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# Planetary Health Report Card (Medicine): *University of California, San Francisco*

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2023-2024 Contributing Team:

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## Summary of Findings

<b>Overall</b>	<b>B+</b>
<b><u>Curriculum</u></b>	<b>B</b>
<p>The UCSF School of Medicine students and faculty have made admirable advancements in integrating planetary and environmental health topics into the core curriculum. This includes a new Environmental Justice panel, which highlights the connections between structural, racial, and environmental disparities in the Bay Area.</p> <p><b>Recommendations:</b> Continue efforts to integrate planetary health and climate change throughout the Foundations 1 core curriculum, with special emphasis on the topics mentioned in metric #17, such as the environmental impact of pharmaceuticals and surgical healthcare.</p>	
<b><u>Interdisciplinary Research</u></b>	<b>A+</b>
<p>The UC Center for Climate, Health and Equity and the UCSF EaRTH Center are led by prominent researchers in the field of planetary health. These Centers lead the organization of climate health initiatives at the institution. There are ample student funding opportunities for climate health projects. Annual symposiums facilitate communication surrounding planetary health research relevant to medical education and health equity.</p> <p><b>Recommendations:</b> We encourage the School of Medicine to engage further with the important work led by these UCSF Centers. Events hosted by the School of Medicine itself may aid in incorporating climate health into medical education while expanding opportunities for medical students in planetary health initiatives.</p>	
<b><u>Community Outreach and Advocacy</u></b>	<b>A</b>
<p>While UCSF has the necessary infrastructure to advocate for the communities affected by climate change, neither the University nor the School of Medicine have yet utilized their platforms to the fullest extent. We recognize that the School of Medicine has worked to strengthen existing community partnerships and establish new partnerships to engage students, alumni, and faculty with the climate health impacts on various communities in the Bay Area.</p> <p><b>Recommendations:</b> UCSF must continue to maintain established community partnerships while expanding to foster new partnerships in the coming year. Additionally, we encourage UCSF Health, with the School of Medicine's support, to integrate patient education on health risks of climate change into existing resources.</p>	
<b><u>Support for Student-Led Initiatives</u></b>	<b>A-</b>
<p>The wider university continues to recognize student-led initiatives, offering time, scholarly funding, and enthusiasm for student work. Environmental Scholars Program and Carbon Neutrality Initiative fellowship are examples of funded opportunities for students to engage in planetary health at UCSF.</p> <p><b>Recommendations:</b> We encourage the School of Medicine to introduce a student liaison position on a decision-making council to advocate for curriculum reform and sustainable practices. We recommend updating information on their planetary health website and consolidating funded opportunities on a single, accessible web page. Ideas for improvement include opportunities for student involvement in organic agriculture, sustainable food systems and community volunteering to foster resilience against anthropogenic environmental impacts.</p>	
<b><u>Campus Sustainability</u></b>	<b>B</b>
<p>UCSF has robust waste reduction, water conservation, toxics reduction, sustainable food, green procurement, energy efficiency, green procurement, green labs, and education/engagement efforts.</p> <p><b>Recommendations:</b> UCSF has committed to achieve carbon neutrality by 2025. Despite this, only 62% of total energy consumption is clean and sustainability criteria only require 25% of indicated products and services to be from sustainable sources. Efforts must be substantially expanded to meet carbon neutrality by 2025.</p>	

# Statement of Purpose

*Planetary health is human health.*

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

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

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

# Definitions & Other Considerations

## Definitions:

- **Planetary Health:** is described by the Planetary Health Alliance as “the health of human civilisation and the state of the natural systems on which it depends.” For example, topics such as climate change, declining biodiversity, shortages of arable land and freshwater, and pollution would all fall under the realm of planetary health. Both planetary health and traditional ‘environmental health’ examine the relationship between human health and the external environment, including extreme temperatures, chemicals, vector-borne diseases, etc. Planetary health explicitly concerns itself with the potential health harms associated with human-caused perturbations of natural systems. Therefore, the human health focus of planetary health makes the field well-adapted for the context of medical school education. Throughout this report card, we use the term planetary health to refer to this broad swath of topics, but resources do not need to explicitly include the term “planetary health” to satisfy the metric.
- **Sustainable Healthcare:** As defined by the Academy of Royal Colleges, sustainable healthcare involves ensuring the ability to provide good quality care for future generations by balancing the economic, environmental, and social constraints and demands within health care settings. A sustainable healthcare system maintains population health, reduces disease burden and 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 vs. Institution:** When “medical school” is specified in the report card, this only refers to curriculum and resources offered by the School of Medicine and does not include offerings from other parts of the university (e.g. undergraduate departments (USA), other related departments (e.g. Public Health, Population Health departments). In contrast, when “institution” is specified in the report card, we are referring to the university more

broadly. Any resource reasonably accessible by medical students, no matter where in the institution the resource comes from or if it is specifically targeted for medical students, can meet this metric.

- **Environmental history (Metric #19 in Curriculum Section):** This is a series of questions providers are taught to ask during medical encounters that elicits patients' exposures and environmental risk factors. Historically, this has included consideration of exposures like pesticides, asbestos, and lead, though in the modern era shaped by climate change, it can be expanded to include things like wildfire smoke exposure, air pollution and mold after flooding. Key components include place of residence over the lifecourse, occupational history, food and water sources (e.g. meat from industrial feeding operations, regular fishing in contaminated water, access to clean drinking water), and exposure to air pollution.
- **Elective:** The word "elective" refers to an optional course or lecture series that a medical student can opt to take part in but is not a requirement in the core curriculum. Generally, these elective courses take place in the preclinical curriculum but vary by school.
- **Clerkship:** This is a term used in the USA to refer to placements that medical students go on e.g. Pediatrics, General medicine, Psychiatry. In the UK these are referred to as rotations or placements.

**Other considerations:**

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

**Added to our resources in 2022, the Planetary Health Report Card [Literature Review by Metric](#) collates the evidence behind each of the metrics in the Planetary Health Report Card. It serves as a collection of references for further learning and a resource for those advocating for increased planetary health engagement at their institutions.**

# Planetary Health Curriculum

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

## Curriculum: General

1.1. Did your <b>medical school</b> offer elective courses (student selected modules) to engage students in Education for Sustainable Healthcare or Planetary Health in the last year?	
3	Yes, the medical school has offered <b>more than one</b> elective whose primary focus is ESH/planetary health in the past year.
2	Yes, the medical school has offered <b>one</b> elective whose primary focus is ESH/planetary health in the past year.
1	The medical school does <b>not</b> have any electives whose primary focus is ESH/planetary health, but there are one or more electives that include a <b>lecture</b> on planetary health.
0	No, the medical school has <b>not</b> offered any electives on planetary health or electives that include ESH/planetary health topics in the past year.
<p><i>Score explanation: An elective entitled “Climate Justice, Environmental Health, and Professional Activism” was hosted by UCSF’s <a href="#">Environmental Research and Translation for Health (EaRTH) Center</a>. Additionally, two week mini-courses titled “Climate Change and Health” and “Environmental Health and Justice” are offered as options for medical students in their required <a href="#">Inquiry Immersion</a> block.</i></p>	

## Curriculum: Health Effects of Climate Change

1.2. Does your <b>medical school</b> curriculum address the relationship between extreme heat, health risks, and climate change?	
3	This topic was explored <b>in depth</b> by the <b>core</b> curriculum.
2	This topic was <b>briefly</b> covered in the <b>core</b> curriculum.
1	This topic was covered in <b>elective</b> coursework.
0	This topic was <b>not</b> covered.
<p><i>Score explanation: Testable learning objective to “understand the impact of climate change on the burden of respiratory disease” included in the Obstructive and Restrictive Lung Diseases lecture of the Airways, Blood, &amp; Circulation (ABC) block. This lecture highlights the connection between climate change-mediated increased heat and COPD mortality. In addition, the Renal, Endocrine, GI, and</i></p>	

*Nutrition (REGN) block includes discussion on the impacts of climate change on chronic kidney disease. A mandatory small group session guides students to “Briefly discuss how climate change may predispose our patient, and other outdoor workers with limited access to water, to similar presentations,” prompting discussion surrounding the risk factors for chronic kidney disease that are linked to climate change, including working in heat, lack of access to clean water, exposure to pesticides/insecticides, and poor air quality.*

**1.3. 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 <b>in depth</b> by the <b>core</b> curriculum.
2	This topic was <b>briefly</b> covered in the <b>core</b> curriculum.
1	This topic was covered in <b>elective</b> coursework.
0	This topic was <b>not</b> covered.

