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# Planetary Health Report Card (Medicine): *UC Berkeley - UCSF Joint Medical Program (MS/MD)*

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**Berkeley UCSF**  
Joint Medical Program

*We acknowledge the Ohlone and Chochenyo people who live in the East Bay and have been here since time immemorial. The Joint Medical Program resides on their land and looks forward to building our solidarity and kinship with native peoples.*

2023-2024 Contributing Team:

- Students: Philip Shih, Alex Viet Ha
- Faculty Mentors: Gustavo Valbuena, MD, PhD, Jyothi Nagraj Marbin, MD
- Primary Contact: Philip Shih, [philip.shih@ucsf.edu](mailto:philip.shih@ucsf.edu)

## Summary of Findings

<b>Overall</b>	<b>A-</b>
<b><u>Curriculum</u></b>	<b>B</b>
<p>The Joint Medical Program (JMP) case-based curriculum is driven by student-inquiry and allows for the integration of many concepts of environmental health into the curriculum. Many electives are available via UC Berkeley’s School of Public Health and UCSF School of Medicine that focus on sustainability and planetary health. However, the core curriculum falls short on the impacts of climate change on health &amp; healthcare systems.</p> <p><b>Recommendations:</b> We recommend continuing to use student working groups to increase coverage of planetary health concepts, especially as they pertain to environmental justice and antiracism, within the PBL course, Clinical Skills course, and Master’s Seminars infrastructures. Faculty members are currently working on a longitudinal curriculum on climate change that will hopefully be implemented in the fall of 2024.</p>	
<b><u>Interdisciplinary Research</u></b>	<b>A+</b>
<p>The JMP is housed within the UC Berkeley’s School of Public Health, which offers many mentorship and financial opportunities for JMP students in pursuit of their Master’s Thesis. Currently, there are four Master’s Thesis projects related to environmental health; the titles are as follows: 1) OBGYN environmental health knowledge and pesticide exposure screening and counseling of pregnant and breastfeeding farmworkers in California, 2) Community Based Approaches to Tree Planting and Urban Greening in Richmond, CA, 3) Wildfire Smoke Exposure and Acne in San Francisco 2015-2021, 4) Ambient air pollution is associated with graft failure/death in pediatric liver transplant recipients.</p> <p><b>Recommendations:</b> We recommend the JMP faculty to continue to encourage students to pursue their research or Master’s Thesis on planetary health.</p>	
<b><u>Community Outreach and Advocacy</u></b>	<b>A</b>
<p>JMP students have many opportunities to engage in community outreach and advocacy efforts associated with environmental justice. In addition, the UC Berkeley’s School of Public Health offers many community advocacy opportunities related to planetary health.</p> <p><b>Recommendations:</b> Environmental justice advocacy opportunities and sustainability updates should be regularly included in the weekly Berkeley Public Health Digest and JMP newsletter.</p>	
<b><u>Support for Student-Led Initiatives</u></b>	<b>A-</b>
<p>The JMP, UC Berkeley, and UCSF community offers institutional support for student-led planetary health initiatives, including funding, fellowships, and programming. JMP students can receive funding for planetary health projects via UC Berkeley’s Green Initiative Fund at UC Berkeley, UCSF’s Environmental Research and Translation for Health (EaRTH), and many more.</p> <p><b>Recommendations:</b> We recommend a funded and faculty-mentored student organization within the JMP dedicated to planetary health and sustainability, as well as a formal JMP student liaison position dedicated to curriculum reform and sustainability best practices.</p>	
<b><u>Campus Sustainability</u></b>	<b>B +</b>
<p>UC Berkeley &amp; UCSF have pledged to emit net zero greenhouse gasses from carbon emission sources by 2025. These campuses also have an Office of Sustainability focused on green energy, utilities, infrastructure, and food.</p> <p><b>Recommendations:</b> The Office of Sustainability at UC Berkeley and UCSF should engage in efforts to increase food and beverage sustainability. The JMP should also require sustainability measures, possibly using UC Berkeley’s green event resources for events.</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**

<b>1.1. Did your <u>medical school</u> offer elective courses (student selected modules) to engage students in Education for Sustainable Healthcare or Planetary Health in the last year?</b>	
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:</i> JMP students are able to take UC Berkeley graduate-level courses in any discipline as electives. The UC Berkeley School of Public Health offers at least 1 environmental health science course every semester.</p> <p>JMP students can also take electives at UCSF. This includes the UCSF student-led ESH/planetary health electives: 1. Earth Health, 2. Women’s Health, Environment, and Health Professional Activism, and 3. Rethinking Farm-Food-Health-Climate Connections.</p>	

