



Planetary Health Report Card: Stanford Medical School



Stanford | MEDICINE

2020-2021 Contributing Team:

Students: Benjamin Maines, MS1*

Faculty Mentors: Dr. Barbara Erny, Dr. Lisa Patel, Dr. Kari Nadeau

***Primary Contact:** bamaines@stanford.edu

Summary of Findings

Curriculum	B
<ul style="list-style-type: none"> The elective <i>EMED 134</i>, and to a lesser degree electives from other Stanford departments, address many of the most salient topics in planetary health (PH). Some core curriculum now contains and applies PH content, and there is growing buy-in at most levels of instruction and from many core Medical School course faculty. Stanford core curriculum lacks consistent and appropriate emphasis on PH in a meaningful, longitudinal way. The two greatest areas of need for improvement are curriculum focused on: 1. The inequitable distribution of climate change and environmental hazards' burden locally and globally on marginalized, indigenous, and disadvantaged individuals. 2. Advocacy and skills training for effective clinical application of PH concepts, particularly to drive sustainability efforts, take exposure histories, and advocating for patients. 	
Interdisciplinary Research	B
<ul style="list-style-type: none"> Scholars and students at Stanford have many diverse opportunities to engage in interdisciplinary PH research, notably through the Woods Institute for the Environment and Stanford Center for Innovation in Global Health (CIGH), and soon through the School of Climate and Sustainability. Medical student engagement in these opportunities is well-supported, and CIGH offers a PH post-doc fellowship, indicating institutional investment. Centralization and promotion of existing Stanford Office of Sustainability, Woods Institute, CIGH, School of Climate and Sustainability, and School of Medicine resources and opportunities in PH is necessary to increase student, community, and patient exposure to and engagement with PH. 	
Community Outreach and Advocacy	C
<ul style="list-style-type: none"> Though there are independent opportunities for student engagement in community advocacy and outreach such as the Valley Fellowship or the 2020 NorCal Climate and Pandemic Resilience in Health Care Symposium, this metric offers the greatest opportunity for improvement. Creating patient-facing resources is an essential step in leveraging Stanford School of Medicine's prerogative to supply necessary PH information and guidance to patients. A centralized PH site and the addition of CME sessions in PH and health system sustainability would open doors to community outreach and advocacy. 	
Support for Student-Led Initiatives	A
<ul style="list-style-type: none"> Stanford has strong institutional support for student led planetary healthy initiatives by funding PH research, sustainability projects, and community outreach through mechanisms like MedScholars, Valley Fellowship, Mel Lane Grant, seed funding, E-IPER, and the Human and Planetary Health Fellowship. Stanford Climate and Health is a well-supported group of students from across the University and hub for initiatives in PH. Centralizing and officially promoting these PH resources and opportunities is a key growth opportunity. 	
Sustainability	A
<ul style="list-style-type: none"> Sustainability is broadly supported and incentivized across campus and at the Medical School. We recommend a collaborative effort to apply concepts from Stanford University R&DE's One Plate, One Planet initiative to Stanford Health Care's food and beverage systems, and that the School of Medicine become certified in green event planning through the Office of Sustainability. Institutional divestment from fossil fuels, reinvestment in clean energy, and the creation of a concrete plan toward the goal of net zero emissions are also important next steps. 	

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>The medical school offers the elective EMED 134: The Impact of Climate Change on Human Health, starting in 2019. Medical students also have the opportunity to take planetary health electives offered by other departments within Stanford, including the Woods Institute for the Environment; the Program for Disease Ecology, Health, and Environment; and the Center for Innovation in Global Health.</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.

Touched on in several lectures of both the Science of Medicine and Practice of Medicine M1 core course curriculum as a result of last year's advocacy. Notably, during discussions of mental health, pulmonology, and cardiology. It was also addressed more extensively in the elective EMED 134: The Impact of Climate Change on Human Health. The socioeconomic disparities of extreme heat distribution are not covered in the core curriculum and pose an opportunity for improvement.

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.

Touched on in several lectures of the Practice of Medicine M1 core course curriculum as a result of last year's advocacy. Notably, during discussions of mental health (Dr. Owusu), and population health (Dr. David Chang). It was also addressed extensively in the elective EMED 134: The Impact of Climate Change on Human Health.

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.

