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Planetary Health Report Card (Medicine):

University of Colorado School of Medicine

School of Medicine

UNIVERSITY OF COLORADO
ANSCHUTZ MEDICAL CAMPUS

2023-2024 Contributing Team:

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Summary of Findings

Overall	B

Curriculum	B

- Planetary health impacts and clinical skills (environmental history taking and team based learning cases) are discussed in lectures, especially in the GI and pulmonary block during first year. Elective coursework and enrollment at the Fort Collins branch campus offer deeper dives.
- **Recommendations:** A group of students called CHIP (Climate Health Integration Project) is focused on improving incorporation of planetary health concepts into new blocks in the pre-clinical year (opportunities exist outside of pulmonary and GI blocks) and into TBL cases in clinical years. There is also opportunity for increased integration of environmental justice and discussion of related health disparities.

Interdisciplinary Research	A

- CUSOM has faculty dedicated to interdisciplinary research and hosts various webinars and conferences regarding planetary health. The CUSOM Climate and Health Program is dedicated to medical and graduate student education and research in climate change and health and organizes research and events happening in the field at the medical school.
- **Recommendations**: CUSOM could reach out to communities most affected by climate change to gather their input on how best to utilize our resources.

Community Outreach and Advocacy	A

- CUSOM has partnerships through the "service learning curriculum". Although this is undergoing reconfiguration, students can still engage via voluntary association. Improvements in this score are due to increased coverage of planetary health topics school-wide, a student-facing website with information about community outreach opportunities, and inclusion of these topics in patient-facing communications.
- **Recommendations**: Re-establish a formal means in the school curriculum for students to engage with community planetary health oriented organizations.

Support for Student-Led Initiatives	B

- CUSOM has a branch campus built upon One Health, supports multiple related student groups, and hosts yearly sustainability solutions challenges. Each medical school class has two elected sustainability representatives on the Medical Student Council.
- **Recommendations**: Revamp the central climate and health student-facing website to include information for students about opportunities for climate and health volunteering, obtaining research and grants, mentoring, and campus and community events.

Campus Sustainability	C-

- CUSOM has some basic campus sustainability measures: public transportation, single stream recycling, and initiatives for environmentally sustainable lab spaces. New buildings are built sustainably, but old buildings have not been retrofitted or upgraded. Campus emissions reduction goals align with state targets, but don't aim for carbon neutrality and there are limited sustainability guidelines.
- **Recommendations**: Pursuing renewable energy on campus and moving the institution's endowment portfolio away from fossil fuels are larger, but necessary, moves towards campus sustainability. A resolution is currently being drafted with CU Anschutz Student Senate and two new FTE positions are currently being hired for green labs and sustainability and waste diversion.

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 medical school 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 more than one elective whose primary focus is ESH/planetary health in the past year.**
2	Yes, the medical school has offered **one** elective whose primary focus is ESH/planetary health in the past year.
1	The medical school does **not** have any electives whose primary focus is ESH/planetary health, but there are one or more electives that include a **lecture** on planetary health.
0	No, the medical school has **not** offered any electives on planetary health or electives that include ESH/planetary health topics in the past year.

Score explanation: At the University of Colorado, EMED 8010 "Climate Change and Health" is a 2 week elective offered to fourth year medical students. Topics discussed include: foundations of climate science, air quality, heat related illness, extreme weather, mental health, water security, and food security, as well as healthcare sustainability. Curriculum includes didactics from local and guest speakers, several case based learning sessions, advocacy discussions, and an assigned op-ed. The course also includes interdisciplinary workshops (with pharmacy students and a community group) on home-made air purifier DIY with focus on local environmental justice concerns. This course will be modified to become a longer, 4 week course that students may select during their third or fourth year.

Additional curricular direction and content delivery at the Fort Collins branch of CUSOM is led by One Health faculty from the School of Veterinary Medicine, environmental and occupational hazard researchers, and other interdisciplinary faculty. There is also a "One Healthy City Practicum" elective course offered across all four years to students in the Fort Collins branch. This course includes a 12-session interprofessional didactic series where students work with other graduate departments at CSU and the city of Fort Collins to develop "healthy living" public planning initiatives.

Students can choose between several lectures during their sub-internship ("Sub-I") orientation, one of which is Climate Changes Health which uses a framework of: risk, vulnerability and exposure to frame a clinical encounter and analyze risk factors for climate change related health impacts.

The University of Colorado School of Medicine (CUSOM) offers several educational track options that students can enroll in to supplement their education in an area they are interested in. The Global Health track focuses on issues that are affecting developing countries and ways in which future providers can help. There are several lectures that are required for this track, including: IDPT 5200 Introduction to Global Health, IDPT 5012 Introduction to Global Health Research, IDPT 6623

Refugee and Immigrant Health I, and IDPT 8056 Global Health and Underserved Populations, and Climate Change and Clinical Practice. During these classes we learn about the impacts of Planetary Health and its effects on different populations throughout the world along with the applications of sustainable development on global healthcare initiatives. There is emphasis on the effects of planetary health on the most vulnerable of populations.

First year medical students were also able to enroll in a Food elective in which a few lectures were focused on sustainability and the agriculture industry.

Curriculum: Health Effects of Climate Change

1.2. Does your medical school curriculum address the relationship between extreme heat, health risks, and climate change?	
3	This topic was explored **in depth** by the **core** curriculum.
2	**This topic was briefly covered in the core curriculum.**
1	This topic was covered in **elective** coursework.
0	This topic was **not** covered.

Score explanation: In the new Trek curriculum, newly implemented for the class of 2025, during the first year gastrointestinal block, students first are presented with a lecture on the impacts of climate change on human health in different communities and populations. Topics discussed included: defining terms such as planetary and one health, identifying health effects of climate change (heat related illness, cardiovascular failure, injuries, mental health, asthma, vector borne-illnesses, civil conflict, malnutrition, infection, allergies, etc.), health conditions increasing the risk of heat-related injury, the role of the healthcare system on climate change, and how to take an environmental health history. Another session was devoted specifically to reviewing clinical cases, practicing environmental health histories, and discussing strategies to reduce climate related health risks. Later, during the pulmonary and cardiovascular block, there was a hosted 'Vista' session where the Endowed Chair in Climate Medicine lectured on the impact planetary health will likely have on the future of medicine and students were encouraged to ask questions during the talk. This is one example of an integration of climate change in the required coursework and specifically in the Health and Society pillar of the new Trek Curriculum at CUSOM.

During the third year advanced science courses, students received a lecture on frailty and aging. The lecturer discussed heat waves and their increasing frequency and how they disproportionately affect elderly populations.

As part of EMED 8010 "Climate Change and Health," a 4th year medical student elective, a 1 day module is dedicated to the topic of heat-related illness. The module includes didactics and case based learning.

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 **in depth** by the **core** curriculum.

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

Score explanation: In the new Trek curriculum's gastrointestinal block, there are two interactive courses during one afternoon that covers a range of topics concerning climate change including brief mention of increased severe weather events and disaster preparedness. Later, during the pulmonary and cardiovascular block, there was a hosted 'Vista' session where the Endowed Chair in Climate Medicine lectured on the impact planetary health will likely have on the future of medicine which mentions extreme weather events.

During the third year advanced science courses, students received a lecture that had a few slides devoted to access to food with extreme climate events and a changing climate (flooding and drought effects on agriculture). The lecturer touched on the sustainable development goals and discussed climate change in the context of nutrition.

As part of EMED 8010 Climate Change and Health, a 4th year medical student elective, students learn about extreme weather and disaster preparedness during a lecture with follow up discussion.