**Curriculum: Health Effects of Climate Change**

<b>1.2. Does your <u>medical school</u> curriculum address the relationship between extreme heat, health risks, and climate change?</b>	
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:</i> The relationship between extreme heat, climate change, and health risks are covered in-depth in the core curriculum. Students at the JMP create their own learning objectives for the Problem-Based Learning (PBL) Curriculum (Core Medical Curriculum), so the health effects of climate change have been discussed in our classes. Furthermore, there is a 3-day patient case on a</p>	

patient who suffers from health complications due to extreme heat. New longitudinal curriculum which incorporates planetary health is to be implemented in the upcoming academic year.

**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:* While the core curriculum (Problem-Based Learning or PBL) does not address the impacts of extreme weather events on health and/or healthcare systems, there are elective courses, such as, GEOG 149B: Climate Impacts and Risk Analysis and ESPM C22AC: Fire: Past, Present and Future Interactions with the People and Ecosystems of California, that cover these topics. A 5-session longitudinal curriculum on climate change is being created and will be added to the core curriculum in future years.

**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:* In the PBL Curriculum (Core Medical Curriculum), JMP students have incorporated the effects of climate change on mosquito-borne diseases into group discussions and have developed related learning objectives. Our Associate Dean for Regional Campuses at the UCSF School of Medicine, Dr. Peter Chin-Hong, is an infectious disease physician who has also presented several times to the JMP on the changing dynamics of infectious diseases in the context of climate change. Additionally, the UC Berkeley School of Public Health offers graduate courses in this topic (e.g. PB HLTH 273: Environmental Determinants of Infectious Disease) that JMP students are able to take as electives.

**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.
<p><i>Score explanation:</i> In the JMP Problem-Based Learning (PBL) Curriculum (Core Medical Curriculum), there is a 3-day case that covers a patient who grew up in the Iron Triangle in Richmond and was diagnosed with a respiratory condition. Students discussed this topic and developed testable learning objects around the respiratory health effects of climate change. In the JMP Clinical Skills course, asthma was also extensively discussed as being more prevalent in certain areas where redlining occurred and where there are high rates of air pollution.</p>	

6. Does your <u>medical school</u> 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.
<p><i>Score explanation:</i> Students at the JMP have explored the relationship between cardiovascular disease and climate change in the core curriculum, specifically during a Problem-Based Learning (PBL) case. Furthermore, UC Berkeley offers courses which address extreme heat and its effects on cardiovascular health. These courses include GEOG 149B: Climate Impacts and Risk Analysis and PB HLTH C271G: Health Implications of Climate Change. The longitudinal curriculum to be implemented in the next academic year incorporates the health effects of climate change, so this score will likely improve.</p>	

7. Does your <u>medical school</u> 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.
<p><i>Score explanation:</i> Students at the JMP have not explored the relationship between mental health or neuropsychological effects of environmental degradation and climate change in the core curriculum. However, UC Berkeley offers classes on climate change and mental health which JMP students can take as their electives, including a course called SOCIOL 137AC/ESPM 163AC: Environmental Justice: Race, Class, Equity, and the Environment. The session on health impacts of climate change for the dinal</p>	

8. Does your <u>medical school</u> 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.
<p><i>Score explanation:</i> The JMP Problem-Based Learning core curriculum has not addressed the relationship between food/water security, food systems, and climate change. Students are able to take relevant elective courses, such as PB HLTH 206D: Food and Nutrition Programs and Policies in Developing Countries, GEOG 130: Food and the Environment, and ESPM 226: Interdisciplinary Food and Agriculture Studies. The new longitudinal curriculum will cover these topics.</p>	

<p><b>9. Does your <u>medical school</u> curriculum address the outsized impact of climate change on marginalized populations such as those with low SES, women, communities of color, Indigenous communities, children, homeless populations, and older adults?</b></p>	
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:</i> In the JMP Problem-Based Learning (PBL) Curriculum (Core Medical Curriculum), there is a 3-day case that covers a patient who grew up in the Iron Triangle in Richmond (an area of predominantly African Americans and Latines) and was diagnosed with a respiratory condition. Students discussed how air pollution caused by climate change and other environmental injustices can affect marginalized communities. Students are also eligible to take courses offered by the UC Berkeley School of Public Health, including ESPM 163AC/SOCIOL 137AC: Environmental Justice: Race, Class, Equity, and the Environment and PB HLTH C271G: Health Implications of Climate Change.</p>	