The first-year and second year microbiology course discusses environmental contributions to pathogenic transmission and infection. In the Q3 course, the lectures highlights how Coccidiomycosis is impacted by climate change. In the Fall, Q5 module, students learn about emerging zoonoses and "One Health", which discusses how human and animal health are linked, as well as describes how climate change impacts this One-Health link. In addition, the medical school elective Impact of Climate Change on Human Health has a session dedicated specifically to infectious disease and climate change, taught by Professor Erin Mordecai.

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.

The Stanford Medical School curriculum now has case studies and lecture integration in required cardiology and pulmonology blocks during M1, as well as an optional Practice Of Medicine session discussing impacts of climate change and pollution, and socioeconomic disparity in distribution of asthma.

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.

In the mandatory pre-clerkship curriculum, there is a discussion of Behavioral Determinants of Health and ACEs, and the link between life adversity and physical/mental health is discussed. Furthermore, in the Q1 thread, a lecture on anxiety disorders was discussed in relation to climate change and environmental degradation, and a lecture on population health discussed connections between environmental health and mental disorders. Dr. Robin Cooper presented a detailed lecture on the impacts of climate change on mental health in the medical school elective EMED 134: The Impact of Climate Change on Human Health.

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.

This topic is covered in various threads of the Practice of Medicine course including Nutrition and Population Health, as well as in electives like EMED 134: The Impact of Climate Change on Human Health, and ORTHO 120: Introduction to Lifestyle Medicine.

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.

This topic is covered briefly in the Population Health thread of the M1 Practice of Medicine course, as well as in the elective EMED 134: The Impact of Climate Change on Human Health.

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.

Several elective courses cover this concept in depth, including EMED 134: The Impact of Climate Change on Human Health, MED 285: Global Leaders and Innovators in Human and Planetary Health, and PEDS 223: Human Rights and Global Health.

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.
<p>Discussions in SOM lectures as well as Q1 Embryology briefly touch on environmental exposures and reproductive health effects. Dr. Giudice presented a lecture on the impact of environmental exposures such as air pollution on pregnancy outcomes in the medical school elective EMED 134: The Impact of Climate Change on Human Health. We have reached out to the SOM course team, and have not yet heard back about SOM classes.</p>	

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.
<p>This was discussed in our core curriculum. Our Population Health thread of the Practice of Medicine Course addresses the impact of wildfires and urban pollutants on the health Californian communities, in the session “Role of Community Partnerships.”</p>	

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.
<p>To our knowledge, this is not covered in the core curriculum, however is covered to some degree in several electives, most notably URBANST 155A: Environmental Justice Colloquium, which integrates historical perspectives with present challenges in environmental justice, covering topics in planetary health.</p>	

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.
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>This topic is covered briefly by Dr. David Chang in the Population Health thread of the M1 Practice of Medicine course, as well as in the elective EMED 134: The Impact of Climate Change on Human Health.</p>	

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.
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>M1 Q1 nutrition core curriculum lectures include information about the intersection between human health and environmental health. For example, lectures discuss how shifting to a plant-based diet impacts greenhouse gases and how efforts to eat more sustainably has human and environmental co-benefits.</p>	

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.
<p>To our knowledge, this is not covered in the core curriculum, however is covered in the elective EMED 134: The Impact of Climate Change on Human Health, as well as being mentioned in some contexts in clerkships by faculty who are advocates in this area.</p>	

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
This is not covered in core or elective coursework.	

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.
Students have not been introduced to how to take an environmental health history in any of the threads on patient encounters, aside from very basic questions. This is not included in any of the learning objectives. It is covered in the elective EMED 134: The Impact of Climate Change on Human Health	

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.
As a result of efforts of the Stanford Climate and Health student group, planetary health and climate change concepts are being integrated by many faculty in numerous core classes across the curriculum for undergraduate and graduate medical education. For example, in the cardiology and pulmonology block, and in the OB department.	

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.
Concepts in planetary health are now integrated in portions of the preclinical curriculum as noted previously, with further integration in both preclinical and expansion to clinical core courses such as the Family Medicine and OB/GYN rotations.	

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.
To our knowledge, there is no ongoing program that offers incentives for faculty / departments to develop new planetary health courses or incorporate planetary health into existing courses. When developing planetary health courses / integration with faculty, we have not heard of any such incentives.	