1.4. Does your <u>medical school</u> curriculum address the impact of climate change on the changing patterns of infectious diseases?	
3	This topic was explored **in depth** by the **core** curriculum.
2	**This topic was briefly covered in the core curriculum.**
1	This topic was covered in **elective** coursework.
0	This topic was **not** covered.

Score explanation: There is a lecture during the pre-clinical infectious disease block that discusses changing patterns of infectious diseases in depth. This topic was briefly covered during the gastrointestinal block of the new Trek Curriculum. Later, during the pulmonary and cardiovascular block, there was a hosted 'Vista' session where the Endowed Chair in Climate Medicine lectured on the impact planetary health will likely have on the future of medicine which briefly mentions infectious disease.

This topic was briefly covered in the Global Health Track Curriculum. This topic was covered in depth during the EMED 8010 Climate Change and Health elective.

1.5. Does your <u>medical school</u> curriculum address the respiratory health effects of climate change and air pollution?	
3	**This topic was explored in depth by the core curriculum.**
2	This topic was **briefly** covered in the **core** curriculum.
1	This topic was covered in **elective** coursework.

0	This topic was **not** covered.

Score explanation: In the new Trek curriculum, during the first year gastrointestinal block students first are presented with a lecture on the impacts of climate change on human health in different communities and populations. Topics discussed included: defining terms such as planetary and one health, identifying health effects of climate change (heat related illness, cardiovascular failure, injuries, mental health, asthma, vector borne-illnesses, civil conflict, malnutrition, infection, allergies, etc.), health conditions increasing the risk of heat-related injury, the role of the healthcare system on climate change, and how to take an environmental health history. A second session was devoted specifically to reviewing a clinical case and practicing taking environmental health histories. During the pulmonary and cardiovascular block, an hour lecture was dedicated to "Environment and Lung Disease." Students learned about the health effects of air pollution related to wildfires, particulate matter, ozone, and other relevant air pollutants. The Air Quality Index and AirNow resources were shared and explained with students. The immunologic response to air pollution and exposure-related asthma was also explored in addition to pneumoconiosis. Later, during the pulmonary and cardiovascular block, there was a hosted 'Vista' session where the Endowed Chair in Climate Medicine lectured on the impact planetary health will likely have on the future of medicine which mentions respiratory health and air pollution.

In the clinical year, there is a half day team based learning session focused on planetary health. The session includes a case of a child with dyspnea which is ultimately diagnosed as asthma with environmental triggers. The learning objective for the session was, "demonstrate taking an environmental health patient history."

This topic was covered in depth during the EMED 8010 Climate Change and Health elective.

1.6. Does your <u>medical school</u> curriculum address the cardiovascular health effects of climate change, including increased heat?	
3	This topic was explored **in depth** by the **core** curriculum.
2	**This topic was briefly covered in the core curriculum.**
1	This topic was covered in **elective** coursework.
0	This topic was **not** covered.

Score explanation: In the new Trek curriculum, during the first year gastrointestinal block students first are presented with a lecture on the impacts of climate change. There was one provided graphic that included "heat-related illness and death, and cardiovascular failure." The topic was briefly emphasized during the session. Later, during the pulmonary and cardiovascular block, there was a hosted 'Vista' session where the Endowed Chair in Climate Medicine lectured on the impact planetary health will likely have on the future of medicine which briefly mentions cardiovascular health.

This topic was covered in depth during the EMED 8010 Climate Change and Health elective.

1.7. 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 **in depth** by the **core** curriculum.

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

Score explanation: This topic was briefly discussed in the new Trek curriculum during the first year gastrointestinal block. Students were presented with a lecture on the impacts of climate change on human health in different communities and populations.There was one provided graphic that included "mental health impacts." However, the topic was not specifically emphasized during the session. Opportunities exist to integrate such topics across other organ system blocks, and in preparing students to have conversations regarding the health effects of climate change during weekly clinical skills sessions. Later, during the pulmonary and cardiovascular block, there was a hosted 'Vista' session where the Endowed Chair in Climate Medicine lectured on the impact planetary health will likely have on the future of medicine which briefly mentions mental illness and trauma.

This topic was briefly interwoven throughout the EMED 8010 Climate Change and Health elective.

1.8. Does your <u>medical school</u> curriculum address the relationships between health, individual patient food and water security, ecosystem health, and climate change?	
3	This topic was explored **in depth** by the **core** curriculum.
2	**This topic was briefly covered in the core curriculum.**
1	This topic was covered in **elective** coursework.
0	This topic was **not** covered.

Score explanation:In the Trek curriculum, during the first year gastrointestinal block students are presented with a lecture on the impacts of climate change on human health in different communities and populations. The topic is briefly discussed and included in a shared graphic. Later, during the pulmonary and cardiovascular block, there was a hosted 'Vista' session where the Endowed Chair in Climate Medicine lectured on the impact planetary health will likely have on the future of medicine which mentions water security and food insecurity.

First year medical students were also able to enroll in a Food elective in which a few lectures were focused on sustainability and the agriculture industry. One of the major topics of a lecture was water security, access to food, and the effects of climate change on this ecosystem. This topic was covered in depth during the EMED 8010 Climate Change and Health elective during the water security lecture.

1.9. Does your <u>medical school</u> curriculum address the outsized impact of climate change on marginalized populations such as those with low SES, women, communities of color, Indigenous communities, children, homeless populations, and older adults?	
3	This topic was explored **in depth** by the **core** curriculum.
2	This topic was **briefly** covered in the **core** curriculum.
1	This topic was covered in **elective** coursework.

0	This topic was **not** covered.

Score explanation:This topic was briefly discussed in the new Trek curriculum, during the first year gastrointestinal block. Students are presented with a lecture on the impacts of climate change on human health. However, this topic was only briefly addressed. Later, during the pulmonary and cardiovascular block, there was a hosted 'Vista' session where the Endowed Chair in Climate Medicine lectured on the impact planetary health will likely have on the future of medicine which briefly mentions the outsized impact on marginalized populations.

During the third year advanced science courses, students received a lecture on frailty and aging. The lecturer discussed heat waves and their increasing frequency and how they disproportionately affect elderly populations.

This topic was covered in depth during the EMED 8010 Climate Change and Health elective. This topic was also covered in the Global Health Track.

1.10. Does your <u>medical school</u> curriculum address the unequal regional health impacts of climate change globally?	
3	This topic was explored **in depth** by the **core** curriculum.
2	**This topic was briefly covered in the core curriculum.**
1	This topic was covered in **elective** coursework.
0	This topic was **not** covered.

Score explanation: Topic not discussed in the first year climate and health lecture during the gastrointestinal block. During the pulmonary and cardiovascular block, there was a hosted 'Vista' session where the Endowed Chair in Climate Medicine lectured on the impact planetary health will likely have on the future of medicine which briefly mentions regional health impacts globally, nationally, and locally.

During the third year advanced science courses, students received a lecture that had a few slides devoted to access to food with extreme climate events and a changing climate. The lecturer touched on the sustainable development goals and discussed climate change in the context of nutrition. There was a brief connection to the global context.

This topic was covered in depth during the EMED 8010 Climate Change and Health elective. It is also discussed in the Global Health Track.

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

1.11. Does your <u>medical school</u> curriculum address the reproductive health effects of industry-related environmental toxins (e.g. air pollution, pesticides)?	
3	This topic was explored **in depth** by the **core** curriculum.
2	This topic was **briefly** covered in the **core** curriculum.
1	This topic was covered in **elective** coursework.