*Score explanation: Extreme weather events (ie. wildfires) are mentioned briefly as risk factors for exacerbating asthma and COPD in the Airways, Breathing, and Circulation (ABC) 2 block. Further discussion of extreme weather events occurred in the elective Climate Change and Health course.*

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

3	This topic was explored <b>in depth</b> by the <b>core</b> curriculum.
2	This topic was <b>briefly</b> covered in the <b>core</b> curriculum.
1	This topic was covered in <b>elective</b> coursework.
0	This topic was <b>not</b> covered.

*Score explanation: Testable learning objective to “explain how shifts in climate could increase the incidence of vector-borne infectious diseases using Chikungunya, Dengue virus, and Zika virus as exemplars” included in the Pathogens & Host Defense (PHD) block. The associated mandatory online lesson discusses the impacts of climate change on the geographical distribution of these diseases.*

**1.5. Does your medical school curriculum address the respiratory health effects of climate change and air pollution?**

3	This topic was explored <b>in depth</b> by the <b>core</b> curriculum.
2	This topic was <b>briefly</b> covered in the <b>core</b> curriculum.
1	This topic was covered in <b>elective</b> coursework.
0	This topic was <b>not</b> covered.

*Score explanation: Testable learning objective to “understand the impact of climate change on the burden of respiratory disease” included in the Obstructive and Restrictive Lung Diseases lecture of the Airways, Blood, & Circulation (ABC) 2 curriculum. The lecture discussed environmental exposures (including air pollution) as risk factors for developing respiratory diseases, and also how climate consequences mirror social inequities and disproportionately affect people of color. Lung cancer lecture also discussed air pollution as a risk factor. A mandatory small group session in the Core Inquiry Curriculum (CIC) titled “Climate Change and Health” encourages students to explore climate health research and includes the following objectives: 1) Describe interconnections among climate change, air quality, and health, with an emphasis on respiratory and cardiovascular health. 2) Explain how systemic inequities lead to differential exposure to air pollution and thus contribute to health disparities. 3) Describe specific ways health providers can advocate for environmental justice at both the interpersonal (health provider – patient) level and systemic level.*

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

3	This topic was explored <b>in depth</b> by the <b>core</b> curriculum.
2	This topic was <b>briefly</b> covered in the <b>core</b> curriculum.
1	This topic was covered in <b>elective</b> coursework.
0	This topic was <b>not</b> covered.

*Score explanation: A Core Inquiry Curriculum (CIC) lecture on challenges in global health lists climate change as a primary challenge and summarizes the findings of a 2022 review of heat exposure and cardiovascular health outcomes. Additionally, a CIC Climate Change and Health Small Group learning objective reads as follows: “Describe interconnections among climate change, air quality, and health, with an emphasis on respiratory and cardiovascular health.”*

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

3	This topic was explored <b>in depth</b> by the <b>core</b> curriculum.
2	This topic was <b>briefly</b> covered in the <b>core</b> curriculum.
1	This topic was covered in <b>elective</b> coursework.
0	This topic was <b>not</b> covered.

*Score explanation: A testable learning objective to “name three environmental factors that contribute to the risk for schizophrenia” is included in the Brain, Mind, and Behavior (BMB) block. Additionally, a lecture on PTSD included information on the rise of climate-related natural disasters and their effects on mental health. The psychological response to Hurricane Katrina was explored in detail, as well as increased rates of PTSD for people in close proximity to major wildfires in Australia and the US. Finally, a BMB lecture on psychopharmacology highlights the impacts of extreme heat on people with severe mental illness, also including a list of psychiatric medications that affect thermoregulation.*



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

3	This topic was explored <b>in depth</b> by the <b>core</b> curriculum.
2	This topic was <b>briefly</b> covered in the <b>core</b> curriculum.
1	This topic was covered in <b>elective</b> coursework.
0	This topic was <b>not</b> covered.

*Score explanation: This topic was covered in the two week elective mini-course titled “Climate Change and Health.” Students traced connections between climate change and reduced food security as a central objective of the course.*

**1.9. Does your medical school curriculum address the outsized impact of climate change on marginalized populations such as those with low SES, women, communities of color, Indigenous communities, children, homeless populations, and older adults?**

3	This topic was explored <b>in depth</b> by the <b>core</b> curriculum.
2	This topic was <b>briefly</b> covered in the <b>core</b> curriculum.
1	This topic was covered in <b>elective</b> coursework.
0	This topic was <b>not</b> covered.

*The disproportionate impact of climate change on marginalized communities is emphasized throughout the curriculum in the following: “Obstructive and Restrictive Diseases” lecture in the Airway, Breathing and Circulation (ABC) block; Core Inquiry Curriculum (CIC) Frontiers in Medicine: Environmental Justice panel, which included a graphic demonstrating that people of color are 5x more likely to live nearer to polluted areas than the general population; CIC Climate Change and Health small group, which encouraged students to “Explain how systemic inequities lead to differential exposure to air pollution and thus contribute to health disparities”; Frontiers in Medicine: Impact of Environment on Reproductive Health lecture.*

**1.10. Does your medical school curriculum address the unequal regional health impacts of climate change globally?**

3	This topic was explored <b>in depth</b> by the <b>core</b> curriculum.
2	This topic was <b>briefly</b> covered in the <b>core</b> curriculum.
1	This topic was covered in <b>elective</b> coursework.
0	This topic was <b>not</b> covered.

*Score explanation: In the Pathogens & Host Defense (PHD) block, a lecture by Dr. Peter Chin-Hong included information on environmental and demographic changes that have influenced disease emergence, as well as how climate change is altering the geographical distribution of vector-borne diseases, including Chikungunya, Dengue, and Zika viruses. Additionally, a Core Inquiry Curriculum*

lecture on global health challenges includes a slide highlighting the disproportionate economic harm of climate change on low and middle income countries.

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

**1.11. Does your medical school curriculum address the reproductive health effects of industry-related environmental toxins (e.g. air pollution, pesticides)?**

3	This topic was explored <b>in depth</b> by the <b>core</b> curriculum.
2	This topic was <b>briefly</b> covered in the <b>core</b> curriculum.
1	This topic was covered in <b>elective</b> coursework.
0	This topic was <b>not</b> covered.

*Score explanation: This topic is covered in the Core Inquiry Curriculum Frontiers in Medicine lecture titled “Impact of Environment on reproductive health.” Objectives included “Identify key health outcomes that have been linked to preconception and prenatal exposure to environmental chemicals,” and “Explain how the health impacts of environmental exposure are distributed unequally within and between populations.” This topic was also addressed in the Life Stages block, via a lectures titled “Delayed and Precocious Puberty” and “Urogenital Development” and in an associated small group discussion section.*

**1.12. Does your medical school curriculum address important human-caused environmental threats that are relevant to the university’s surrounding community?**

3	This topic was explored <b>in depth</b> by the <b>core</b> curriculum.
2	This topic was <b>briefly</b> covered in the <b>core</b> curriculum.
1	This topic was covered in <b>elective</b> coursework.
0	This topic was <b>not</b> covered.