Section Total (38 out of 58)	65.52
-------------------------------------	--------------

Are there additional curriculum resources offered at your medical school or institution not yet asked about that you would like to describe? If so, please do so below.

Interdisciplinary Research

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

1. Are there researchers engaged in planetary health research and healthcare sustainability research at your medical school?	
4	Yes, there are faculty members at the School of Medicine who have a primary research focus in planetary health and healthcare sustainability.
3	Yes, there are faculty members at the School of Medicine who have a primary research focus in a 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.
Dr. Michele Barry, Dr. Allison Phillips, Dr. Stephen Luby, Dr. Jason Andrews, Dr. Gretchen Daily, to name a few, focus on topics of planetary health.	

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.

The center for Global Health’s Planetary Health department, as well as a collective in the [Emmett Interdisciplinary Program in Environment and Resources](#) focus on the intersection of communities, health, sustainability, and the environment.

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.

Note: New metric.

There is no mechanism specific to community members impacted by climate and environmental injustice, though there is a Community Advisory Board for Clinical Research.

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.

Yes, there is a website hosted by the Center for Global Health that is accessible, however focuses on global challenges and somewhat incomplete. Further centralization with the existing Stanford office of Sustainability resources and the Stanford Medical School and Woods Institute would be an ideal collaboration, ideally synthesized by the new Center for Climate and Sustainability as a resource for students and community members.

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.
Stanford hosted the Planetary Health Annual meeting in 2019, the annual Global Health Research Methods retreat, and co-hosted the NorCal Climate and Pandemic Resilience in Health Care and a follow-up Mini-Symposium this year.	

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.
The Stanford Center for Global Health, under/on behalf of the medical school, has joined PHA, however the Medical School proper has joined neither.	

Section Total (13 out of 19)	68.42
-------------------------------------	--------------

Are there additional research resources offered at your medical school or institution not yet asked about that you would like to describe? If so, please do so below.

Community Outreach and Advocacy

Section Overview: This section evaluates medical school engagement in community outreach and advocacy efforts associated with planetary health. Researching and teaching planetary health is necessary but not sufficient. It is critical that institutions also directly engage with communities most affected by environmental health harms. Although climate change is a problem largely created by those with power and resources, its impacts fall disproportionately on under-resourced populations and communities of color. Institutions should partner with local communities affected by climate change and pollution to share information about environmental health threats, advocate together for change, and provide opportunities for students to be a part of this work.

1. Does your medical school partner with community organizations to promote planetary and environmental health?	
3	Yes, the medical school meaningfully partners with multiple community organizations to promote planetary and environmental health.
2	Yes, the medical school meaningfully partners with one community organization to promote planetary and environmental health.
1	The institution partners with community organizations, but the medical school is not part of that partnership.
0	No, there is no such meaningful community partnership.
<p>Through the Stanford Climate and Health student group, the medical school interfaces meaningfully with residents and community partners in the city of Stockton including CARB and Valley Air District to work on issues related to air pollution and environmental justice. Other groups under Stanford university such as the Future Bay Initiative and Urban InVEST engage with community partners such as Canopy and the Fair Oaks community on issues of planetary health.</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.

The NorCal Climate and Pandemic Resilience in Health Care, as well as events hosted by the Center for Global Health at Stanford and departments such as the Woods Institute host events intermittently. These are predominantly academic-facing rather than community-facing.

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.

SCOPE, the Stanford Medicine publication, averages 2 to 6 articles related to planetary health, sustainability, and climate change per year and the Center for Global Health produces similar numbers of updates on planetary health per year. Other departments also publish updates in this space intermittently. Unfortunately these updates are generally opt-in and not well-read by medical students.

4. Does the medical school 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 of planetary health.
1	Yes, one in-person or online CME course related to planetary health and/or sustainable healthcare is offered.
0	There are no CME courses on planetary health or sustainable healthcare topics.

The 2020 NorCal Climate and Pandemic Resilience in Health Care and subsequent speaker events provided CME credit to Stanford physicians, there is much room for improvement in this metric.

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.

Patient education materials provided post-visit available at all Stanford affiliated clinics contain environmental health information. This information, however, is not freely outside of being provided

post-appointment or specifically requesting it from a provider. It is unclear, however, whether these resources are adequate.