0	This topic was **not** covered.

Score explanation: During the first year gastrointestinal block there was a lecture on the effects of climate change on health. There was brief discussion on the impact of air pollution on fetal/infant mortality, preterm birth and low birth weight.

This topic is covered in the lecture "Women's Health and Climate Change" during the EMED 8010 Climate Change and Health elective.

A group of students are currently working on a team based learning lecture for second year students that touches on the effect of climate change on maternal and neonatal mortality.

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

Score explanation: Human-caused environmental threats in the Denver/Aurora community were discussed during a lecture given to first year students during the gastrointestinal block. First year students did a "windshield" survey during their orientation week. This survey required groups of students to visit different communities surrounding the university and also research social determinants of health in their assigned area. These findings were then presented to the cohort.

During the pulmonary and cardiovascular block in first year, an hour lecture was dedicated to"Environment and Lung Disease." Students learned about the health effects of air pollution related to wildfires (something close to home in Colorado).

This topic is discussed during several lectures in EMED 8010 "Climate Change and Health," an elective course. A local community group will guide students through a polluted neighborhood in North Denver to highlight environmental injustices facing the community. Through the same organization, students will pair with community members to construct homemade fan filters that will be donated to provide "clean indoor spaces". Discussion will be guided to elicit community air pollution concerns and brainstorm prevention strategies. community air pollution.

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 **integrated throughout** the medical school's planetary health education
2	**Indigenous knowledge and value systems as essential components of planetary health solutions are included briefly in the core curriculum.**
1	Indigenous knowledge and value systems as essential components of planetary health solutions are included in **elective coursework.**

0	This topic was **not** covered.

Score explanation: During the first year gastrointestinal course, a learning objective was to recognize the importance of indigenous knowledge in environmental health.

This topic is discussed during several lectures in EMED 8010 "Climate Change and Health," including the lecture "Climate Change and Indigenous Health."

1.14. 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?

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

Score explanation:This topic was briefly mentioned in the first year gastrointestinal block during a lecture on climate change and health. In Year 1, the core curriculum included a session where students complete a "windshield" survey of the surrounding metropolitan communities of the Greater Denver Area and in the locations of the clerkship sites. Students were tasked to look at environmental exposures/health risks related to geography.

During the third year advanced science courses, students received a lecture on frailty and aging. The lecturer discussed heat waves and their increasing frequency and how they disproportionately affect elderly populations.

This topic was covered in depth during the EMED 8010 Climate Change and Health elective.

Curriculum: Sustainability

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

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

Score explanation: In response to this report card, a new vista session was created for first year students that will be devoted to planetary health concepts with a special focus on the benefits of a plant-based diet, covering this topic in depth. Learning objectives include: recognizing how current food systems impact climate change, describing patient-centered dietary counseling can simultaneously mitigate environmental social determinants of health and understanding opportunities to be a climate advocate outside of direct patient care.

A new elective "Nutrition and Culinary Medicine" will be offered this year where up to 50% of students in fourth year can select to enroll. One of the learning objectives is "evaluate the health, environmental, economic, and social impacts of consuming local foods." This topic was covered in depth during the EMED 8010 Climate Change and Health elective as well as the first year Food elective.

1.16. Does your <u>medical school</u> curriculum address the carbon footprint of healthcare systems?	
3	This topic was explored **in depth** by the **core** curriculum
2	**This topic was briefly covered in the core curriculum.**
1	This topic was covered in **elective** coursework.
0	This topic was **not** covered.
Score explanation: During the first year gastrointestinal block, the role of the healthcare system on climate change and the carbon footprint of the healthcare system was discussed. Later, during the pulmonary and cardiovascular block, there was a hosted 'Vista' session where the Endowed Chair in Climate Medicine lectured on the impact planetary health will likely have on the future of medicine which briefly mentions the carbon footprint of the healthcare system. *This topic is covered throughout the elective: EMED 8010 Climate Change and Health.*	

1.17. 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 **and** environmental **co-benefits** of **avoiding** over-medicalisation, over-investigation and/or over-treatment
2	The environmental impact of **pharmaceuticals** and over-prescribing as a cause of climate health harm. Alternatively teaching on **deprescribing** where possible and its environmental and health co-benefits would fulfill this metric.
1	The health **and** environmental **co-benefits** of **non-pharmaceutical management** of conditions where appropriate such as exercise or yoga classes for type 2 diabetes; social group activities such as gardening for mental health conditions; active transport such as bicycle schemes. This is commonly known as social prescribing in the UK.
1	Environmental impact of **surgical** healthcare on planetary health and the climate crisis, and how can it be mitigated
1	**The impact of anaesthetic gases on the healthcare carbon footprint and ways to reduce anesthesia environmental impacts, such as total intravenous anaesthesia or choosing less environmentally harmful anaesthetic gas options with reduced greenhouse gas emissions**
1	The impact of **inhalers** on the healthcare carbon footprint and the environmental benefit of dry powdered inhalers over metered dose inhalers.

1	**Waste production** within healthcare clinics and strategies for reducing waste in clinical activities (e.g. single use items in the inpatient or outpatient setting)
	Score explanation: Throughout the first year, case based learning emphasizes optimizing medical interventions to prevent over medication, unnecessary health expenses, and minimizing adverse effects, however the ***environmental co-benefit is not emphasized.*** *Additionally, in the gastrointestinal block of the first year, students learn about the benefits of deprescribing to minimize carbon footprint and polypharmacy.* *Students also learn about the carbon footprint of anesthetic gases and inhalers in the first year GI block.* *Waste production in the healthcare system is discussed (and included in a graphic) during the core curriculum in the first year; however, strategies for waste reduction are not discussed. During the first year pulmonary and cardiovascular block, there was a hosted 'Vista' session where the Endowed Chair in Climate Medicine lectured on the impact planetary health will likely have on the future of medicine which briefly mentions waste production in the healthcare system and mitigation strategies to improve hospital sustainability.*

Curriculum: Clinical Applications

1.18. In training for patient encounters, does your <u>medical school's</u> curriculum introduce strategies to have conversations with patients about the health effects of climate change?	
2	**Yes, there are strategies introduced for having conversations with patients about climate change in the core curriculum.**
1	Yes, there are strategies introduced for having conversations with patients about climate change in **elective** coursework.
0	No, there are **not** strategies introduced for having conversations with patients about climate change
Score explanation: At CUSOM, during the first year gastrointestinal block, students first are presented with a lecture on the impacts of climate change on human health that includes discussion on how to take an environmental health history. A second session was devoted specifically to reviewing a clinical case and reviewing the important components of environmental health histories. *Later, during the pulmonary and cardiovascular block, there was a hosted 'Vista' session where the Endowed Chair in Climate Medicine lectured on the impact planetary health will likely have on the future of medicine and students were encouraged to ask questions during the talk. This is one example of an integration of climate change in the required coursework and specifically in the Health and Society pillar of the new Trek Curriculum at CUSOM. There are also electives or tracks available for students to engage with discussions on climate change (ie. global health track).*	

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

1	Only **elective** coursework includes strategies for taking an environmental history.
0	No, the curriculum does **not** include strategies for taking an environmental history.

Score explanation: At CUSOM, during the first year gastrointestinal block, students first are presented with a lecture on the impacts of climate change on human health that included discussion on how to take an environmental health history. A second session was devoted specifically to reviewing a clinical case and reviewing the important components of environmental health histories.

In the second year clerkship curriculum, students participate in a didactic learning session based on respiratory diseases pertaining to environmental exposures. During this interactive session, students are taught how to determine risk factors for developing asthma and making a pediatric asthma action plan, asking about pet/mold/allergen exposures, and identifying other environmental triggers for dyspnea.