*Score explanation: The impacts of wildfires on rates of asthma in the Bay Area were discussed as environmental contributions to obstructive lung disease in a lecture titled “Obstructive and Restrictive Lung Diseases: Clinical Approach” within our Airways, Blood, & Circulation (ABC) 2 block. This year, there was also a small group dedicated to Climate Change and Health with the following objectives: “Describe interconnections among climate change, air quality, and health, with an emphasis on respiratory and cardiovascular health.” and “Explain how systemic inequities lead to differential exposure to air pollution and thus contribute to health disparities.” This was also addressed in the Frontiers in Medicine Environmental Justice Panel that provided an overview of how climate change disproportionately affects communities with less power, including those impacted by racism. Pre-work for the session included exploring “the systemic inequities that historically and currently lead to the Bayview-Hunters Point community being disproportionately affected by environmental toxins?”*

**1.13. To what extent does your medical school emphasize the importance of Indigenous knowledge and value systems as essential components of planetary health solutions?**

3	Indigenous knowledge and value systems are <b>integrated throughout</b> the medical school's planetary health education
2	Indigenous knowledge and value systems as essential components of planetary health solutions are included <b>briefly</b> in the core curriculum.
1	Indigenous knowledge and value systems as essential components of planetary health solutions are included in <b>elective</b> coursework.
0	This topic was <b>not</b> covered.

*Score explanation: During the "Climate and Health" 2-week research immersion Mini-Course taken by fewer than 12 students, one student gave a brief presentation on the health impacts and indigenous community response to cyanotoxins in Clear Lake. There was otherwise no discussion of indigenous knowledge of climate change in the core curriculum nor in the elective courses.*

**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?**

3	This topic was explored <b>in depth</b> by the <b>core</b> curriculum.
2	This topic was <b>briefly</b> covered in the <b>core</b> curriculum.
1	This topic was covered in <b>elective</b> coursework.
0	This topic was <b>not</b> covered.

*Score explanation: During lectures in the ground school and Renal, Endocrine, GI, & Nutrition (REGN) blocks the curriculum has addressed how agricultural workers remain susceptible to agricultural insecticides or pesticides, placing them at greater risk for nervous system toxicity and end-stage renal disease.*

*The impacts of wildfires on rates of asthma in the Bay Area, particularly in Oakland, were discussed as environmental contributions to obstructive lung disease in a lecture titled "Obstructive and Restrictive Lung Diseases: Clinical Approach" within our Airways, Blood, & Circulation (ABC) 2 block. This year, there was also a small group dedicated to Climate Change and Health with the following objectives: "Describe interconnections among climate change, air quality, and health, with an emphasis on respiratory and cardiovascular health." and "Explain how systemic inequities lead to differential exposure to air pollution and thus contribute to health disparities." This was also addressed in the Frontiers in Medicine Environmental Justice Panel that provided an overview of how climate change disproportionately affects communities with less power, including those impacted by racism. Pre-work for the session included exploring "the systemic inequities that historically and currently lead to the Bayview-Hunters Point community being disproportionately affected by environmental toxins?"*

*Additionally a Core Inquiry Curriculum small group discussed the impact of the environment on reproductive health, including sources and pathways of developmental environmental chemicals and prevalence of the exposures, the unequal distribution of health impacts from environmental exposures,*

and key health outcomes that have been linked to preconception and prenatal exposure to environmental chemicals.

### Curriculum: Sustainability

#### 1.15. Does your medical school curriculum address the environmental and health co-benefits of a plant-based diet?

3	This topic was explored <b>in depth</b> by the <b>core</b> curriculum.
2	This topic was <b>briefly</b> covered in the <b>core</b> curriculum.
1	This topic was covered in <b>elective</b> coursework.
0	This topic was <b>not</b> covered.

*Score explanation: In our Renal, Endocrine, GI, & Nutrition (REGN) block, we had lectures on nutrition taught by Dr. Michelle Guy, in which there were two infographics on the relative greenhouse-gas emissions associated with some common protein sources and the gallons of water used in food production per serving. However, none of these lectures mentioned sustainability as a factor in dietary choices or decreased carbon emissions as a co-benefit of healthier, plant-based diets. These points should be emphasized to clearly elucidate the connection between healthy dietary choices and a healthier environment (reduced carbon in the atmosphere and reduced water consumption). Discussions during the Inquiry Immersion elective course on climate change did cover the carbon footprints for the manufacturing processes for different food types.*

#### 1.16. Does your medical school curriculum address the carbon footprint of healthcare systems?

3	This topic was explored <b>in depth</b> by the <b>core</b> curriculum
2	This topic was <b>briefly</b> covered in the <b>core</b> curriculum.
1	This topic was covered in <b>elective</b> coursework.
0	This topic was <b>not</b> covered.

*Score explanation: The main medical school curriculum does not acknowledge the role of the healthcare sector in contributing to climate change nor does it identify ways to advocate for and implement sustainable best practices in health care. The [GreenHealth Lab](#) at UCSF is dedicated to studying the impact of the healthcare system on the environment, but this research is not integrated into the medical school curriculum.*

#### 1.17. Does your medical school curriculum cover these components of sustainable clinical practice in the core curriculum? (points for each)

2	The health <b>and</b> environmental <b>co-benefits</b> of <b>avoiding</b> over-medicalisation, over-investigation and/or over-treatment
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2	The environmental impact of <b>pharmaceuticals</b> and over-prescribing as a cause of climate health harm. Alternatively teaching on <b>deprescribing</b> where possible and its environmental and health co-benefits would fulfill this metric.
1	The health <b>and</b> environmental <b>co-benefits</b> of <b>non-pharmaceutical management</b> of conditions where appropriate such as exercise or yoga classes for type 2 diabetes; social group activities such as gardening for mental health conditions; active transport such as bicycle schemes. This is commonly known as social prescribing in the UK.
1	Environmental impact of <b>surgical</b> healthcare on planetary health and the climate crisis, and how can it be mitigated
1	The impact of <b>anaesthetic</b> 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	The impact of <b>inhalers</b> on the healthcare carbon footprint and the environmental benefit of dry powdered inhalers over metered dose inhalers.
1	<b>Waste production</b> within healthcare <b>clinics</b> and strategies for reducing waste in clinical activities (e.g. single use items in the inpatient or outpatient setting)
<p><i>Score explanation: There is incomplete mention of these topics in our core curriculum. For example, though the health benefits of physical activity are discussed as a non-surgical management of obesity, the environmental benefits are not. Similarly, though we discussed over-investigation in the context of breast cancer screening in a small group, this was primarily in the realm of financial and health tradeoffs with no mention of environmental effects. During the 2023 -24 academic year, several students are working on a waste reduction project for surgical suites for their required quality improvement project for the Clinical Microsystems Curriculum. However, this is not an eligible project for the entire student body. Therefore, only a handful of students are exposed to components of sustainable clinical practice.</i></p>	

### *Curriculum: Clinical Applications*

<b>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?</b>	
2	Yes, there are strategies introduced for having conversations with patients about climate change in the <b>core</b> curriculum.
1	Yes, there are strategies introduced for having conversations with patients about climate change in <b>elective</b> coursework.
0	No, there are <b>not</b> strategies introduced for having conversations with patients about climate change
<p><i>Score explanation: A CIC small group in ABC2 on Climate Change in Health includes a role play exercise for students to practice discussing the health impacts of air pollution with patients in the context of asthma management and potential mitigation strategies. In Life Stages 1, there is a Frontiers in Medicine Panel called Impact of Environment on Reproductive Health, which discusses how to assess and counsel a patient about prenatal environmental exposures, but not about climate change specifically.</i></p>	

**1.19. In training for patient encounters, does your medical school's curriculum introduce strategies for taking an environmental history or exposure history?**

2	Yes, the <b>core</b> curriculum includes strategies for taking an environmental history.
1	Only <b>elective</b> coursework includes strategies for taking an environmental history.
0	No, the curriculum does <b>not</b> include strategies for taking an environmental history.

