



Planetary Health Report Card (Medicine):

*Case Western Reserve University
School of Medicine*



2024-2025 Contributing Team:

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Land acknowledgment: In recognizing the land upon which we reside, we express our gratitude and appreciation to those who lived and worked here before us; those whose stewardship and resilient spirit makes our residence possible on this traditional homeland of the Lenape (Delaware), Shawnee, Wyandot Miami, Ottawa, Potawatomi, and other Great Lakes tribes (Chippewa, Kickapoo, Wea, Pinakahsw, and Kaskaskia). We also acknowledge the thousands of Native Americans who now call Northeast Ohio home. Case Western Reserve University and the greater Cleveland area occupy land officially ceded by 1100 chiefs and warriors signing the Treaty of Greenville in 1795.

Summary of Findings

Overall Grade	B-
Curriculum	B
<ul style="list-style-type: none"> Case Western Reserve University (CWRU) Medical School has a Climate and Health co-curricular pathway led by a faculty member who is experienced in environmental health research and activism. Even without this opt-in pathway, environmental health and climate change topics are greatly integrated into the medical school curriculum. Notable examples include group learning sessions on climate change and health, learning objectives on how the environment impacts disease physiology, and lectures. Recommendations: While many planetary health topics are already taught in the curriculum, gaps include native indigenous perspectives on climate change and healthcare's contribution to greenhouse gas emissions and waste. We recommend that these topics are emphasized in greater detail. 	
Interdisciplinary Research	A-
<ul style="list-style-type: none"> CWRU Medical School and partnering hospitals have faculty who engage in research on environmental health or sustainable healthcare. The university at large has the Swetland Center for Environmental Health, which has a branch dedicated to environmental research. The University held a Climate and Health Education Summit in 2024 which was attended by multiple midwestern medical schools. Recommendations: While there are many environmental health research opportunities for medical students, they are only found through self initiative (cold emailing, networking). We recommend a centralized research mentor network for the school to identify potential faculty researchers or mentors. 	
Community Outreach and Advocacy	C
<ul style="list-style-type: none"> CWRU Medical School has relationships with multiple community organizations in the Cleveland area. The CWRU Climate and Health Education Collaborative, a coalition that includes the medical school and regional hospitals, works to improve community education surrounding health effects of climate change. Recommendations: While community relationships are an increasing priority of the medical school at large, there is little involvement on the medical student level. We recommend that medical students receive regular communication about working with these community groups. 	
Support for Student-Led Initiatives	B
<ul style="list-style-type: none"> CWRU Medical School has scholarship opportunities for MD students interested in occupational or environmental health. The medical school also has an active chapter of Medical Students for a Sustainable Future (MS4SF) which is supported by faculty sponsorship. Recommendations: While there are many avenues of support and mentorship for students interested in environmental health, the medical school historically has lacked many interested students. We recommend that the medical school more actively promote their valuable environmental health opportunities to students. 	
Campus Sustainability	C
<ul style="list-style-type: none"> CWRU has a robust Office of Sustainability with numerous green programs including a recycling/ compost program and a large transportation network for students. They aid the university in achieving LEED certification for new buildings and renovations. Recommendations: CWRU has a goal of achieving carbon neutrality by 2050, which is not as ambitious a goal as other universities. Campus buildings are largely powered by nonrenewable energy sources. We recommend that the university continue to divest from fossil fuel companies in the near future and prioritize transitioning to renewable energy sources for campus buildings and labs. 	

Statement of Purpose

Planetary health is human health.

The Planetary Health Alliance describes planetary health as “a solutions-oriented, transdisciplinary field and social movement focused on analysing and addressing the impacts of human disruptions to Earth’s natural systems on human health and all life on Earth.” This definition is intentionally broad, intended to encompass the multitude of ways that the environment can affect health, including water scarcity, changing food systems, urbanisation, biodiversity shifts, natural disasters, climate change, changing land use and land cover, global pollution, and changing biogeochemical flows. The health of humanity is dependent on our environment, and our environment is changing rapidly and in disastrous ways. Although the World Health Organization has called climate change “the greatest threat to global health in the 21st century,” many health professional 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 health professional training. It is imperative that we hold our institutions accountable for educating health professional students about the health impacts of climate change and other anthropogenic environmental changes, generating research to better understand health impacts and solutions, supporting related student initiatives, embracing sustainable practices as much as possible, and engaging with surrounding communities that are most affected by environmental threats. Because climate change and environmental threats disproportionately affect vulnerable populations (for example, communities of colour, older adults sensitive to health threats, and individuals in low-resource settings), these issues are inherently ones of equity and justice.