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

Score explanation: The Class of 2025 is the first class with the new curriculum implemented at CUSOM named the Trek Curriculum. Our deans believe there are major improvements underway to incorporate more curriculum surrounding planetary health education and education for sustainable healthcare into the required coursework longitudinally, throughout the four years of curriculum. The incorporation of planetary health is integrated into the curriculum and applied to clinical and biological sciences as well as psychosocial and community health. There is a Global Health Track students can apply to that extensively covers health promotion, sustainable development goals and their impacts on healthcare delivery in different global contexts, and how local and global environments shape health.

The Fort Collins branch of CUSOM is a four-year program founded on the CDC's principles of One Health: integrating human, animal, and environmental health to achieve optimal health outcomes. The curriculum and learning objectives of the Fort Collins branch match those of main campus 1:1 with the exception of the fact that the content is delivered by researchers in veterinary sciences, environmental toxicologists, and other interdisciplinary science faculty. In addition, some slides and presentations contain One Health specific content taught to the medical students across all years, e.g. environmental and animal health implications of climate-related stressors.

A group of students named "CHIP" (Climate Health Integration Project) is working with students, deans and faculty to integrate climate change curriculum throughout the 4 year core curriculum.

1.21. How well are the aforementioned planetary health/Education for Sustainable Healthcare

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

Score explanation: At the University of Colorado School of Medicine, as discussed in previous sections, planetary health/ESH topics are integrated into the core medical student curriculum. This education is provided in the gastrointestinal and pulmonary blocks in Year 1 and touched on again in Year 3. During clerkship rotations in year 2, there are two team-based learning cases that explore topics in planetary health (taking an environmental history and environmental justice). These sessions practice the clinical skill of how to take an environmental history in a family with a child with asthma and the environmental justice implications of screening and treatment for lead poisoning including local application and resources.

Students also have the opportunity to apply to the Fort Collins branch which integrates a One Health perspective throughout all 4 years of the curriculum with more continuity. This is encapsulated in the "Trail" initiative wherein 3rd and 4th year students may develop projects in health systems research, public health advocacy, and occupational/environmental health planning. This One Health curriculum consists of an interdisciplinary program for students from the school of medicine, veterinary sciences, and graduate students in fields like public health and construction engineering to advance health for humans, animals, and the environment in collaboration with Colorado State University.

1.22. 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?	
1	**Yes,** the **medical school** has a specific faculty/staff member responsible for overseeing curricular integration of planetary health and sustainable healthcare
0	**No**, the **medical school** does **not** have a specific faculty/staff member responsible for overseeing curricular integration of planetary health and sustainable healthcare.

Score explanation:
Following the publication of CU's first Planetary Health Report Card, Dr. Beth Gillespie was hired as the Director of Undergraduate Medical Education for the Climate and Health Program at CUSOM. In this position, she oversees the course content that delivers planetary health materials across the core curriculum and all four years of medical school. While there are a number of faculty overseeing the redesign of CU's curriculum, there is no designated faculty dedicated to specifically oversee the incorporation of planetary health and sustainable healthcare. This year, a group of medical students, led by Dr. Elizabeth Gillespie, have established CHIP (Climate Health Integration Project) within CU-CHASE. The students are working to integrate more planetary health concepts throughout the core curriculum. CU-CHASE is a campus-wide, interprofessional organization focused on sustainability.

Section Total (53 out of 72)	**73.61%**

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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 medical school?	
3	Yes, there are faculty members at the **medical school** who have a **primary r**esearch focus in planetary health **or** healthcare sustainability.
2	Yes, there are individual faculty members at the **medical school** who are conducting research **related** to planetary health or healthcare sustainability, but it is not their primary research focus.
1	There are planetary health and/or healthcare sustainability researchers at the **institution**, but none associated with the medical school.
0	No, there are **no** planetary health and/or healthcare sustainability researchers at the **institution** or **medical school** at this time.
Score explanation: The University of Colorado School of Medicine has multiple faculty members whose primary research focus is in planetary and climate health including Rosemary Rockford, PhD and Richard Johnson, MD. Additionally there are many faculty members at CUSOM that are conducting research in planetary health and healthcare sustainability via many different avenues. The Colorado Consortium for Climate Change & Health is associated with the School of Medicine (though not directly included within it) and it has a list of faculty members at CUSOM conducting research related to climate, health and sustainability. Their research focuses on four aspects: 1. Heat Stress, 2. Respiratory Disease, 3. Worker Health, and 4. Infectious disease. *The faculty members at CUSOM involved with planetary health research are involved with institutions outside of the School of Medicine enacting climate change measures on a broader scale. Such institutions include the National Academy of Medicine Action Collaborative on Decarbonizing the Health Sector, Centers for Disease Control and Prevention, US Department of Health and Human Services EcoAmerica, and the U.S. Department of Defense Arctic Medical Operations team.*	

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

1	There is an **Occupational and Environmental Health department**, but no interdisciplinary department or institute for planetary health research.
0	There is **no** dedicated department or institute.

Score explanation: The University of Colorado as an institution has group called the Colorado Consortium for Climate Change & Health whose mission it is to "address current and future health issues affected by climate variability and change by bringing together a multidisciplinary team of clinicians, biomedical scientists, public health practitioners, epidemiologists, and anthropologists, along with atmospheric scientists and climatologists." Their research focuses on four key areas: 1. Heat Stress, 2. Respiratory Disease, 3. Worker Health, and 4. Infectious disease. The Consortium also consists of faculty conducting climate research across multiple disciplines and institutions including CU Boulder, the CU School of Public Health, the University of Hawaii-Manoa Department of Geography, the National Center for Atmospheric Research, and the Rocky Mountain Center for Total Worker Health.

Outside of the Consortium is the CUSOM Climate and Health Program, a program dedicated to medical student and graduate education and research in climate change and health. The site hosts projects across a variety of disciplines that are accessible to students, clinicians, and faculty across all levels of their training.

Additionally, in 2017, CUSOM started the nation's first graduate medical education fellowship in Climate & Health Science Policy with the goal "to train highly credible, knowledgeable health leaders in clinical, basic science, and policy settings." There are 5 current fellows in the CHSP program.

Finally, the University of Colorado School of Public Health has an Environmental & Occupational Health department. Their research includes agricultural health and safety, air pollution, chronic beryllium disease, environmental health law and policy, ergonomics, industrial hygiene, and oil and gas activities. In 2024, CSPH EOH will offer a PhD in Climate and Human Health.

2.3. Is there a process by which communities disproportionately impacted by climate change and environmental injustice give input or make decisions about the research agenda at your medical school?

3	Yes, there is a process in which community members impacted by climate and environmental injustice have **decision-making power** in the climate + environmental research agenda.
2	Yes, there is a process in which community members impacted by climate and environmental injustice **advise** the climate + environmental research agenda.
1	**No**, but there are **current efforts** to establish a process for community members to advise or make decisions on the research agenda.
0	There is **no** process, and **no** efforts to create such a process.

Score explanation: The Adult & Child Consortium for Health Outcomes Research & Delivery Science (ACCORDS) has a community advisory panel designed to help researchers gather patient feedback on research projects. The input from this community advisory panel, which includes individuals disproportionately impacted by climate change, has been used for a community heat vulnerability research project. While this group is not specifically focused on communities disproportionately impacted by climate change and environmental justice, it could serve as a vector for gaining input on the medical school's research agenda. Community groups were also invited to the Colorado

Consortium on Climate and Health Symposium hosted by CUSOM in March. Being more proactive about engaging in discourse with these vulnerable communities about how best to use our resources could be a major source of improvement for CUSOM going forward.