<p><b>10. Does your <u>medical school</u> curriculum address the unequal regional health impacts of climate change globally?</b></p>	
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:</i> Dr. Peter Chin-Hong, the Associate Dean for Regional Campuses at the UCSF School of Medicine, has presented several times on infectious diseases for the JMP. As an infectious disease physician, he explained the unequal distribution of infectious diseases, including COVID-19 and other diseases carried by mosquitoes, as a result of climate change. In addition, in the JMP Problem-Based Learning (PBL) Curriculum (Core Medical Curriculum), students have discussed in-depth how infectious diseases are more prominent in warmer regions closer to the equator.</p>	

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

11. Does your <u>medical school</u> 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.
<p><i>Score explanation:</i> JMP students can take elective courses offered by the UC Berkeley School of Public Health focused on reproductive health effects and environmental toxins, including ESPM C148: Pesticide Chemistry and Toxicology and PBHLTH 210D: Reproductive and Perinatal Epidemiology. JMP students can also take elective courses at UCSF, such as the Environmental Health and Health Professional Activism Elective, which includes a lunch talk from Dr. Santosh Pandipati on how the climate crisis impacts reproductive justice. (Source: Planetary Health Report Card 2021- UC Berkeley-UCSF Joint Medical Program)</p>	

12. Does your <u>medical school</u> 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.
<p><i>Score explanation:</i> The JMP Problem-Based Learning (PBL) Curriculum (Core Medical Curriculum), has a 3-day case that covers a patient who grew up in the Iron Triangle and was diagnosed with a respiratory condition. In that same case, students can explore environmental injustices in Richmond, CA and in other industries within California in their learning objectives. Students may also take elective courses offered by the UC Berkeley School of Public Health concerning environmental threats; these courses include ESPM C46: Climate Change and the Future of California and ENERES 171: California Water.</p>	

13. To what extent does your <u>medical school</u> emphasize the importance of Indigenous knowledge and value systems as essential components of planetary health solutions?	
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.
<p><i>Score explanation:</i> The importance of indigenous knowledge and value systems are mentioned briefly at the beginning of each core curriculum class. In problem-based learning, the JMP students begin each case with land acknowledgment slides and updated information on local indigenous movements and organizations which currently play a vital role in planetary health solutions. Students read about these movements and organizations before sharing their thoughts and experiences in a group. Students are also invited to explore indigenous views on gender identity and land tax, among others, in some PBL cases.</p>	

<p><b>14. Does your <u>medical school</u> 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?</b></p>	
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:</i> The JMP Problem-Based Learning (PBL) Curriculum (Core Medical Curriculum) has a 3-day case that covers a patient from the Iron Triangle in Richmond and was diagnosed with a respiratory condition. In this case, students discussed in-depth the effects of oil refineries and air pollution on low SES women of color, especially migrant workers, such as our patient. In addition, students are eligible to take courses offered by the UC Berkeley School of Public Health, including ESPM 163AC/SOCIOL 137AC: Environmental Justice: Race, Class, Equity, and the Environment and PB HLTH C271G: Health Implications of Climate Change.</p>	

*Curriculum: Sustainability*

<p><b>15. Does your <u>medical school</u> curriculum address the environmental and health co-benefits of a plant-based diet?</b></p>	
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:</i> JMP students do not learn about the environmental and health co-benefits of a plant-based diet in the core curriculum. However, JMP students are eligible to take UC Berkeley master's courses as electives, such as NUSCTX 161A/B: Medical Nutrition Therapy I/II. There is room in certain PBL cases, such as the Ladislav Hubenak case, to describe health benefits of plant-based diets.</p>	

16. Does your <u>medical school</u> 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.
<p><i>Score explanation:</i> Although JMP students do not address the carbon footprint of healthcare systems in the core curriculum, UC Berkeley offers an elective course available to JMP students related to carbon footprint of the healthcare systems called ESPM 250: Special Topics in Environmental Science, Policy, and Management: Sustainable Industry.</p>	

17. Does your <u>medical school</u> curriculum cover these components of sustainable clinical practice in the <u>core</u> 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
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:</i></p> <p><b>Waste production:</b> In the Clinical Skills core curriculum, JMP students are taught to reduce waste during our encounters with our standardised patients and during our preceptorships in an inpatient or outpatient setting. For example, we only wear gowns when it is necessary in the clinic, and we make sure to reuse the gowns during practice with our standardised patients.</p>

	The other items on this list are covered in LOs to some extent. It may be helpful in future years to modify the content of some cases to encourage deeper exploration of sustainable clinical practice.
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*Curriculum: Clinical Applications*

<b>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
<i>Score explanation:</i> The JMP is planning to implement a new longitudinal curriculum that includes informative sessions on how clinicians can navigate conversations around the health effects of climate change and air pollution.	