*Score explanation: In the Core Inquiry Curriculum small group during the ABC2 block titled "Climate Change in Health," students engage in a role play exercise to practice discussing the health impacts of air pollution with patients in the context of asthma management. In Life Stages 1, there is a Prenatal Care Through an Equity Lens lecture that describes how to assess and counsel a patient about prenatal environmental exposures, but not about climate change specifically.*

***Curriculum: Administrative Support for Planetary Health***

**1.20. Is your medical school currently in the process of implementing or improving Education for Sustainable Healthcare (ESH)/planetary health education?**

4	Yes, the medical school is currently in the process of making <b>major</b> improvements to ESH/planetary health education.
2	Yes, the medical school is currently in the process of making <b>minor</b> improvements to ESH/planetary health education.
0	No, there are <b>no</b> improvements to planetary health education in progress.

*Score explanation:  
Aside from the changes already implemented with respect to the curriculum, there have been both student and faculty-led initiatives to better integrate climate health into the curriculum. This has been funded through an education grant called the Climate Health and Sustainability Education (CHASE) initiative. CHASE has created a roadmap to further implementation within the UCSF 49 and foundational sciences and has successfully added climate health content to several Bridges blocks. UCSF school of medicine has multiple outlets for student feedback and curricular suggestions, including the Bridges Real Time Feedback tool, and student positions on various curriculum boards. UCSF has been supportive of student initiatives to change curricular elements in light of this feedback.*

**1.21. How well are the aforementioned planetary health/Education for Sustainable Healthcare topics integrated longitudinally into the core curriculum?**

6	Planetary health/ESH topics are <b>well integrated</b> into the core medical school curriculum.
4	<b>Some</b> 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 <b>(a) standalone lecture(s)</b> .



0	There is <b>minimal/no</b> education for sustainable healthcare.
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*Score explanation: Although there is longitudinal integration of climate health content throughout the preclinical curriculum, these topics are only included in a handful of lectures, Frontiers in Medicine panels and a single small group. Among the lectures, topics addressing climate change are only in a couple slides. The topics covered related to planetary health are included in the Pathogen, Host and Defense block (PHD), Airways, Blood and Circulation (ABC), Renal, Endocrine, GI, and Nutrition (REGN), and Life Stages. In PHD, lectures briefly cover how shifts in climate could increase the incidence of vector-borne infectious disease. In ABC 2, lectures and small groups discuss the impact of climate change on the burden of respiratory disease, how systemic inequities lead to differential exposure to air pollution and thus contribute to health disparities, specific ways health providers can advocate for environmental justice at both the interpersonal level and systemic level, and how to diagnose patients with possible ILD, emphasizing the importance of an environmental exposure history. During Life Stages, a frontiers in medicine panel discusses the impact of the environment on reproductive health. All of this content is associated with 11 learning objectives throughout the core curriculum. The learning objectives are listed below:*

- *Explain how environmental and demographic changes have influenced the emergence of disease (eg Ebola virus) (PHD2).*
- *Explain how shifts in climate could increase the incidence of vector-borne infectious diseases using Chikungunya, Dengue virus and Zika virus as examples (PHD2).*
- *Understand the impact of climate change on the burden of respiratory disease (ABC2).*
- *Describe the diagnostic approach to patients with possible interstitial lung disease, including obtaining a full occupational, hobby, and environmental exposure history, a thorough drug history, and a review of systems for systemic illness (ABC2).*
- *Describe interconnections among climate change, air quality, and health, with an emphasis on respiratory and cardiovascular health (ABC 2 CIC).*
- *Explain how systemic inequities lead to differential exposure to air pollution and thus contribute to health disparities (ABC 2 CIC).*
- *Describe specific ways health providers can advocate for environmental justice at both the interpersonal (health provider – patient) level and systemic level (ABC 2 CIC).*
- *Describe main sources and pathways of developmental exposure to environmental chemicals and prevalence of exposure. (Life Stages CIC)*
- *Name the intrinsic and extrinsic factors that increase or decrease vulnerability to exposure and adverse health outcomes. (Life Stages CIC)*
- *Explain how the health impacts of environmental exposure are distributed unequally within and between populations. (Life Stages CIC)*
- *Identify key health outcomes that have been linked to preconception and prenatal exposure to environmental chemicals. (Life Stages CIC)*

**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?**

1	<b>Yes, the medical school</b> has a specific faculty/staff member responsible for overseeing curricular integration of planetary health and sustainable healthcare
0	<b>No, the medical school</b> does <b>not</b> have a specific faculty/staff member responsible for overseeing curricular integration of planetary health and sustainable healthcare.

*Score explanation: Dr. Heather Whelan of UCSF is the Director of the Climate Health Education Ambassador program, which is sponsored by the UC Center for Health and Equity, to develop climate and health curriculum for all professional schools, including the UCSF school of medicine.*

Section Total (49 out of 72)	68.1%
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*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.

2.1. Are there researchers engaged in planetary health research and healthcare sustainability research at your <u>medical school</u> ?	
3	Yes, there are faculty members at the <b>medical school</b> who have a <b>primary</b> research focus in planetary health <b>or</b> healthcare sustainability.
2	Yes, there are individual faculty members at the <b>medical school</b> who are conducting research <b>related</b> 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 <b>institution</b> , but none associated with the medical school.
0	No, there are <b>no</b> planetary health and/or healthcare sustainability researchers at the <b>institution</b> or <b>medical school</b> at this time.
<p><i>Score explanation: Among many faculty members at the School of Medicine with a primary research focus in planetary health and healthcare sustainability, <a href="#">Dr. Sheri Weiser</a> investigates the impact that food insecurity and extreme weather events resulting from climate change have on the treatment outcomes of HIV and other chronic diseases. Dr. Weiser and <a href="#">Dr. Arianne Teherani</a> are the Founding Co-Directors of the <a href="#">UC Center for Climate, Health and Equity</a>, with research on the health impacts of climate change specified to be a pillar of the Center’s mission. Dr. Teherani’s research focuses on education for climate change, ecosystems degradation, sustainability, and health. <a href="#">Dr. Tracey Woodruff</a>, the Director of the <a href="#">UCSF EaRTH Center</a> and the <a href="#">Program on Reproductive Health and the Environment</a>, conducts research on how environmental toxins and pollutants impact pregnancy and child development. <a href="#">Dr. Seema Gandhi</a>’s primary research focus is reducing anesthesia-related GHG emissions and operating room waste. Serving on the Bay Area Air Quality Management District Advisory Council and the National Academy of Sciences Committee on Emerging Science for Environmental Health Decisions, <a href="#">Dr. Gina Solomon</a>’s research centers on the intersection of environmental health, climate change, toxicology and air pollution, with a special focus in impacts on disadvantaged communities.</i></p>	

2.2. Is there a dedicated department or institute for interdisciplinary planetary health research at your <u>institution</u> ?	
3	There is <b>at least one</b> dedicated department or institute for interdisciplinary planetary health research.
2	There is <b>not currently</b> a department or institute for interdisciplinary planetary health research, but there are <b>plans</b> to open one in the next 3 years.