2.4. Does your institution have a planetary health website that centralizes ongoing and past research related to health and the environment?	
3	There is an **easy-to-use, adequately comprehensive** website that **centralizes** various campus resources related to health and the environment including all of the following: upcoming events, leaders in planetary health at your institution, and relevant funding opportunities.
2	There is a website that **attempts to centralize** various campus resources related to health and the environment, but it is hard-to-use, not updated, or not adequately comprehensive.
1	The **institution** has an **Office of Sustainability website** that includes **some** resources related to health and the environment.
0	There is **no** website.
Score explanation: The Climate & Health Program at CUSOM has the mission to advance education and outreach. The website is comprehensive and has information and opportunities for education for medical students and more. It houses information regarding upcoming events, faculty and students involved in planetary health, and more resources for interested students. The website is continually undergoing updates to make it more comprehensive and user friendly.	

2.5. Has your institution recently hosted a conference or symposium on topics related to planetary health?	
4	Yes, the **medical school** has hosted at least one conference or symposium on topics related to planetary health in the past year.
3	Yes, the **institution** has hosted at least one conference or symposium on topics related to planetary health in the past year.
2	Yes, the **institution** has hosted a conference on topics related to planetary health in the past three years.
1	The **institution** has not hosted any conferences directly, but they have provided financial support for a local planetary health event.
0	No, the **institution** has not hosted a conference on topics related to planetary health in the past three years.
Score explanation: The University of Colorado School of Medicine hosts multiple conferences and events related to planetary health. On February 29, CU's Center for Interprofessional Practice and Education hosted an author talk and discussion with Dr. Mona Hanna-Attisha, MD, MPH about lead poisoning in children after the Flint, MI tragedy and her battle to expose this truth. CU also hosted a C4Health24 symposium on March 7 where climate and health researchers from across the front range of Colorado were invited to discuss the current and future state of climate change and health.	

Given the extensive list of faculty working on planetary health, CUSOM is dedicated to hosting and facilitating more conferences and symposiums centered around planetary health to firmly establish the institution as a leader in this field.

2.6. Is your medical school a member of a national or international planetary health or ESH organization?	
1	Yes, the medical school is a member of a national or international planetary health **or** ESH organization
0	No, the medical school is **not** a member of such an organization
Score explanation: The University of Colorado School of Medicine is affiliated with the Global Consortium on Climate and Health Education.	

Section Total (16 out of 17)	**94.12%**

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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 medical school partner with community organizations to promote planetary and environmental health?	
3	Yes, the **medical school** meaningfully partners with **multiple** community organizations to promote planetary and environmental health.
2	Yes, the **medical school** meaningfully partners with **one** community organization to promote planetary and environmental health.
1	The **institution** partners with community organizations, but the medical school is not part of that partnership.
0	No, there is **no** such meaningful community partnership.

Score explanation: CUSOM has several community partners that promote planetary and environmental health, though mandatory engagement with these organizations through the Trek curriculum's service learning project was suspended in July 2023. This formal community partnership portion of the curriculum is currently undergoing reconfiguration and will likely be changed for the next year's report card. Students were encouraged to actively participate in a longitudinal service learning experience that addresses the mutually-agreed upon needs of a community partner. Despite its suspension, students are still able to engage with community partners on an elective volunteer basis. Such groups include: 2040 Partners in Health, whose mission is to create sustainable community partnerships and by identifying, measuring, and applying local solutions; 350, an organization focused on ending fossil fuel dependence and transitioning to green energy sources; the City of Fort Collins, with whom students can partner to create health- and climate-friendly public health projects; the Street Dog Project, where medical students provide clinical care to people experiencing homelessness and significant environmental exposures alongside veterinary students who provide care to their animals; and the Northern Colorado Health Alliance, where medical students create multilingual educational materials about climate and health concerns in Northern Colorado. The school also has a weekly email blast through the Office of Diversity, Equity, and Inclusion called the Community and Campus Connections that features opportunities for anyone on campus to participate in community engagement sessions with the Aurora Health Alliance and Blueprint APS, two groups that engage with the health needs of the surrounding Aurora community.

The University of Colorado's interprofessional student group, CU-CHASE (Climate Health Advocacy, Sustainability, and Education), has worked with local organizations and advocacy groups to mobilize healthcare professionals in advocating for their patients on local and state-level platforms. Of these, Healthy Air and Water Colorado has led several advocacy trainings, including how to give legislative testimonials and community-based climate and health education opportunities, to students across the schools of Medicine, Dentistry, Pharmacy, Public Health, and Nursing.

3.2. Does your medical school offer community-facing courses or events regarding planetary health?	
3	The **medical school** offers community-facing courses or events at least once every year.
2	The **medical school** offers courses or events open to the community at least once per year, but they are not primarily created for a community audience.
1	The **institution** has offered community-facing courses or events, but the **medical school** was not involved in planning those courses or events.
0	The **institution/medical school** have not offered such community-facing courses or events.
Score explanation: In the last year, CUSOM has offered multiple community-facing courses or events concerning planetary and environmental health including a speaking event for CUSOM's One Book One Campus,"What the Eyes Don't See" by Mona Hanna-Attisha, MD, MPH. This co-partnered event with the Climate Medicine Program was open to the public and covered the concept of One Health in the context of the Flint, MI water crisis. As in years past, events such as these are open to the public, but they primarily draw from medical professionals or other industry leaders. *We plan to host the second Earth Week festivities on campus this year and the goal is to better incorporate the community. This will include a speaker from the community, community musicians, community organization tabling, and a community service event. The goal is to make this an annual event.*	

3.3. Does your medical school have regular coverage of issues related to planetary health and/or sustainable healthcare in university update communications?	
2	Yes, all students **regularly** receive communication updates dedicated to planetary health and/or sustainable healthcare.
1	Yes, planetary health and/or sustainable healthcare topics are **sometimes** included in communication updates.
0	Students **do not** receive communications about planetary health or sustainable healthcare.
Score explanation: CUSOM has regularly scheduled school-wide communication from the Office of Student Affairs with updates about what sustainability and planetary health initiatives are happening on campus. Over the past year, there have been multiple campus-wide email blasts that included information about planetary health and sustainability. Some examples of these communications include information on research from the School of Medicine about the effects of air pollution on brain health, relationships between rising ambient temperatures and kidney disease, as well as policy work that CUSOM is involved with. Of note, there is a biweekly campus-wide email thread entitled CU Anschutz Today which has featured planetary health and sustainability topics in nearly all of its emails over the past year, which is an increase in frequency from previous years where topics of climate and health appeared roughly once a month in those 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 **institution** or **main affiliated hospital trust** offers multiple in-person or online courses relating to planetary health and/or sustainable healthcare for post-graduate providers, including at least one with a primary focus of planetary health.
1	Yes, the **institution** or **main affiliated hospital trust** offers one course relating to planetary health and/or sustainable healthcare for post-graduate providers
0	There are **no** such accessible courses for post-graduate providers
Score explanation: CUSOM and its affiliated hospital trust continues to offer postgraduates an opportunity to engage with planetary health through the Climate and Health Program's Diploma in Climate Medicine. This program offers clinicians hands-on experiences with the science of climate change and its implications on the practice of medicine. The diploma covers the following courses (each course is 60 hours apiece with a total of 300 learning hours for the completed program): Foundations and Updates in Climate Medicine; Developing Sustainable Hospital Systems; Disaster Response and Recovery; Community Resilience: Energy Innovation & Healthy Infrastructure; and Global Challenges. The program is offered twice-yearly and enrolls approximately 20 clinicians at each offering. In addition, there have been multiple CME courses over the past year highlighting the implications of climate change on clinical practice, including addressing in-home air pollution exposures and respiratory illnesses.	