<b>19. In training for patient encounters, does your <u>medical school's</u> curriculum introduce strategies for taking an environmental history or exposure history?</b>	
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.
<i>Score explanation:</i> The JMP does not offer strategies for taking an environmental history, but the importance of including the occupational history and lifecourse into the social and ancestral history were briefly discussed in the Clinical Skills core curriculum. Moving forward, JMP Clinical Skills tutors should incorporate environmental history taking sessions with standardized patients in addition to current ancestral and social history taking sessions.	

*Curriculum: Administrative Support for Planetary Health*

<b>20. Is your <u>medical school</u> currently in the process of implementing or improving Education for Sustainable Healthcare (ESH)/planetary health education?</b>	
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.
<i>Score explanation:</i> The Joint Medical Program executive team is creating a longitudinal health systems and health policy curriculum that includes ESH/planetary health education, which will be implemented beginning the next academic year.	

<b>21. How well are the aforementioned planetary health/Education for Sustainable Healthcare topics integrated longitudinally into the <u>core</u> curriculum?</b>	
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.
<i>Score explanation:</i> In the current Problem-Based Learning core curriculum, JMP students create their own learning objectives ranging from pathophysiology objectives or social science objectives. For these social science learning objectives, students are able to investigate and discuss climate change and environmental hazards and their effects on population and individual health.	

<b>22. Does your <u>medical school</u> 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?</b>	
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.
<i>Score explanation:</i> Currently, JMP faculty members, Dr. Jyothi Marbin and Dr. Gustavo Valbuena, are working together on a longitudinal climate change curriculum and will oversee the curricular integration of planetary health and sustainable healthcare.	

<b>Section Total (46 out of 72)</b>	<b>63.88%</b>
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## Interdisciplinary Research

***Section Overview:*** This section evaluates the quality and quantity of interdisciplinary planetary health research at the medical school and broader institution. Interactions between health and the environment are complex and multifactorial. While climate change has been extensively studied from an environmental science perspective, planetary health is an emerging field. As leading health institutions with talented researchers and research resources, medical schools should fund research

studying the health effects of climate change and anthropogenic environmental toxins. This obligation is particularly strong because the public and policymakers are more attentive to climate change when its implications for human health are emphasized.

1. Are there researchers engaged in planetary health research and healthcare sustainability research at your <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:</i> The UC Berkeley School of Public Health has a <a href="#">Environmental Health Sciences Division</a> that trains future leaders to tackle public health threats from environmental exposures. UC Berkeley also has various environmental science groups on campus, including the Environmental Science, Policy, and Management (ESPM), Energy and Research Group, Center for Law, Energy, and the Environment, CERCH, <a href="#">Bixby Center for Population, Health and Sustainability</a>, and Center for Occupational and Environmental Health. JMP students can take elective courses taught by faculty members in any of these groups and can also work with these faculty members as their Principal Investigators for their master’s work.</p>	

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:</i> The UC Berkeley School of Public Health has a <a href="#">Environmental Health Sciences Division</a> that researchers how environmental exposures, such as industrialization, unplanned urbanization, effects of climate change and microbial and chemical contamination of water, and air and food, can affect human populations, especially communities that are most vulnerable or oppressed. Information on faculty, coursework, and areas of distinction within the Environmental Health Sciences Division can be found <a href="#">here</a>.</p>	

**3. Is there a process by which communities disproportionately impacted by climate change and**

<b>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:</i> According to the <a href="#">Berkeley Compendium of EHS Expertise</a>, Berkeley’s curriculum under the area of agriculture, food systems, and health are engaged with local and international partners in order to better understand and respond to the health challenges of establishing sustainable agriculture and food systems globally, thus allowing community members a space at the table to discuss the climate and environmental research agenda. In addition, the Berkeley <a href="#">Center for Environmental Research and Children's Health (CERCH)</a> engages communities to inform study design, implementation, as well as key solutions to toxic environmental exposures for pregnant individuals who are assigned-female-at-births and their children.</p>	

<b>4. Does your <u>institution</u> have a planetary health website that centralizes ongoing and past research related to health and the environment?</b>	
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:</i> The <a href="#">UC Berkeley Office of Sustainability</a> and the <a href="#">School of Public Health Environmental Health Sciences Division</a> are easily accessible websites that include information on upcoming events, leaders, and funding related to planetary health.</p>	