1	There is an <b>Occupational and Environmental Health department</b> , but no interdisciplinary department or institute for planetary health research.
0	There is <b>no</b> dedicated department or institute.
<p><i>Score explanation: The <a href="#">UC Center for Climate, Health and Equity</a> - based at UCSF and founded by UCSF faculty - names research as one of its core pillars. Research interests include pathways through which climate change shapes physical and mental health across the lifespan, climate solutions that maximize both human health and environmental benefits, and the critical factors (e.g. socioeconomic determinants and systemic injustices like environmental racism) that shape the health impact of and responses to climate change. In an effort to extend research opportunities to faculty and fellows, the Center launched the Climate and Health Seed Grant Program to support interdisciplinary research projects across the UC system that advance understanding of the human health impacts of climate change and the climate solutions that advance health equity.</i></p> <p><i>The <a href="#">UCSF EaRTH Center</a> (Environmental Research and Translation for Health) is an interdisciplinary group that focuses on the impacts of harmful environmental pollutants on health and human development, offering numerous grants to support environmental health research for faculty and clinicians. For instance, the EaRTH Center launched the Seedling Awards Program, designed to enhance current research projects with an environmental health focus or to collect preliminary research data to support a NIH/NIEHS grant submission. Similarly, the EaRTH Center Innovation Awards in Environmental Health allocate \$12,000-15,000 to selected junior faculty and clinicians to embark on new projects in basic, epidemiological, or translational science or clinical/education in environmental health. The Center itself is supported by the National Institute of Environmental Health Sciences of the NIH.</i></p>	

<b>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 <u>medical school</u>?</b>	
3	Yes, there is a process in which community members impacted by climate and environmental injustice have <b>decision-making power</b> in the climate + environmental research agenda.
2	Yes, there is a process in which community members impacted by climate and environmental injustice <b>advise</b> the climate + environmental research agenda.
1	<b>No</b> , but there are <b>current efforts</b> to establish a process for community members to advise or make decisions on the research agenda.
0	There is <b>no</b> process, and <b>no</b> efforts to create such a process.
<p><i>Score explanation: The Community Engagement Core of the EaRTH Center informs all EaRTH Center priorities based on community input through the <a href="#">Stakeholder Advisory Board (SAB)</a>. The SAB consists of practicing health professionals and others working at the intersection of environment and health, including a certified nurse midwife, an ecology professor and environmental justice advocate, community health workers, and public health professionals. Together, they represent the environmental health research and education needs of their respective communities, review projects and pilot grants, and disseminate research findings to accelerate their implementation.</i></p>	

**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 <b>easy-to-use, adequately comprehensive</b> website that <b>centralizes</b> 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 <b>attempts to centralize</b> various campus resources related to health and the environment, but it is hard-to-use, not updated, or not adequately comprehensive.
1	The <b>institution</b> has an <b>Office of Sustainability website</b> that includes <b>some</b> resources related to health and the environment.
0	There is <b>no</b> website.
<p><i>Score explanation: UCSF has several websites that compile ongoing and past research, upcoming climate health events, sustainability efforts, and funding resources. The <a href="#">Environmental Research and Translation for Health (EaRTH) Center</a> website showcases relevant research and pilot projects, as well as upcoming events, funding opportunities, and faculty involvement within the Center. The <a href="#">UC Center for Climate, Health and Equity</a> website similarly houses important information about climate health events and current initiatives of the Center. The <a href="#">UCSF Office of Sustainability</a> website contains information about health and waste metrics and campus sustainability programs as well as the annual Climate Action Fellowships and UCSF Sustainability Award.</i></p>	

2.5. Has your <b>institution</b> recently hosted a conference or symposium on topics related to planetary health?	
4	Yes, the <b>medical school</b> has hosted at least one conference or symposium on topics related to planetary health in the past year.
3	Yes, the <b>institution</b> has hosted at least one conference or symposium on topics related to planetary health in the past year.
2	Yes, the <b>institution</b> has hosted a conference on topics related to planetary health in the past three years.
1	The <b>institution</b> has not hosted any conferences directly, but they have provided financial support for a local planetary health event.
0	No, the <b>institution</b> has not hosted a conference on topics related to planetary health in the past three years.
<p><i>Score explanation: UCSF hosted multiple symposiums and events on climate health in 2023, including the following:</i></p> <ul style="list-style-type: none"> <li>- <a href="#">4th Annual NorCal Symposium on Climate and Health</a> — hosted by the UC Center for Climate, Health and Equity on the ongoing challenge that climate change poses to medical education and opportunities for incorporating climate education at medical institutions</li> <li>- <a href="#">UCSF EaRTH Center 3rd Annual Research Forum</a> — this year's theme was "From the Laboratory to the Legislature: Science's Role in Reducing Environmental Impacts on Health and Health Equity."</li> </ul>	

**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 <b>not</b> a member of such an organization

*Score explanation: The UCSF School of Medicine and the UCSF-UC Berkeley Joint Medical Program are members of the Global Consortium on Climate and Health Education. The UCSF Institute for Global Health Sciences is a member of the Planetary Health Alliance.*

**Section Total (17 out of 17)**

**100%**

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*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.*

3.1. Does your <b>medical school</b> partner with community organizations to promote planetary and environmental health?	
3	Yes, the <b>medical school</b> meaningfully partners with <b>multiple</b> community organizations to promote planetary and environmental health.
2	Yes, the <b>medical school</b> meaningfully partners with <b>one</b> community organization to promote planetary and environmental health.
1	The <b>institution</b> partners with community organizations, but the medical school is not part of that partnership.
0	No, there is <b>no</b> such meaningful community partnership.
<p><i>Score explanation: UCSF School of Medicine has several partnerships with community based organizations to promote planetary and environmental health. In November 2023, the Student Experience Team and UCSF Office of Alumni partnered together to host a tour “Navigating the Toxic Triangle in Bayview Hunters Point” to bring students and alumni to Bayview Hunter’s Point to learn about their community based biomonitoring program for toxic elements. In addition, during December 2023, first year medical students were able to participate in an opportunity to tour with the West Oakland Environmental Indicators Project (WOEIP) during a Professional Identity week. The tour discussed with students the work and philosophy of WOEIP, why residential neighborhoods have been placed directly next to industrial operations and how this negatively affects human health and how structural inequities lead to these disproportionately distributed negative health effects.</i></p>	

3.2. Does your <b>medical school</b> offer community-facing courses or events regarding planetary health?	
3	The <b>medical school</b> offers community-facing courses or events at least once every year.
2	The <b>medical school</b> 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 <b>institution</b> has offered community-facing courses or events, but the <b>medical school</b> was not involved in planning those courses or events.
0	The <b>institution/medical school</b> have not offered such community-facing courses or events.

*Score explanation: The UCSF Osher Mini Medical School for the Public serves as a resource for members of the community interested in learning about health topics from UCSF faculty. In 2020 and 2021, multiple courses were offered on climate change and health. The recordings of these lectures are available indefinitely on [UCTV](#). Information on additional events that are accessible to the community is available on the UCSF [Environmental Research and Translation for Health \(EaRTH\) Center](#) website. While these courses are available to the public at all times, no additional courses have been offered around climate change and health since 2021.*

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

*Score explanation: Although the UCSF Office of Sustainability, the UCSF EaRTH Center, and the UC Center for Climate, Health and Equity have newsletters to which students may subscribe, there are not currently regular planetary health/sustainability updates sent out by the university to all UCSF students. These topics are occasionally included in general newsletters.*

**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 <b>institution</b> or <b>main affiliated hospital trust</b> 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 <b>institution</b> or <b>main affiliated hospital trust</b> offers one course relating to planetary health and/or sustainable healthcare for post-graduate providers
0	There are <b>no</b> such accessible courses for post-graduate providers

*Score explanation: Each year, the Division of Occupational, Environmental, and Climate Medicine [offers CME courses](#), related to climate change and health. This year's course, "The Musculoskeletal System at Work and Updates in Occupational and Environmental Medicine" in March of 2023, focused on the impact of occupationally and environmentally-related disease. In addition, the University of California Center for Climate, Health and Equity, housed at UCSF, hosted Spring and Fall 2023 webinar series on new evidence and innovations to confront the climate crisis and decarbonization, student activism, public health. The Western States Pediatric Environmental Health Specialty Unit (WS PEHSU) at University of California San Francisco created the [Pediatric Environmental Health: e-Toolkit for Prevention](#) for healthcare providers to stay up to date on preventing exposures to toxic chemicals and other substances that affect infant and child health. Lastly, the [UCSF EaRTH Center](#) hosted over 14 events in 2023 ranging from grand rounds, an Environmental Justice Boot Camp and CME courses relating to multidisciplinary environmental health 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 <b>medical school</b> or <b>all affiliated hospitals</b> have accessible educational materials for patients.
1	<b>Some</b> affiliated hospitals have accessible educational materials for patients.
0	<b>No</b> affiliated medical centers have accessible educational materials for patients.