3.5. Does your <u>medical school</u> or its <u>affiliated teaching hospitals</u> have accessible educational materials for patients about environmental health exposures?	
2	Yes, the **medical school** or **<u>all</u> affiliated hospitals** have accessible educational materials for patients.
1	**Some** affiliated hospitals have accessible educational materials for patients.
0	**No** affiliated medical centres have accessible educational materials for patients.
Score explanation: The University of Colorado School of Medicine has collaborations with the UC Health system, Veterans Affairs (Colorado Division), Denver Health, and Children's Hospital Colorado. Each of these affiliated hospital systems has websites with articles detailing research, news stories, and events about patient health and environmental exposures, in particular toxin and infectious disease exposures (e.g. burn pits, lead exposures, West Nile Virus, etc.). This includes news stories, research opportunities, clinical trials, public events, and other patient-directed stories. The VA has in the last year added a new "Stories" section to its website, with veteran-specific stories and achievements including an article entitled "VA Eastern Colorado to screen tens of thousands of Veterans for toxic exposures" from April 24, 2023. It should be noted, however, that none of these materials are found under a specific heading of environmental health on any of these websites for easy access. Under CUSOM's website, there are also news articles about environmental health exposures for patients. There is a heading of "News" available for reading, but you must click through to find individual articles.	

3.6. Does your <u>medical school</u> or its <u>affiliated teaching hospitals</u> have accessible educational materials for patients about the health impacts of climate change?

2	Yes, the **medical school** or **<u>all</u> affiliated hospitals** have accessible educational materials for patients.
1	**Some** affiliated hospitals have accessible educational materials for patients.
0	**No** affiliated hospitals have accessible educational materials for patients.
Score explanation: There are no significant changes in this year's educational materials on climate change and health impacts from the previous year's findings. Through the UC Health system's website, there are some broader educational materials about the science of climate change and its health impacts. While there is no central website reflecting this information, there have been several articles published on the UC Health Research tab that discuss these topics. Denver Health has a link on its front page to the Colorado Department of Public Health and Environment with resources specific to the local impacts of climate change on health including education about local spread of West Nile Virus. CUSOM also offers educational materials for patients about climate change and health impacts, but these resources are found in the main News page and not under a specific climate health heading. The VA and Children's Colorado do not have pages or materials specific to topics pertaining to climate change and health impacts.	

Section Total (12 out of 14)	**85.71%**

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Support for Student-Led Planetary Health Initiatives

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

4.1. Does your medical school or your institution offer support for medical students interested in enacting a sustainability initiative/QI project?	
2	Yes, the **medical school** or **institution** *either* offers grants for students to enact sustainability initiatives/QI projects *or* sustainability QI projects are part of the core curriculum.
1	The **medical school** or **institution** encourages sustainability QI projects (to fulfill clerkship or longitudinal requirements) and offers resources to help students succeed in these projects, **but** there is no student funding available and there is no requirement to participate.
0	No, **neither** the medical school or the institution offer opportunities or support for sustainability initiatives or QI projects.
Score explanation: The University of Colorado offers the President's Sustainable Solutions Challenge. Students are asked to develop ideas for improving environmental quality, economic and resource efficiency, and/or social equity on campus. Students, individually or in teams, develop ideas and present them to a panel of judges for a $1,500 cash prize. *CUSOM also has a mentored scholarly activity (MSA) component of the medical school curriculum. Within the MSA, there are the following subsets: Laboratory Science Research; Bioethics, Humanities, Arts and Education; Clinical Science Research; Global Health; and Public Health and Epidemiology. Within the public health curricular structure there is no mention of sustainability or climate and health. There is no QI requirement for medical students to graduate from CUSOM, but some students have elected to engage in QI projects centered around climate health to satisfy the MSA requirement.*	

4.2. Does your institution offer opportunities for medical students to do research related to planetary health and/or sustainable healthcare?	
2	The **institution** has a **specific** research program or fellowship for students interested in doing planetary health/sustainable healthcare research.
1	There are research opportunities for students to perform research related to planetary health/sustainable healthcare, but these **require student initiative** to seek these out and carry them out in their spare time.

0	There are **no opportunities** for students to engage in planetary health/sustainable healthcare research.

Score explanation: There are many opportunities for medical students to perform research related to planetary health topics through the CU-Consortium for Climate Change, CU-CHASE, and individual mentors. However, there is not a specific research or fellowship program for medical students at this time. Students must seek these opportunities out and carry them out in their own time. CUSOM offers the Physician Fellowship in Climate Medicine for medical school graduates. Sadly, however, medical students are not eligible. This is a GME accredited fellowship in Climate and Health policy with the goals of, "[training] highly credible, knowledgeable health leaders in clinical, basic science, and policy settings." The fellowship is a 12 month long course in which participants are expected to attend didactics, workshops, and complete a project with a federal or nonprofit organization.

During a session of the aforementioned C4Health'24 – a free, in-person symposium being hosted on campus - prospective mentor-mentee pairs are invited to discuss research interests for mutual benefit.

4.3. Does the medical school have a webpage where medical students can find specific information related to planetary health and/or sustainable healthcare activities and mentors within the medical school? For example, projects achieved, current initiatives underway at the medical school and/or contact of information of potential mentors.	
2	The **medical school** has a webpage with specific information related to planetary health or sustainable healthcare that includes up-to-date information on relevant initiatives and contact information of potential mentors.
1	There is a **medical school** webpage that features some information on projects and mentors within planetary health and sustainable healthcare within the medical school, but it lacks key information.
0	There is **no medical-school** specific webpage for locating planetary health and/or sustainable healthcare projects or mentors.

Score explanation: Starting in 2023, CUSOM began maintaining an updated medical student-facing website that contains details of projects related to planetary health—including the PHRC, student groups, ongoing climate and health activities at the school, student leaders, current projects involving planetary health and sustainability—and offers students the opportunity to get involved with any of the above listed projects by listing relevant points of contact for each (medschool.cuanschutz.edu/climateandhealth/education/medical-students#ft-curriculum-0).

CUSOM has other separate climate and health pages on the medical school website targeting audiences at other levels of education and professional advancement. This website offers information on educational courses, news, and events at CUSOM. Potential project mentors can be found on this website as the core faculty and advisory committee members are listed; however, there is still no individual contact information nor any updated information on current faculty projects. This is unchanged from the 2023 PHRC. Revamping this website such that information on how to get involved as a student in volunteering, obtaining research and grants, finding mentorship, and connecting with relevant organizations and events on campus is more easily accessible is a very actionable way to improve this score going forward.

With CU's new curriculum, first year medical students have the option to apply to the new Fort Collins branch for their four years of medical school education. This four-year branch campus in Fort Collins, in partnership with Colorado State University (CSU), has a focus on the concept of One Health. CSU's

One Health Institute's goal is to advance health for humans, animals, and the environment in addition to solving problems at the intersection of these three entities. To learn more about this program, the CUSOM website transfers you to CSU's webpage that includes more information on the program, community outreach, faculty, and research opportunities. Research opportunities include an award of up to $75K in funding for 2-4 R&D proposals and up to $10K for ideation and network development proposals including attending meetings and workshops.

4.4. Does your medical school have registered student groups dedicated towards fostering a culture of planetary health engagement, scholarship, and advocacy on campus, supported by faculty advisors?