<b>5. Has your <u>institution</u> recently hosted a conference or symposium on topics related to planetary health?</b>	
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:</i> Every year, the JMP hosts a research symposium for JMP students to present their master's work. This past year, a third-year student conducted research on the association of air pollution and graft failure in pediatric liver transplant patients and presented during Master's Thesis symposium. In addition to this specific JMP research symposium, the School of Public Health annually hosts the <a href="#">Environmental Health Sciences Symposium</a>, which JMP students can also participate in.</p>	

6. Is your <u>medical school</u> 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
<p><i>Score explanation:</i> The UC Berkeley-UCSF Joint Medical Program is listed as a member of the <a href="#">Global Consortium on Climate and Health Education</a>.</p>	

Section Total (17 out of 17)	100%
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## Community Outreach and Advocacy

***Section Overview:*** This section evaluates medical school engagement in community outreach and advocacy efforts associated with planetary health. Researching and teaching planetary health is necessary but not sufficient. It is critical that institutions also directly engage with communities most affected by environmental health harms. Although climate change is a problem largely created by those with power and resources, its impacts fall disproportionately on under-resourced populations and communities of color. Institutions should partner with local communities affected by climate

change and pollution to share information about environmental health threats, advocate together for change, and provide opportunities for students to be a part of this work.

1. Does your <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:</i> The School of Public Health and a few JMP faculty include professors who work on community-based participatory research projects in partnership with community organizations. For instance, Janet Perlman, one of JMP's preceptor and faculty members, is involved with the Medical Society Consortium on Climate and Health, Physicians for Social Responsibility, and the American Academy of Pediatrics on climate change issues. In addition to faculty and staff members engaging with various community organizations to promote planetary and environmental health, JMP students and graduates are also involved with community organizations, including Christina Chen who collaborated <a href="#">Sunrise Movement Bay Area</a> for her thesis project on environmental activism and mental health; Raj Fadadu, who is Founder/Director of the Environmental Health Working Group of the Berkeley Climate Action Coalition; and Sarah Schear, who is Advocacy Co-Chair of <a href="#">Medical Students for a Sustainable Future</a>, Co-Chair of the <a href="#">AAPCA1 Climate Change and Health Task Force</a>, co-founder of <a href="#">Climate Health Now</a>, incoming Student Board Member of Physicians for Social Responsibility - Bay Area, and a member of <a href="#">Sunrise Movement Bay Area</a>. (Source: Planetary Health Report Card 2021- UC Berkeley-UCSF Joint Medical Program).</p>	

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.
<p><i>Score explanation:</i> The UC Berkeley <a href="#">Center for Occupational and Environmental Health</a> offers community-facing courses on environmental health, including recognition, management, and reporting of pesticide illness. The UC Berkeley <a href="#">School of Public Health</a> also has many events throughout the month that are focused on various topics, including food systems, sustainability, and air pollution.</p>	

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

2	Yes, all students <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:* Planetary health and sustainable healthcare are sometimes included in the weekly Joint Medical Program newsletter, the monthly Berkeley Graduate Division newsletter, and the monthly Berkeley Public Health research newsletter. To improve this score, there should be a dedicated section on the newsletter that is updated on a biweekly basis.

**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:* UCSF offers Continuing Medical Education (CME), which are educational opportunities for health care professionals to improve their practices through a comprehensive selection of continuing education activities. UCSF hosted a CME conference called the “Vulnerable Workers and Communities at Environmental Risk and Updates in Occupational and Environmental Medicine” and has an online module called the “Clinician Climate and Health Training” that offers three 20-minute modules on the links between climate change and health. Previous UCSF CME courses can be viewed [here](#). (Source: Planetary Health Report Card 2021- UC Berkeley-UCSF Joint Medical Program).

**5. Does your medical school or its primary affiliated hospital have accessible educational materials for patients about environmental health exposures?**

2	Yes, <b>all</b> affiliated hospitals 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:* UCSF’s [Program on Reproductive Health and the Environment](#) provides educational brochures for patients about toxic exposures, foods, and occupation: <https://prhe.ucsf.edu/info>. (Source: Planetary Health Report Card 2021: UCSF).

**6. Does your medical school or its primary affiliated hospital have accessible educational materials for patients about climate change and health impacts?**

2	Yes, <b>all</b> affiliated hospitals 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:* The UCSF Health system offers accessible educational workshops and materials on climate change and health impacts on the [San Francisco Climate and Health Program website](#).