*Score explanation: The Program on Reproductive Health and the Environment at UCSF has produced a series of online and printed patient-facing brochures about toxic exposures called “All that Matters.” Topics in [this series](#) include toxic chemicals, work exposures, pesticide exposures, and safe and healthy food choices. The University of California Center for Climate, Health, and Equity, housed at UCSF, has a [Wildfires & Health Education Hub](#), which provide seven infographics for education on different health risks associated with wildfires in English, Spanish, and Chinese. These infographics are publicly available for providers to share with their patients.*

**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 <b>medical school</b> or <b>all affiliated hospitals</b> have accessible educational materials for patients.
1	<b>Some</b> affiliated hospitals have accessible educational materials for patients.
0	<b>No</b> affiliated hospitals have accessible educational materials for patients.

*Score explanation: While UCSF Health is lacking patient education materials related to climate change and health, Zuckerberg San Francisco General Hospital offers resources for patients regarding [air quality and extreme heat](#). UCSF Health has the infrastructure to include patient education on topics related to environmental health within their [Library and Resource Center](#), but has not yet included resources. It would be reasonable to include similar resources on heat-related illnesses.*

<b>Section Total (12 out of 14)</b>	<b>85.7%</b>
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*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.*

4.1. Does your <b>medical school</b> or your <b>institution</b> offer support for medical students interested in enacting a sustainability initiative/QI project?	
2	Yes, the <b>medical school</b> or <b>institution</b> <i>either</i> offers grants for students to enact sustainability initiatives/QI projects <i>or</i> sustainability QI projects are part of the core curriculum.
1	The <b>medical school</b> or <b>institution</b> encourages sustainability QI projects (to fulfill clerkship or longitudinal requirements) and offers resources to help students succeed in these projects, <b>but</b> there is no student funding available and there is no requirement to participate.
0	No, <b>neither</b> the medical school or the institution offer opportunities or support for sustainability initiatives or QI projects.

*Score explanation: The UC President's Bonnie Reiss **Carbon Neutrality Initiative (CNI) Student Fellowship Program** and **Global Food Initiative (GFI) Fellowship Program** funds student-generated projects that support the UC system's goal to produce zero-net greenhouse gas emissions by 2025. For the 2023-2024 fellowship year, the CNI program featured seven UCSF fellows. This year, the UCSF Office of Sustainability also sought recruitment for numerous paid Climate Action Fellowships focused on: Climate Action, Campus Energy/Decarbonization, Campus Engagement, Campus Resilience, Health Engagement, and Health Decarbonization.*

4.2. Does your <b>institution</b> offer opportunities for medical students to do research related to planetary health and/or sustainable healthcare?	
2	The <b>institution</b> has a <b>specific</b> 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 <b>require student initiative</b> to seek these out and carry them out in their spare time.
0	There are <b>no opportunities</b> for students to engage in planetary health/sustainable healthcare research.

*Score explanation: Launched by the UCSF EaRTH Center, the **Environmental Scholars Program (ESP)** is a two-year community-based clinical and research program (total stipend of \$7500) that provides two medical or nursing students at UCSF with a summer internship experience to learn about factors in the environment that determine health outcomes. Students are placed in a community clinic or community health organization to work on projects that investigate environmental exposures such as community health and safety concerns, often for underserved communities with multiple potential environmental chemical exposures. Past placements included PSE Healthy Energy, the Bayview*



*Hunter's Point Community Advocates, and Western States Pediatric Environmental Specialty Unit. Students will also help support and co-implement an environmental health elective for their peers, which is a newly added component of the program.*

**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 <b>medical school</b> 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 <b>medical school</b> 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 <b>no medical-school</b> specific webpage for locating planetary health and/or sustainable healthcare projects or mentors.

*Score explanation: The [UCSF EaRTH Center](#) is an interdisciplinary group that aims to focus on the impacts of harmful environmental pollutants on health and human development. Their website features specific information about mentors, projects achieved and underway, funding opportunities, and contact information. The [UC Center for Climate, Health, and Equity](#) is focused exclusively on climate change and its impacts on health, with a website that lists research affiliates and hosts several student initiatives, such as the Wildfires and Health Education Hub and Interview without Harm.*

**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 <b>with faculty support</b> 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 <b>lacks faculty support</b> .
0	No, there is <b>not</b> a student organization at my institution dedicated to planetary health or sustainability in healthcare.

*Score explanation: Human Health + Climate Change (HHCC) is an interdisciplinary student club at UCSF focused on creating awareness and enacting change at the intersection of climate change and health. While the group is supported by a faculty member, HHCC currently does not receive institutional funding.*

**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.
<p><i>Score explanation: While a student does sit on the advisory board of the Office of Sustainability, there are no students involved with the Office of the President which oversees the Office of Sustainability, nor student representatives for sustainability interests that serve on the medical school or institutional council.</i></p>	

<b>4.6. In the past year, has the <u>institution</u> had one or more co-curricular planetary health programs or initiatives in the following categories? (1 point each)</b>	
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)
<p><i>Score explanation:</i>  <i>A lunchtime elective titled “Environmental Health and Health Professional Activism” is held annually to provide students the opportunity to learn from speakers who are actively involved in topics related to planetary health.</i></p> <p><i>In November 2023, medical students also had the opportunity to learn firsthand from representatives at Bayview Hunter’s Point to learn about their community based biomonitoring program for toxic elements. This was supplemented by another opportunity the following month to tour with the West Oakland Environmental Indicators Project (WOEIP) during a Professional Identity week.</i></p> <p><i>While catered to the larger UCSF community, the Waste to Art (supported by Dr. Seema Gandhi, the UCSF Office of Sustainability, and the UC Office of President Carbon Neutrality Initiative fellowship program) is an annual challenge dedicated to transforming medical and laboratory waste into incredible and inspiring art pieces. Students are welcome to submit artwork for the challenge, with a final Waste to Art Exhibition and award ceremony hosted on campus in late spring.</i></p> <p><i>UCSF also offers the Rec Pass to students, which gives training on wilderness and outdoor programs that follow Leave No Trace principles.</i></p>	

Section Total (12 out of 15)	80%
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*Are there additional student-led initiative resources offered at your medical school or institution not yet asked about that you would like to describe? If so, please do so below.*

# Campus Sustainability

**Section Overview:** *This section evaluates the support and engagement in sustainability initiatives by the medical school and/or institution. The healthcare industry is a major contributor to greenhouse gas emissions as well as pollution that harms local, regional, and global ecosystems. While healthcare is, by nature, a resource-intensive endeavor, the healthcare sector is well poised to lead the world to a more sustainable future. This will involve scrutinizing every aspect of how our systems operate, from where we source our energy, to how we build our infrastructure, to what companies we invest in. Our medical schools, clinics, and hospitals must set the standard for sustainable practices, and show other sectors what is possible when it comes to minimizing environmental impact.*

5.1. Does your <u>medical school</u> and/or <u>institution</u> 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 <b>at least one designated staff member</b> 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 <b>no specific staff member</b> in charge of medical school and/or hospital sustainability.
1	There are <b>no salaried sustainability staff</b> , but there is a sustainability task force or committee
0	There are <b>no</b> staff members <b>or</b> task force responsible for overseeing campus sustainability
<p><i>Score explanation: UCSF has an Office of Sustainability with a full time director. The <a href="#">Office of Sustainability</a> organizes the <a href="#">Advisory Committee on Sustainability</a>, which includes campus representation from each school, including the School of Medicine (Dr. Katherine Gundling and Dr. Seema Gandhi). This committee helps to oversee energy, utilities, infrastructure, food, and purchasing sustainability at UCSF's medical campuses.</i></p>	