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.
To our knowledge this is not an available resource.	

Section Total (7 out of 14)	50
------------------------------------	-----------

Are there additional community engagement and advocacy resources offered at your medical school or institution not yet asked about that you would like to describe? If so, please do so below.

Support for Student-Led Planetary Health Initiatives

Section Overview: This section evaluates institutional support for student-led planetary health initiatives, such as funding, fellowships, programming, and student groups. Planetary health is a young field and, as young people facing a future deeply shaped by climate change, students are often some of the first at an institution to engage with it. Institutions should provide support for students to engage in sustainability quality improvement (QI) initiatives, discover mentors in their area of interest, and receive funding for planetary health projects.

1. Does your 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.

There are numerous opportunities for funded initiatives and projects, the foremost of which are the [Mel Lane Grant](#) and the [Green Fund](#) which directly fund student initiatives for sustainability and environmental projects. Many research funding opportunities such as MedScholars and Valley Fellowship fund projects including sustainability, community engagement and climate resilience initiatives.

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.

Numerous departments and schools offer funding opportunities available to medical students that are specific to planetary health and sustainability. A list of examples through the Woods institute is found [here](#), two new seed funding opportunities [here](#) and [here](#), and funding through E-IPER [here](#). The [Human and Planetary Health Fellowship](#) is the premier opportunity on campus.

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.

Stanford Medical School and affiliated faculty house resources, funding opportunities, research and advocacy opportunities, and other specific information on interdisciplinary sites and a forthcoming site through the new School of Climate and Sustainability. The Stanford Center for Innovation in Global Health has a website with information, projects, and opportunities, and there is a faculty listing which is sortable by interests and research, including sustainability and planetary health topics. There is room for improvement by integrating these resources to elevate and increase access to planetary health information.

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.

Stanford Medical School has [Stanford Climate and Health](#), a registered student group with broad support and growing recognition across the institution.

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>Yes, there are student liaisons to the Stanford University School of Sustainability advisory committee, the Stanford Health Care board, and various other decision-making bodies across campus including the student council.</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>The O'Donohue Family Stanford Educational Farm is a 'learning lab' focused on sustainable agriculture. Students from across the university have the opportunity to take classes with and learn from the farm. Stanford also participates in and opens to students several CSA opportunities.</p> <p>Stanford co-hosted the 2020 NorCal Climate and Pandemic Resilience in Health Care and subsequent speaker events as well as the Global Health Research Methods retreat which addresses planetary health topics.</p> <p>Due to Stanford Climate and Health student group efforts, several community partners in environmental justice work with and present to Stanford Medical School students on local environmental justice concerns and projects. This includes work with Stockton partners, Catholic Charities, Little Manila Rising and Fathers and Families of San Joaquin, and a core curriculum session dedicated to environmental justice and asthma in the Bay area.</p>	

Opportunities for volunteer work exist through the relationships noted above, as well as through the Future Bay initiative which works on projects like [Canopy](#). Unfortunately these have poor visibility in the medical school, offering an opportunity for improvement.

Stanford Medical School holds a backpacking trip as part of orientation for incoming students.

Section Total (14 out of 15)	93.33
-------------------------------------	--------------

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
In addition to the Woods Institute for the Environment , there is a new Stanford school of Climate and Sustainability , which will integrate voices from across Stanford's campus. The planning board for the new initiative currently includes a medical student as well as a faculty representative from the medical school, Dr. Steve Luby.	

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.
Stanford University has a detailed plan to achieve 80% carbon neutrality by 2025, with a stated goal of complete carbon neutrality (operations and endowment) by 2050. Later steps beyond 2025 are less	

well-defined, there is a blueprint and further planning is in progress under the new School of Climate and Sustainability, and the commitment has been made clear by the Trustees in accordance with the Paris Agreement.

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.

Drawing from two solar generating plants, Stanford University committed to source all energy from renewable resources by this year. This plan covers Medical School buildings, and according to University sources, is on track.

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.

Stanford Health Care, under which the majority of Stanford Medical School's building fall, has received [Environmental Excellence awards from Practice GreenHealth](#) for the past four years consecutively both for renovations of old buildings and sustainable practices in new buildings including a Silver and a Platinum LEED certification for its two newest hospital buildings.