**Section Total (13 out of 14)**

**92.86%**

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## Support for Student-Led Planetary Health Initiatives

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

**1. Does your medical school or your institution 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.
<p><i>Score explanation:</i> The <a href="#">Green Initiative Fund</a> is UC Berkeley's Campus Green Fund. TGIF provides funding, via grants, for projects that improve and support UC Berkeley's campus sustainability efforts focused on various topics, including transportation, energy, restoration habitat, and environmental and food justice.</p>	

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.
<p><i>Score explanation:</i> The UCSF Environmental Research and Translation for Health (EaRTH) offers funding opportunities related to planetary health and sustainable healthcare students that are available to the JMP: <a href="https://earth.ucsf.edu/funding">https://earth.ucsf.edu/funding</a>. This past year, one of the second-year JMP students was selected as a 2022 Environmental Scholar and worked on the pediatric environmental health units. In addition to the EaRTH fellowship, the University of California's <a href="#">Carbon Neutrality Initiative</a> offers the following year-long paid fellowships to which all UC students can apply: the <a href="#">Carbon Neutrality Initiative Fellowships</a> and the <a href="#">Global Food Initiative Fellowships</a>.</p>	

3. Does the <b>medical school</b> 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.
<p><i>Score explanation:</i> The <a href="#">UC Berkeley Bixby Center for Population, Health, and Sustainability's Planetary Health</a> website provides accurate information on current projects, initiatives, and mentors. Furthermore, there is a <a href="#">updated directory</a> that provides contact information for current faculty, staff, and students at UC Berkeley.</p>	

<b>4. Does your <u>medical school</u> have registered student groups dedicated towards fostering a culture of planetary health engagement, scholarship, and advocacy on campus, supported by faculty advisors?</b>	
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.
<p><i>Score explanation:</i> There are various organizations throughout UC Berkeley focused on planetary health or sustainability in healthcare, but most of them are student-driven and lack faculty support. Currently, there is no funding and faculty mentored student organization within the JMP dedicated to planetary health and sustainability. An example is <a href="#">Health Students for Climate Action (HEALS-CA)</a>, which were previously led by JMP students. HEALS-CA aims to advocate for urgent policy solutions, transform educational institutions, and foster collaborative learning to mitigate climate change and its health harms while developing climate justice leaders in public health.</p>	

<b>5. Is there a student liaison representing sustainability interests who serves on a <u>medical school</u> or <u>institutional</u> decision-making council to advocate for curriculum reform and/or sustainability best practices?</b>	
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:</i> Currently, the JMP does not have a student liaison representing sustainability interests to advocate for curriculum reform or sustainability best practices.</p>	

<b>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)

*Score explanation:*

**Garden:** The [Berkeley Food Institute](#) provides opportunities for students, staff, faculty, and community members to lead and engage in food systems topics. UC Berkeley is also home to over [10 urban gardens](#) that produce food and preserve ecosystems, allowing UC Berkeley students to design, implement, and maintain urban gardens alongside faculty, staff, gardeners, and community members.

**Conferences, speaker series, symposia, or similar events:** The UC Berkeley School of Public Health Brown Bag series is student-facing and has included multiple sessions on planetary health topics.

**Environmental Justice Community:** JMP Students are required to complete a Health and Behavior Breadth Course as part of their core curriculum. This class discusses community-based research and includes a panel of community members involved in the [CHAMACOS Study](#), the [Richmond Youth Air Quality Initiative](#), and other members involved in environmental justice.

**Art exhibits:** The UC Berkeley Bancroft Library Gallery will host [Voices for the Environment: A Century of Bay Area Activism](#), highlighting the evolution of environmentalism in the Bay Area, from October 6, 2023 to November 15, 2024.

**Volunteer Opportunities:** [UC Berkeley’s Student Environmental Resource Center](#) provides opportunities for building community resilience and to make neighborhoods more self-sustaining, just, and regenerative.

**Wilderness or outdoor programs:** [UC Berkeley Recreational Sports](#) offers trips through [Cal Adventures](#), which include “appreciation of the natural environment” in their benefits but do not explicitly mention Leave No Trace principles. [Cal Hiking and Outdoor Society \(CHAOS\)](#) aims to offer outdoor programs while having minimal human impact on the environment.