5.2. How ambitious is your <u>institution/medical school</u> plan to reduce its own carbon footprint?	
5	The institution/medical school has a <b>written and approved plan</b> to achieve carbon neutrality by <b>2030</b>
3	The institution/medical school has a <b>written and approved plan</b> to achieve carbon neutrality by <b>2040</b>
1	The institution/medical school has a stated goal of carbon neutrality by <b>2040</b> but has <b>not created a plan</b> to reach that goal or the <b>plan is inadequate</b>
0	The institution/medical school does <b>not</b> meet any of the requirements listed above
<p><i>Score explanation: UCSF has a goal to become carbon neutral by 2025. The current plan is detailed in a "Solutions Portfolio" that was shared with students for this project. The portfolio contains a graph that charts GHG emissions for UCSF, reported in MTCO<sub>2e</sub> (megatons of CO<sub>2</sub> equivalent - represents an amount of GHG whose atmospheric impact has been standardized to</i></p>	

that of one unit mass of carbon dioxide based on the global warming potential of the gas). While substantial reductions in emissions have been made since 2008 (from approximately 140 MTCO<sub>2e</sub> to 85 MTCO<sub>2e</sub> in 2020), levels of emissions reductions have stagnated. For example, the most recent statistics from the 2023 Annual Sustainability Report shows that UCSF's Scope 1 emissions amount to 79,260 metric tons of CO<sub>2</sub>. Projects in renovations, on-site solar, and increases in energy efficiency are projected to further reduce emissions by 20 MTCO<sub>2e</sub> by 2025, while the remaining 65 MTCO<sub>2e</sub> will be offset via the purchase of carbon offsets. The report projects the level of emissions for the university through 2045, which shows the intention to reduce emissions all the way down to 0, which is a significant improvement in UCSF's stated goals from previous years. We encourage the university to continue working toward realizing this goal by 2040, or sooner if possible.

5.3. Do buildings/infrastructure used by the <u>medical school</u> for teaching (not including the hospital) utilize renewable energy?	
3	Yes medical school buildings are <b>100%</b> powered by renewable energy
2	Medical school buildings source <b>&gt;80%</b> of energy needs from off-site and/or on-site renewable energy.
1	Medical school buildings source <b>&gt;20%</b> of energy needs from off-site and/or on-site renewable energy.
0	Medical school buildings source <b>&lt;20%</b> of energy needs from off-site and/or on-site renewable energy.
<p><i>Score explanation: 98% of electricity purchased by UCSF is from carbon free sources, mostly solar and hydroelectric. The university is actively increasing on-site generation of clean energy including the construction of a 244kW solar panel array atop the Gateway Medical Building, which would provide about 4 percent of the annual electricity used at UCSF. This is in addition to UCSF's other on-site solar panels already installed at 3rd St. Garage, Genentech Hall, and the Aldea conference center. Despite these projects and achievements, only 62% of total electricity consumed by UCSF is clean. Commitment to 100% clean and renewable energy is key for UCSF to reach its net zero emissions and sustainability goals. (Note that this statistic is not published on the Office of Sustainability website. It was obtained from internal documents shared with students for this report.)</i></p>	

5.4. Are sustainable building practices utilized for new and old buildings on the <u>medical school</u> 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 <b>majority</b> of old buildings <b>have been retrofitted</b> to be more sustainable.
2	Sustainable building practices are utilized for new buildings on the medical school campus, but most old buildings have <b>not been retrofitted</b> .
1	Sustainable building practices are <b>inadequately or incompletely</b> implemented for new buildings.
0	Sustainability is <b>not considered</b> in the construction of new buildings.

*Score explanation: The UC system-wide Sustainable Practices policy requires that all new construction and renovations meet the Leadership in Energy and Efficiency Design (LEED) Silver criteria at a minimum, and the university has a goal of meeting LEED Gold certification for all new projects undertaken. There are some important updates in this regard: UCSF completed construction of its first Parksmart garage and is seeking Silver certification pending final documentation submission in fiscal year 2023-2024. Furthermore, the Bayfront Medical Building is an outpatient surgery center and clinic scheduled for completion and LEED Gold certification in fiscal year 2023-2024. In total, UCSF buildings have 16 gold, 6 silver, and 5 certified buildings, representing 3 more gold certifications from last year. UCSF's real estate department is considering committing to LEED Gold certification as the campus standard, but has not done so as of yet. Although many buildings at Parnassus have been retrofitted to meet LEED certification, there is no University wide and health system wide plan to have existing buildings retrofitted to achieve LEED certification. UCSF Health should meet the University's goal of achieving LEED Gold certification for all new constructions with on-site and off-site sustainable energy generation and storage as potential off-sets for the massive energy used by our hospitals. One ambitious goal would be to aim for a LEED Platinum designation for a UCSF Hospital.*

**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 <b>environmentally-friendly transportation options</b> 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 <b>some</b> strategies to provide environmentally-friendly transportation options, but the options are <b>unsatisfactorily</b> accessible or advertised.
0	The medical school or institution has <b>not</b> implemented strategies to encourage and provide environmentally-friendly transportation options.

*Score explanation: UCSF offers a shuttle service that connects all five major campuses, bike racks for cycling commutes, rideshare options, and pre-tax commuter benefits to employees in an effort to reduce the number of single occupancy vehicles (SOV) on the road and to reduce the carbon footprint of employee and student commute. The [2023 Annual Sustainability Report](#) details that 71% of students and employees are utilizing alternative commuting methods, down from 75.4% in 2021. UCSF also offers 152 EV charging ports, up from 98 in 2021. The report also notes that none of the vehicles acquired in 2023 were electric (zero-emission), plug-in hybrid, or clean transportation fuel. They also note that scope 3 transportation emissions grew due to increases in commute (approximately 6000 metric tons of carbon dioxide equivalent) and business travel (approximately 700 metric tons of carbon dioxide equivalent) emissions with greater returns to on-campus activities. Overall, this has led to an inadequate reduction in GHG emissions from transportation at UCSF.*

**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 <b>both</b> compost <b>and</b> recycling programs accessible to students and faculty.
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1	The medical school has <b>either</b> recycling <b>or</b> compost programs accessible to students and faculty, but not both.
0	There is <b>no</b> compost or recycling program at the medical school.
<p><i>Score explanation: UCSF School of Medicine has a robust recycling and compost program on campus in an attempt to achieve zero-waste. The medical school buildings all have multiple waste bins throughout that enable students, staff, and faculty to separate trash, compost, and recycling. UCSF maintains a goal of zero waste (defined as diverting 90% of all campus solid waste from landfill) by 2020. The Office of Sustainability <a href="#">reports that total waste generation for 2023 decreased</a> to 1.33lbs per person per day, down from 1.62 lbs per person per day in 2022. However, the landfill-bound waste did not significantly change: from 0.46 lbs to 0.43 lbs per person per day. Total waste generation is tracking well and has <a href="#">already exceeded goals for 2030</a>. In order to reach the goal of zero waste, the school could host more frequent bulky and e-waste drop-off days as well as furthering outreach and education on waste diversion.</i></p>	

**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 <b>adequate</b> sustainability requirements for food and beverages, including meat-free days or no red-meat, and <b>is engaged</b> in efforts to increase food and beverage sustainability.
2	There are sustainability guidelines for food and beverages, but they are <b>insufficient or optional</b> . The medical school <b>is engaged</b> in efforts to increase food and beverage sustainability.
1	There are sustainability guidelines for food and beverages, but they are <b>insufficient or optional</b> . The medical school is <b>not</b> engaged in efforts to increase food and beverage sustainability.
0	There are <b>no</b> sustainability guidelines for food and beverages.

