 5% (_0-_4%) receives a "--". For example, a percentage score of 78% would be a B+.*

Planetary Health Grades for Harvard Medical School
The following table presents the individual section grades and overall institutional grade for the Harvard Medical School on this medical-school-specific Planetary Health Report Card.

Section	Raw Score %	Letter Grade
Planetary Health Curriculum (30%)	((57/72) + (40/72))/2 x 100 =67.36%	B
Interdisciplinary Research (17.5%)	(13/17) x 100 = 76.5%	B+
Community Outreach and Advocacy (17.5%)	(10/14) x 100 = 71.4%	B
Support for Student-led Planetary Health Initiatives (17.5%)	(13/15) x 100= 86%	A
Campus Sustainability (17.5%)	(22/32) x 100 = 68.8%	B
Institutional Grade	**73.29%**	**B**

*We have averaged the two grades for curriculum between the two curricular tracks at HMS, Pathways and HST.

Report Card Trends

Section Overview
This graph demonstrates trends in overall and section grades for the years in which Harvard Medical School has participated in the Planetary Health Report Card initiative.