(Source: Planetary Health Report Card 2021- UC Berkeley-UCSF Joint Medical Program)

<b>Section Total (12 out of 15)</b>	<b>80%</b>
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## Campus Sustainability

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

**1. Does your medical school and/or institution have an Office of Sustainability?**



3	Yes, there is an Office of Sustainability with multiple full-time staff dedicated to campus sustainability. If the Office of Sustainability serves the entire campus, there is <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:</i> The JMP’s preclerkship courses are held at UC Berkeley’s Golden Bear Center, which is within half a mile of the <a href="#">Office of Sustainability</a>, with full-staff who are dedicated to sustainability since 2008. The office consists of a full time director (Kira Stoll), several staff members, graduate fellows, and undergraduate fellows. In addition, the JMP’s clerkships are held at UCSF, which also has an <a href="#">Office of Sustainability</a> with a full time director. “The Office of Sustainability organizes the Advisory Committee on Sustainability, which includes campus representation from each school, including the school of medicine (Dr. Katherine Gundling). This committee helps to oversee energy, utilities, infrastructure, food, and purchasing sustainability at UCSF’s medical campuses” (Source: Planetary Health Report Card 2021- UCSF).</p>	

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:</i> In November 2013, Present Janet Napolitano of the UC System introduced the <a href="#">Carbon Neutrality Initiative</a>, a pledge for UCs to commit to emitting net zero greenhouse gases from carbon emission sources by 2025. UC Berkeley has a <a href="#">2025 Carbon Neutrality Planning Framework</a> and has a new <a href="#">Clean Energy Campus website</a>, there are concrete plans set to reach these goals by 2030 with progress outlined. Similarly, the UCSF Office of Sustainability <a href="#">pledged to reach carbon neutrality by 2025</a>,</p>	

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 >80% of energy needs from off-site and/or on-site renewable energy.
1	Medical school buildings source >20% of energy needs from off-site and/or on-site renewable energy.
0	Medical school buildings source <20% of energy needs from off-site and/or on-site renewable energy.
<p>Source Explanation: Our current main medical building, Berkeley Way West, is a platinum LEED building. <a href="#">UC Berkeley's Cogeneration Plant</a> provides approximately 90% of the electricity and 100% of the steam needs of the main campus. By generating steam (for heat) and electricity simultaneously, the plant is able to boast an overall energy conversion efficiency of 76%. The <a href="#">remaining 10%</a> of electricity is either imported from certified/verified clean and renewable sources, produced on-site from clean and renewable sources, or purchased from PG&amp;E. (Source: Planetary Health Report Card 2021- UC Berkeley-UCSF Joint Medical Program.)</p>	

<p><b>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?</b></p>	
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.
<p><i>Score explanation:</i> The students at the Joint Medical Program enroll in preclerkship courses at UC Berkeley and mainly use two buildings, Golden Bear Center and Berkeley Way West (gold LEED certified). According to the <a href="#">UC Berkeley Office of Sustainability</a>, “No new UC buildings or major renovations, except in special circumstances, will use on-site fossil fuel combustion, such as natural gas, for space and water heating.” An <a href="#">energy management system (EMS)</a> that controls ventilation, temperature, lights and operating hours is used on all buildings (new and old) to balance building occupant comfort with energy conservation. The campus <a href="#">Energy Office (EO)</a> tracks, monitors, and manages energy usage campus-wide to improve design, performance, and operation of buildings; reduce energy costs; and increase awareness of energy and water usage. (Source: Planetary Health Report Card 2021- UC Berkeley-UCSF Joint Medical Program) Furthermore, via the Strategic Energy Plan, UC Berkeley was able to reduce electricity use by 2.5 million kWh - or 10% of the total reductions achieved across campus in the last 7 years by <a href="#">retrofitting</a> all campus buildings with LED lighting fixtures by replacing end-of-life T8 fluorescent lighting with LED technology.</p>	

<p><b>5. Has the <u>medical school</u> implemented strategies to encourage and provide environmentally-friendly transportation options for students and reduce the environmental impact of commuting?</b></p>	
2	Yes, the medical school 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 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 has <b>not</b> implemented strategies to encourage and provide environmentally-friendly transportation options.
<p><i>Score explanation:</i> Students at the Joint Medical Program are also graduate students at UC Berkeley, so we are also eligible for free transportation on the AC Transit. The <a href="#">AC Transit</a> unveiled their zero emission transit buses and are currently utilizing battery electric and fuel cell buses. Employees can also buy transit fares and passes, and the University of Berkeley will <a href="#">award employees \$10/month</a>. Furthermore, <a href="#">UC Berkeley offers additional programs</a> that encourage more sustainable forms of transportation, including offering discounted carpool parking pricing, pre-tax purchases, regional ride-matching services, and a host of other benefits and incentives. In addition to being able to ride the AC Transit in the East Bay for free, JMP students can access UCSF's shuttle service, bike racks, and rideshare options.</p>	