With the purpose of increasing planetary health awareness and accountability among health professional schools, we have created a Planetary Health Report Card that students internationally can use to grade and compare their institutions on an annual basis. This student-driven initiative aims to compare health professional schools nationally and internationally on the basis of discrete metrics in five main category areas: 1) planetary health curriculum, 2) interdisciplinary research in health and environment, 3) university support for student planetary health initiatives, 4) community outreach centred on environmental health impacts, and 5) 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 health professional education. Throughout this report card, we use the term planetary health to refer to this broad swath of topics, but resources do not need to explicitly include the term “planetary health” to satisfy the metric.
- **Sustainable Healthcare:** As defined by the Academy of Royal Colleges, sustainable healthcare involves ensuring the ability to provide good quality care for future generations by balancing the economic, environmental, and social constraints and demands within health care settings. A sustainable healthcare system maintains population health, reduces disease burden and minimises use of healthcare services.
- **Education for Sustainable Healthcare (ESH):** is defined as the process of equipping current and future health professionals with the knowledge, attitudes, skills and capacity to provide environmentally sustainable services through health professional education, thus working to decrease the enormous environmental impact of the healthcare industry. Planetary Health Education is an integral part of this education rather than an end in itself. This is because knowledge on Planetary Health is required to be able to fully understand the necessity of sustainable healthcare as well as being part of the broader knowledge needed to fully protect and promote health. In summary, ESH is covered by the three Priority Learning Outcomes of the Centre of Sustainable Healthcare below, and Planetary Health Education is embraced in the first learning objective and is a fundamental requirement to achieve learning outcomes 2 and 3:
 1. Describe how the environment and human health interact at different levels.
 2. Demonstrate the knowledge and skills needed to improve the environmental sustainability of health systems.
 3. Discuss how the duty of a doctor to protect and promote health is shaped by the dependence of human health on the local and global environment.
- **Medical School/Department vs. Institution:** When “Medical school” is specified in the report card, this only refers to curriculum and resources offered by the School/department of Medicine and does not include offerings from other parts of the university (e.g. undergraduate departments (USA), other related departments (e.g. Public Health, Population Health departments). In contrast, when “institution” is specified in the report card, we are referring to the university more broadly including all of its campuses. Any resource reasonably accessible by medical students, no matter where in the institution the resource comes from or if it is

specifically targeted for medical students, can meet this metric.

- **Environmental history (Metric #19 in Curriculum Section):** This is a series of questions students are taught to ask during medical encounters that elicits patients' exposures and environmental risk factors. Historically, this has included consideration of exposures like pesticides, asbestos, and lead, though in the modern era shaped by climate change, it can be expanded to include things like wildfire smoke exposure, air pollution and mould after flooding. Key components include place of residence over the lifecourse, occupational history, food and water sources (e.g. meat from industrial feeding operations, regular fishing in contaminated water, access to clean drinking water), and exposure to air pollution. Please be as specific as possible when providing evidence for this metric.
- **Elective:** The word "elective" refers to an optional course or lecture series that a student can opt to take part in but is not a requirement in the core curriculum. Generally, these elective courses take place in the preclinical curriculum but vary by school.
- **Core Curriculum:** This refers to taught material that is delivered to the entire cohort of students in one year.
- **Clerkship / Outreach:** This is a term used in the USA to refer to placements that medical students go on e.g. Pediatrics, General medicine, Psychiatry. In the UK these are referred to as rotations, outreach or placements. This is a relatively short (approximately 4-8 weeks) period of study and patient-centred clinical experience that takes place as part of the undergraduate programme.
- **Clinical rotation:** This is a term used to refer to placements that students go on (e.g., ophthalmology, surgery, cardiology).
- **Physiotherapy vs Physical Therapy:** For the purposes of this report card these terms are considered interchangeable. However, physiotherapy will be used primarily.
- **Community organisations:** For most institutions, there are existing groups that are not directly affiliated with the university and exist as a product of what the community the institution exists in cares about or needs. These specific community organisations relevant to this report include those that are focused around some aspect of climate and health preservation. These community organisations can include but are not limited to local mutual aid initiatives, underserved-resource distribution groups, clean-up and nature conservation groups, community gardeners, and other environmental-related organisations. If your institution does not have access to local volunteerships with community groups, please report any community organisations your institution or school has collaborated with.
- **Climate justice:** The idea that certain population groups and geographical locations which are disproportionately more impacted by climate change are already economically and socially disadvantaged. This double vulnerability sits alongside pre-existing social justice concerns and should therefore shift policy and practice to mitigate the inequitable effects of the climate crisis.
- **Extractivism:** The removal of natural resources typically in large quantities. Within anthropology this term is often used in the context of colonialism to refer to