5. Has the medical school implemented strategies to encourage and provide environmentally-friendly transportation options for students and reduce the environmental impact of commuting?

2	Yes, the medical school has implemented strategies to encourage and provide environmentally-friendly transportation options such as safe active transport, public
----------	--

	transport, or carpooling and these options are well-utilized by students. Alternatively, the campus location is not amenable to unsustainable forms of transportation by default.
1	The medical school has implemented some strategies to provide environmentally-friendly transportation options, but the options are unsatisfactorily accessible or advertised.
0	The medical school has not implemented strategies to encourage and provide environmentally-friendly transportation options.
<p>Stanford's support and incentivization of sustainable transport is substantial, beginning with encouraging students to live on-campus to allow for a short commute. In addition, Stanford's Marguerite buses provide all-electric transport, all of which are equipped with bicycle racks.</p> <p>The university is also a Platinum Bicycle Friendly University as designated by the League of American Bicyclists and has subsidized vanpool and carpool incentive programs.</p>	

6. Does your medical school have an organics recycling program (compost) and a conventional recycling program (aluminum/paper/plastic/glass)?	
2	Yes, the medical school has both compost and recycling programs accessible to students and faculty.
1	The medical school has either recycling or compost programs accessible to students and faculty, but not both.
0	There is no compost or recycling program at the medical school.
<p>The Stanford University system has a robust composting and recycling program that is instituted at the Medical School and in student housing, with the goal of reaching zero waste by 2030.</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>Stanford University has fairly robust efforts to support as well as research sustainability best practices in food and beverage procurement, preparation, and service. Stanford Health Care (SHC) underwent a</p>	

sustainability transformation of food and beverage sourcing in 2016 and has reasonable guidelines to support sustainability in this area, however has room for continued improvement and engagement in the issue. A collaborative effort to apply Stanford University R&DE's [One Plate, One Planet](#) initiative, and expand the Menus of Change research to SHC and other hospitals would be a significant step in the right direction.

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.

Stanford University procurement guidelines are found [here](#), and require the application of specific sustainability metrics toward meeting the University's zero waste 2030 and related sustainability goals. These metrics take into account Environmentally Preferable Products (including services) and taking into account quality and Life Cycle Cost.

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.

The Stanford Office of Sustainability, supports and strongly recommends sustainability measures in event planning across the University's departments. Their guidelines are found [here](#). Departments may become trained and certified under the Office of Sustainability's Green Events program, a step that we will recommend upon meeting with Medical School leadership

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.
The Stanford Office of Sustainability’s Green Labs program is a robust system of support, incentivization, and promotion of sustainable practices, procurement, waste management, and energy use.	

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.
The Board of Trustees has committed to full divestment and reinvestment in renewable energy by 2050, and has thus far reduced active fossil fuel holdings in Stanford’s Merged Pool of investments by more than 90% . We are hopeful that full divestment will be achieved in the near term and believe this is an area of opportunity of advocacy for students and leaders at the Medical School.	

Section Total (26 out of 29)	89.66
-------------------------------------	--------------

Are there additional sustainability resources offered at your medical school or institution not yet asked about that you would like to describe? If so, please do so below.

Grading

Section Overview

This section focuses on the grading of the report card. The institution received a grade for each of the individual sections as well as an overall institutional grade. Section point totals were tallied, divided by the total points available for the section, and converted to a percentage. The overall institutional grade is a weighted average of the section grades, with curriculum receiving a higher weight owing to its larger number of metrics. Letter grades for each section and the institution overall were then assigned according to the table below.

Letter Grade	Percentage
A	80% - 100%
B	60% - 79%
C	40% - 59%
D	20% - 39%
F	0% - 19%

Planetary Health Grades for the Stanford University School of Medicine

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

Section	Raw Score	Grade
Planetary Health Curriculum (30%)	38 / 58 = 65.52%	B
Interdisciplinary Research (17.5%)	13 / 19 = 68.42%	B
Community Outreach and Advocacy (17.5%)	7 / 14 = 50%	C
Support for Student-led Planetary Health Initiatives (17.5%)	14 / 15 = 93.33%	A
Campus Sustainability (17.5%)	26 / 29 = 89.66%	A

Institutional Grade	mean: 73.39 weighted mean: 72.4	B
----------------------------	--	----------