<b>6. Does your <u>medical school</u> have an organics recycling program (compost) and a conventional recycling program (aluminum/paper/plastic/glass)?</b>	
2	Yes, the medical school has <b>both</b> compost <b>and</b> recycling programs accessible to students and faculty.
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:</i> Throughout UC Berkeley, including the JMP's medical school buildings, Golden Bear Center and Berkeley Way West, there are multiple waste bins for trash, recycling, and composting, which are accessible by students and faculty. Students are not allowed to eat in classrooms, so there are no 3-in-1 waste bins in classrooms, but there is at least one compost and recycle bin on each floor in Berkeley Way West and Golden Bear Center.</p>	

<b>7. Does the <u>medical school</u> apply sustainability criteria when making decisions about the campus food and beverage selections (e.g. local sourcing, reduced meat, decreased plastic packaging)?</b>	
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:* In 2020, [UC Berkeley successfully increased sustainable food purchases](#) by campus foodservice providers to at least 20%. Sustainable food is defined as locally grown or within 250 miles from campus, organic, fair trade or humane. However, since UC Berkeley last achieved their goal in 2020, the sustainability guidelines for food and beverages have been optional.

**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.

*Score explanation:* The University of California sustainability [procurement guidelines](#) includes UC Berkeley's and UCSF's targets and requirements for sustainable procurement practices. UC Berkeley has also created its own sustainable [procurement goals](#) in addition to the UC's guidelines. The goals are to comply with the UC's environmentally-preferable purchasing policies and procedures as well as to reach a 25% green spend and 25% economically and socially responsible spend in specific product categories. (Source: Planetary Health Report Card 2021- UC Berkeley-UCSF Joint Medical Program)

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

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.

*Score explanation:* Similar to other UC campuses, UC Berkeley offers a [Green Event Certification](#) that provides guidelines for event planners to reduce their impact in a range of areas, including catering and food, venues, and waste reduction. Events can be certified under three categories: green, zero waste, and zero waste green, which are all encouraged but not mandatory.

**10. Does your medical school have programs and initiatives to assist with making lab spaces more environmentally sustainable?**

2	Yes, the medical school has <b>programs</b> and <b>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:</i> At the Joint Medical Program, students conduct research at either a UC Berkeley and UCSF laboratory. UC Berkeley has a <a href="#">Green Lab</a> checklist and guidelines that aim to improve sustainable practices in campus lab and research spaces. In addition, UCSF has a <a href="#">LivingGreen program</a> where a team of experts will meet with a lab on-site and provide recommendations to reduce the lab's environmental impact and get co-workers engaged, with follow-up visits and a multi-tiered certification awarded. (Source: Planetary Health Report Card 2021- UCSF)</p>	

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:</i> Within eight years, <a href="#">UC Berkeley plans to switch to a new clean</a> and resilient energy system that will phase out fossil fuels and demonstrate cutting-edge technologies and creative financing. The <a href="#">UC Policy on Sustainable practices</a> also has a goal that by 2025, UC campuses are required to procure 100% carbon-free electricity. Another goal is that no new UC buildings or major renovations, except in special circumstances, will use on-site fossil fuel combustion, such as natural gas, for space and water heating.</p>	

<b>Section Total (24 out of 32)</b>	<b>75%</b>
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# Grading

## Section Overview

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

Letter Grade*	Percentage
A	80% - 100%
B	60% - 79%
C	40% - 59%

D	20% - 39%
F	0% - 19%

**Planetary Health Grades for the UCSF-UC Berkeley Joint Medical Program**

The following table presents the individual section grades and overall institutional grade for the UCSF- UC Berkeley Joint Medical Program on this medical-school-specific Planetary Health Report Card.

Section	Raw Score %	Letter Grade
<b>Planetary Health Curriculum (30%)</b>	$(46/72) \times 100 = 63.88\%$	B
<b>Interdisciplinary Research (17.5%)</b>	$(17/17) \times 100 = 100.00\%$	A+
<b>Community Outreach and Advocacy (17.5%)</b>	$(13/14) \times 100 = 92.86\%$	A
<b>Support for Student-led Planetary Health Initiatives (17.5%)</b>	$(12/15) \times 100 = 80.00\%$	A-
<b>Campus Sustainability (17.5%)</b>	$(25/32) \times 100 = 78.12\%$	B+
<b>Institutional Grade</b>	<b>80.58%</b>	<b>A-</b>