*Score explanation: As a University of California campus, UCSF follows the [University of California Sustainable Procurement Guidelines](#), which outlines sustainability criteria for food and beverage procurement. Currently, the university recognizes the AASHE STARS 2.2 Technical Manual food and beverage sustainably or ethically produced criteria. UCSF campus [procures 57% of food and beverage from sustainable sources](#), up from 42% last year, thus exceeding the 25% minimum goal outlined in the procurement guidelines. However, UCSF Health more broadly only procures 11% of food and beverages from sustainable sources, [which represents a decrease in the amount of sustainable food and drink procurement from last year](#). This shows the complacency of UCSF as a whole in sustainable food and beverage procurement, as well as a missed opportunity to substantially decrease the university's carbon footprint. Furthermore, newer statistics this year revealed that 40% of UCSF campus's food and beverage purchases were plant based. Reducing the amount of beef (or other foods that produce high amounts of carbon) purchased could substantially reduce UCSF's carbon footprint and bring the university closer to its carbon neutrality goals. The university does not have explicit goals or plans to continue increasing the percentage of food and beverages that are sustainably sourced.*

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

3	Yes, the medical school has <b>adequate</b> sustainability requirements for supply procurement <b>and is engaged</b> in efforts to increase sustainability of procurement.
2	There are sustainability guidelines for supply procurement, but they are <b>insufficient or optional</b> . The medical school is <b>engaged</b> in efforts to increase sustainability of procurement.
1	There are sustainability guidelines for supply procurement, but they are <b>insufficient or optional</b> . The medical school is <b>not engaged</b> in efforts to increase sustainability of procurement.
0	There are <b>no</b> sustainability guidelines for supply procurement.
<p><i>Score explanation: As a University of California campus, UCSF follows the <a href="#">University of California Sustainable Procurement Guidelines</a>. This document lays out the minimum sustainability requirements for products and services purchased by the university. Two types of “Green Spend” (the percentage of procurement budget spent on environmentally sustainable products) are defined: (1) required level green spend, which are the minimum mandatory requirements for each product category and (2) preferred level green spend, which is an additional, more ambitious sustainability goal. For example, purchasing standards for computers, monitors, and printers must have an EPEAT Bronze label to qualify as “required level” green spend, but must have EPEAT Gold or highest available EPEAT label to qualify for “preferred level” green spend. Categories of products included are: appliances, IT hardware, janitorial supplies, flooring, food and beverages, foodware, indoor furniture, lighting, office supplies, and water appliances. The most recent report relays the following: UCSF sustainable procurement in cleaning supplies is at 53% (down from 60%), office furniture is at 96% (up from 93%), electronics at 45% (up from 27%), and office supplies at 58% (for which we did not have data in previous years). While these guidelines represent a minimum standard of “Green Spend” on supply procurement (at least 25%) and thus meet the criteria for a score of 3, there is no plan at UCSF in place currently to continue to expand the percentage of sustainable procurement in each product category that we were able to find in the report.</i></p>	

<b>5.9. Are there sustainability requirements or guidelines for events hosted at the <u>medical school</u>?</b>	
2	Every event hosted at the medical school <b>must</b> abide by sustainability criteria.
1	The medical school <b>strongly recommends or incentivizes</b> sustainability measures, but they are <b>not required</b> .
0	There are <b>no</b> sustainability guidelines for medical school events.
<p><i>Score explanation: The UCSF Office of Sustainability has published a <a href="#">Healthy Meetings and Event guide</a>, which includes a “Sustainable Meetings and Events” to help event planners make sustainable choices in food, dishware/cutlery, and communication materials and even makes recommendations on transportation for events and how to handle leftover food. There is also a brief <a href="#">webinar</a> posted on the UCSF office of sustainability website that walks event planners through the entire process. As of now, these event sustainability guidelines are recommended but not required.</i></p>	

<b>5.10. Does your <u>medical school</u> have programs and initiatives to assist with making lab spaces more environmentally sustainable?</b>	
2	Yes, the medical school has <b>programs and initiatives</b> to assist with making lab spaces more environmentally sustainable.



1	There are <b>guidelines</b> on how to make lab spaces more environmentally sustainable, but not programs or initiatives.
0	There are <b>no</b> efforts at the medical school to make lab spaces more sustainable.
<p><i>Score explanation: The <a href="#">Sustainability Certification Program</a> is a university-wide program where a team of experts meet with labs on-site and provide recommendations to reduce the lab's environmental impact, including waste reduction and energy efficiency. Once a lab has expressed interest and the initial assessment is made, action can be taken to "green" the lab. The SCP team then returns during the following quarter to see what improvements have been made and award points. Number of points earned assigns a bronze, silver, gold, or platinum certification, with platinum being the highest sustainability certification level. The program lists 35 labs at UCSF that have a certification, up from 29 last year. The <a href="#">2023 Sustainability Annual Report</a> further describes that UCSF is pushing for procurement restrictions that would stop labs from purchasing non-Energy Star -80°C freezers in alignment with UCSF's energy conservation policy. UCSF further hopes to accelerate the replacement of all non-Energy Star -80°C freezers by enhancing its current rebates by next year.</i></p>	

5.11. Does your <u>institution's</u> endowment portfolio investments include fossil-fuel companies?	
4	The institution is <b>entirely divested</b> from fossil fuels <b>and</b> has made a <b>commitment to reinvest divested funds</b> into renewable energy companies or renewable energy campus initiatives.
3	The institution is <b>entirely divested</b> from fossil fuels.
2	The institution has <b>partially divested</b> from fossil fuel companies <b>or</b> has made a <b>commitment to fully divest</b> , but <b>currently</b> still has fossil fuel investments.
1	The institution has <b>not divested</b> from fossil-fuel companies, but faculty and/or students are <b>conducting organized advocacy</b> for divestment.
0	Yes, the institution has investments with fossil-fuel companies and there have been <b>no efforts</b> to change that.
<p><i>Score explanation: Score explanation: In 2019, UC faculty voted to divest from fossil fuel companies. In May 2020, the University reported that it divested \$13.4 billion in endowment funds and its \$70 billion pension fund from fossil fuels. <a href="#">University of California Endowment. Pension to Divest All Fossil Fuels.</a></i></p> <p><i>However, upon comparing the <a href="#">UC's most recent list of asset holdings from 2023</a> to the Private Equity Stakeholder Project's <a href="#">report</a> on the private equity firms that put the most money into the fossil fuel industry, the UC is still investing in many firms listed in this report including: Blackstone, KKR and co., Apollo, Ares, EnCap, Blackrock, Stonepeak, TPG Capital, and Brookfield. It is true that the UC does not directly invest in oil companies, but these investments demonstrate that the UC is financing a number of extractive industries and oil pipelines that will accelerate climate change despite claims of full divestment.</i></p>	

<b>Section Total (23 out of 32)</b>	<b>71.9%</b>
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Back to Summary Page [here](#)

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

# Grading

## Section Overview

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

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

## Planetary Health Grades for the UCSF School of Medicine

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

Section	Raw Score %	Letter Grade
<b>Planetary Health Curriculum (30%)</b>	$(49/72) \times 100 = 68.1\%$	B
<b>Interdisciplinary Research (17.5%)</b>	$(17/17) \times 100 = 100\%$	A+
<b>Community Outreach and Advocacy (17.5%)</b>	$(12/14) \times 100 = 85.7\%$	A
<b>Support for Student-led Planetary Health Initiatives (17.5%)</b>	$(12/15) \times 100 = 80\%$	A-
<b>Campus Sustainability (17.5%)</b>	$(23/32) \times 100 = 71.9\%$	B
<b>Institutional Grade</b>	$(68.1 \times 0.3 + 100 \times 0.175 + 85.7 \times 0.175 + 80 \times 0.175 + 71.9 \times 0.175) = 79.5\%$	<b>B+</b>

# Report Card Trends

## Section Overview

This graph demonstrates trends in overall and section grades for the years in which UCSF has participated in the Planetary Health Report Card initiative.