2	Yes, there is a student organization **with faculty support** at my medical school dedicated to planetary health or sustainability in healthcare.
1	Yes, there is a student organization at my medical school dedicated to planetary health or sustainability in healthcare but it **lacks faculty support.**
0	No, there is **not** a student organization at my institution dedicated to planetary health or sustainability in healthcare.

Score explanation: This score is unchanged from our prior year's report card (2023). The University of Colorado's Climate Health Advocacy, Sustainability, and Education (CU-CHASE) is an interdisciplinary student group focused on advancing student-led initiatives in the avenues of climate advocacy, campus sustainability projects, and education. The group receives annual funding through the Student Senate and Medical Student Council and is supported by a faculty mentor. There is a PHRC committee within CU-CHASE as well as a Climate and Health Curriculum Integration Project (CHIP) student group, and the PHRC also has a separate faculty advisor. The campus also has a chapter of Medical Students for a Sustainable Future that has its own faculty advisor.

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

1	Yes, there is a student representative that serves on a medical school or institutional decision-making council/committee.
0	No, there is no such student representative.

Score explanation: Starting in Spring of 2022, students at the University of Colorado School of Medicine began electing two medical student Sustainability representatives for each medical school class to serve on the Medical Student Council. Their job is to advance sustainability initiatives on campus, advocate for sustainability during MSC event planning, and serve as an intermediate between students, faculty, and student organizations to unite and improve planetary health efforts on campus.

4.6. In the past year, has the institution had one or more co-curricular planetary health programs or initiatives in the following categories? (1 point each)

1	Projects where students are able to gain experience in organic agriculture and sustainable food systems, such as gardens, farms, community supported agriculture (CSA), fishery programs, or urban agriculture projects.
1	Panels, speaker series, or similar events related to planetary health that have students as an intended audience.
1	Events in which students learn directly from members of a local environmental justice community about the climate and environmental challenges they face, and how health professionals can partner with their community to address these exposures and impacts.
1	Cultural arts events, installations or performances related to planetary health that have students as an intended audience.
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: CUSOM's Fort Collins Branch integrates a One Health framework as part of its curriculum. Students can be matched with service-learning opportunities in sustainable food systems and community supported agriculture.

CUSOM provides numerous lectures throughout the academic year via the CU Climate consortium lecture series, CU climate and health program, and from the student-led group CU-CHASE. Some lectures from the past year include a climate change and human health lecture to discuss sources of funding and learn from community leaders, a lecture on forest regeneration and soil stability to help manage increased forest fires due to climate change, the Colorado Air Quality and Health Symposium discussing health risks and monitoring as well as lectures on clinical impacts of climate change and how to discuss climate change with patients.

First year medical students also attend a mandatory session, integrated into the new curriculum, in which they learn from CU faculty about the obstacles to addressing climate change in medicine, success stories for integrating more sustainable practices into the CU health system, and important focuses for making further progress in climate health at CU.

CU-CHASE has hosted several events over the past year in conjunction with Healthy Air and Water Colorado and Healthier Air Colorado that have helped students gain skills and knowledge on writing OpEds and getting involved in legislative advocacy. CU-CHASE has also spread awareness to students of community events related to the topic with opportunities to speak to legislators and policy makers in the Denver area.

Section Total (11 out of 15)	**73.33%**

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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 medical school and/or institution have an Office of Sustainability?	
3	Yes, there is an Office of Sustainability with multiple full-time staff dedicated to campus sustainability. If the Office of Sustainability serves the entire campus, there is **at least one designated staff member** for sustainability at the hospital and/or medical school.
2	There is an Office of Sustainability with one or more full-time staff dedicated to campus sustainability, but **no specific staff member** in charge of medical school and/or hospital sustainability.
1	There are **no salaried sustainability staff,** but there is a sustainability task force or committee
0	There are **no** staff members **or** task force responsible for overseeing campus sustainability
Score explanation: CUSOM is located on the Anschutz Medical Campus which is home to all of the University of Colorado's health profession schools. The Anschutz Medical Campus has one full-time paid staff that is focused on campus sustainability (Sustainability Manager). The members of the sustainability steering committee for all of CU's campuses can be found here. In an interview with the sustainability manager, it was noted that the two hospitals that share the Anschutz Campus with CUSOM have their own sustainability committees which operate separately from CUSOM.	

5.2. How ambitious is your institution/medical school plan to reduce its own carbon footprint?	
5	The institution/medical school has a **written and approved plan** to achieve carbon neutrality by **2030**
3	The institution/medical school has a **written and approved plan** to achieve carbon neutrality by **2040**
1	The institution/medical school has a stated goal of carbon neutrality by **2040** but has **not created a plan** to reach that goal or the **plan is inadequate**
0	The institution/medical school does **not** meet any of the requirements listed above
Score explanation:The University of Colorado is required to adhere to the state of Colorado's climate action plan. Based on bill HB19-1261, the school must reduce greenhouse gas emissions by at least 26% by 2025, greenhouse gas emissions by at least 50% in 2030, and greenhouse gas emissions by at	

least 90% by 2050. The baseline was obtained during the academic year of 2006/2007. Per the sustainability manager, new legislation is on the way that would tighten these requirements to be a 50% reduction by 2050, 90% by 2040 and 100% by 2050. The 2019 campus sustainability report can be found under the quick links tap on the sustainability page. Two large hospitals on campus, Colorado Children's Hospital and University of Colorado Hospital share the same campus with CUSOM. The sustainability manager is unsure if these separate organizations have goals to reduce carbon emissions as they have never been communicated to the team at CUSOM.

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

Score explanation: The campus safety building is the first building on the medical school's campus to be 100% net zero in emissions, getting all of its energy via solar. However, it is currently the only building on campus of its kind. The source of energy for other buildings was not shared with us. The office of sustainability recently completed a solar survey that found that if all available space, such as the tops of buildings and above parking lots, is used for solar panels, this would only provide 11% of the energy required to keep the campus running. The reason given for this was that the extensive lab spaces operated by the school are very power intensive.

5.4. Are sustainable building practices utilized for new and old buildings on the medical school campus, with design and construction of new buildings and remodeling of old buildings conforming to a published sustainability rating system or building code/guideline?	
3	Yes, sustainable building practices are utilized for new buildings on the medical school campus and the **majority** of old buildings **have been retrofitted** to be more sustainable.
2	Sustainable building practices are utilized for new buildings on the medical school campus, but most old buildings have **not been retrofitted.**
1	Sustainable building practices are **inadequately or incompletely** implemented for new buildings.
0	Sustainability is **not considered** in the construction of new buildings.

Score explanation: New buildings on the CU Anschutz campus are built to LEED specifications. The campus typically aims for a LEED Gold certification. For example, the new 396,000-square-foot Health Sciences building, used for teaching, research and clinical purposes, has received the LEED Version 4.0 Gold Certification and is the most energy-efficient mixed-use facility on campus, with a 60% energy reduction versus existing buildings. Per Sustainability Manager, a form of LEED-lite method was adapted for older buildings that have been partially remodeled. An energy overhaul was conducted in Research 1 (building used for laboratory research) in which more efficient lighting was

installed. Windows have been replaced in Building 500 (CU Anschutz's oldest building) for energy efficiency, but the building has not been otherwise retrofitted. The campus safety building, which is used for IT work and campus security, is the first net zero building on campus.

5.5. Has the medical school or institution implemented strategies to encourage and provide environmentally-friendly transportation options for students and reduce the environmental impact of commuting?	
2	Yes, the medical school or institution has implemented strategies to encourage and provide **environmentally-friendly transportation options** such as safe active transport, public transport, or carpooling and these options are well-utilized by students. Alternatively, the campus location is not amenable to unsustainable forms of transportation by default.
1	The medical school or institution has implemented **some** strategies to provide environmentally-friendly transportation options, but the options are **unsatisfactorily** accessible or advertised.
0	The medical school or institution has **not** implemented strategies to encourage and provide environmentally-friendly transportation options.
Score explanation: CUSOM provides an RTD college pass to all students. This pass provides access to the local light rail trains and buses. The campus includes several bike racks, lockers, and repair stations as well as spaces for motorcycles and scooters. Furthermore, for students who prefer to drive, they are encouraged to use the park and ride bus system when commuting to campus. This information is accessible and easy to find.	

5.6. Does your medical school have an organics recycling program (compost) and a conventional recycling program (aluminum/paper/plastic/glass)?	
2	Yes, the medical school has **both** compost **and** recycling programs accessible to students and faculty.
1	The medical school has **either** recycling **or** compost programs accessible to students and faculty, but not both.
0	There is **no** compost or recycling program at the medical school.
Score explanation: CUSOM has single-stream recycling on campus. In an interview with the campus sustainability chair, it was noted that this recycling program has an 18-20% diversion rate. Recycling is readily accessible to students as bins are located throughout educational buildings and in common dining areas. More about CU Anschutz recycling can be found here. A small amount of composting is done at the CU Anschutz Health and Wellness Center. Food scraps and leftovers from cooking courses taught by registered dieticians are composted after courses. Additionally, small composting operations have been launched at the cafe's in the Education 2 and Research 2 buildings. Both of these food service locations must now compost and use compostable items for to go items. Per the sustainability manager, the hope is to slowly expand these programs from only food service locations to the rest of the buildings/operations on campus. All composting is contracted out to a third party service. It was noted that a completely in house composting service is currently infeasible due to cost and space limitations. There have, however, been talks of purchasing a composting digester for small scale operation on campus.	

5.7. Does the medical school apply sustainability criteria when making decisions about the campus food and beverage selections (e.g. local sourcing, reduced meat, decreased plastic packaging)?	
3	Yes, the medical school has a**dequate s**ustainability requirements for food and beverages, including meat-free days or no red-meat, and **is engaged** in efforts to increase food and beverage sustainability.
2	There are sustainability guidelines for food and beverages, but they are **insufficient or optional**. The medical school **is engaged** in efforts to increase food and beverage sustainability.
1	There are sustainability guidelines for food and beverages, but they are **insufficient or optional.** The medical school is **not** engaged in efforts to increase food and beverage sustainability.
0	There are **no** sustainability guidelines for food and beverages.
Score explanation: CUSOM currently has no sustainability guidelines for food and beverages. Food on campus is currently served entirely by third party vendors and thus, there is no coordinated approach to food and beverage selection. However, the school has begun piloting composting programs with these vendors (as above). Jarrett Smith, sustainability manager, hopes to continue working with Sodexo (corporation that runs all restaurants on campus) to solve some of these problems as they already have a system wide composting program and could be negotiated with in terms of what types of food and beverage are offered on campus.	

5.8. Does the medical school or institution apply sustainability criteria when making decisions about supply procurement?	
3	Yes, the medical school has **adequate** sustainability requirements for supply procurement **and** is **engaged** in efforts to increase sustainability of procurement.
2	There are sustainability guidelines for supply procurement, but they are **insufficient or optional.** The medical school is **engaged** in efforts to increase sustainability of procurement.
1	There are sustainability guidelines for supply procurement, but they are **insufficient or optional.** The medical school is **not engaged** in efforts to increase sustainability of procurement.
0	There are **no** sustainability guidelines for supply procurement.
Score explanation: CUSOM coordinates procurement via the University of Colorado's Sustainable Purchasing Guidelines. These guidelines provide recommendations on a wide variety of products such as furniture, lighting, appliances, and janitorial products. The guidelines are based upon sustainability goals that encourage the consideration of environmental impact and social equity when purchasing products. More about CU's procurement can be found here. Furthermore, CU has developed a sustainable purchasing checklist for those interested in sustainable procurement. It appears as though these guidelines are optional, though, as nothing about sustainability appears in the CU procurement code of ethics or in the procurement rules. The sustainability manager notes that a lot of purchasing is done via procurement cards, which makes enforcement of these guidelines difficult.	

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

2	Every event hosted at the medical school **must** abide by sustainability criteria.
1	The medical school **strongly recommends or incentivizes** sustainability measures, but they are **not required.**
0	There are **no** sustainability guidelines for medical school events.

Score explanation: Zero Waste at Your Event guidelines exist at the University of Colorado Boulder, and can be found here. No such guidelines can be found on the School of Medicine's website or within the published Sustainability guidelines. Per the sustainability manager, the school is actively working with Facilities and Events management offices to produce these guidelines.

In the upcoming weeks, we will be proposing sustainability guidelines for the conception and funding of student organizations through a Medical Student Council bylaw proposition.

5.10. Does your medical school have programs and initiatives to assist with making lab spaces more environmentally sustainable?	
2	Yes, the medical school has **programs** and **initiatives** to assist with making lab spaces more environmentally sustainable.
1	There are **guidelines** on how to make lab spaces more environmentally sustainable, but not programs or initiatives.
0	There are **no** efforts at the medical school to make lab spaces more sustainable.

Score explanation: CUSOM follows the Green Lab program of nearby CU Boulder, which can be found here. From these guidelines, CUSOM has worked to decrease its water usage in laboratories, become more energy efficient (with lighting and heating/cooling systems), and expanded the laboratory recycling program. The sustainability manager is actively working on hiring student staff to expand the Green Lab program on the Anschutz campus. The staff would provide guidance on sustainable supply procurement and work with lab staff to adjust experimental protocols to minimize waste.

5.11. Does your institution's endowment portfolio investments include fossil-fuel companies?	
4	The institution is **entirely divested** from fossil fuels **and** has made a **commitment to reinvest divested funds** into renewable energy companies or renewable energy campus initiatives.
3	The institution is **entirely divested** from fossil fuels.
2	The institution has **partially divested** from fossil fuel companies **or** has made a **commitment to fully divest**, but **currently** still has fossil fuel investments.
1	The institution has **not divested** from fossil-fuel companies, but faculty and/or students are **conducting organized advocacy** for divestment.
0	Yes, the institution has investments with fossil-fuel companies and there have been **no efforts** to change that.

Score explanation: The University of Colorado cannot be found in the Global Divestment Database. There is mention of a group of students bringing up divestment at a board of regents meeting, but no

action was taken. Outside of this single event, there appears to be no other student or faculty led advocacy.

Section Total (13 out of 32)	**40.62%**

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

Section	Raw Score %	Letter Grade
Planetary Health Curriculum (30%)	(53/72) x 100 = 73.61%	B
Interdisciplinary Research (17.5%)	(16/17) x 100 = 94.12%	A
Community Outreach and Advocacy (17.5%)	(12/14) x 100 = 85.71%	A
Support for Student-led Planetary Health Initiatives (17.5%)	(11/15) x 100= 73.33%	B
Campus Sustainability (17.5%)	(13/32) x 100 = 40.62%	C-
Institutional Grade	**(Ax0.3 + Bx0.175 + Cx0.175 + Dx0.175 + Ex0.175) = 73.50%**	**B**

Report Card Trends

Section Overview
This graph demonstrates trends in overall and section grades for the years in which the University of Colorado has participated in the Planetary Health Report Card initiative.