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

- **Global South:** Nations that often have less economic and industrial development and are typically in the southern hemisphere. These nations have been found to be disproportionately impacted by the climate crisis.
- **Low socioeconomic status (SES):** An individual or geographical area that across a variety of socioeconomic factors (e.g., income, education, race/ethnicity) is considered vulnerable. This vulnerability has been correlated to more adverse health outcomes often as a consequence of encountering more barriers in accessing and receiving healthcare.
- **Low and Middle-Income Countries (LMIC):** Countries that have lower degrees of economic affluence.
- **Anthropogenic:** Created through human activity
- **Marginalized communities:** Groups excluded from mainstream economic, educational, social, and/or cultural experiences due to race, gender identity, sexual orientation, age, physical ability, language, and/or immigration status (Sevelius et al., 2020).

Other considerations:

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

Completed in 2022 a [Literature Review by Metric](#) is available for the 2022 medicine report card metrics. We are in the process of updating this review and making it more applicable to all the disciplines. However the review serves as a rough collection of references for further learning and a resource for those advocating for increased planetary health engagement at their institutions.

Planetary Health Curriculum

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

Curriculum: General

1.1. Did your <u>medical school</u> offer elective courses (student selected modules) to engage students in Education for Sustainable Healthcare or Planetary Health in the last year?	
Yes, the medical school has offered more than one elective whose primary focus is ESH/planetary health in the past year. (3 points)	
Yes, the medical school has offered one elective whose primary focus is ESH/planetary health in the past year. (2 points)	
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. (1 points)	
No, the medical school has not offered any electives on planetary health or electives that include ESH/planetary health topics in the past year. (0 points)	
Score Assigned:	2
<p><i>Score explanation:</i> CWRU School of Medicine offers the Climate and Health pathway led by Dr. Ilyssa Gordon. This is a student-selected longitudinal course, over all four years, that involves monthly lectures from physicians that have an interest in environmental health in their clinical or research work. This pathway also involves a capstone project. CWRU SOM does not offer any additional pre clerkship elective or clinical elective centered around planetary health, nor any that have a dedicated lecture focused on this topic. https://case.edu/medicine/md/academics/pathways-programs</p>	

Curriculum: Health Effects of Climate Change

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

Score Assigned:	3
<p><i>Score explanation:</i> The relationship between extreme heat, health risks, and climate change was covered in several sessions including “Team Based Learning - Climate Change” and throughout the lecture “Occupational Health as a Social Determinant.” These lectures occur at the beginning of the preclinical curriculum and include several slides or questions regarding increasing heat and health effects. The impact of climate change on health is also covered longitudinally throughout the year in several small group sessions. Learning objectives throughout the year include questions such as: “Discuss how climate change can impact physical activity and its effect on human health,” and “Explain how climate change, especially rising temperatures, affect the development of cardiovascular disease.”</p>	

1.3. Does your <u>medical school</u> curriculum address the impacts of extreme weather events on individual health and/or on healthcare systems?	
This topic was explored in depth by the core curriculum. (3 points)	
This topic was briefly covered in the core curriculum. (2 points)	
This topic was covered in elective coursework. (1 point)	
This topic was not covered. (0 points)	
Score Assigned:	3
<p><i>Score explanation:</i> The impact of extreme weather events on individual health and healthcare systems was introduced during sessions including “Team Based Learning - Climate Change” and throughout the lecture “Occupational Health as a Social Determinant.” These topics are reinforced longitudinally throughout the preclinical curriculum during several small group sessions, particularly during the “homeostasis block” covering cardiovascular, renal, and pulmonary physiology. These topics are also covered during elective coursework for the Climate and Health pathway, specifically discussing how healthcare systems have historically been impacted by extreme weather such as during Hurricane Sandy and during Hurricane Katrina.</p>	

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

Score Assigned:	2
<p><i>Score explanation:</i> The impact of climate change on the changing patterns of infectious disease was briefly introduced during the lecture “Occupational Health as a Social Determinant” in the core preclinical curriculum. Topics discussed include how warming patterns change vector ecology and how natural disasters can overwhelm sanitation systems which can result in disease from contaminated water.</p>	

1.5. Does your <u>medical school</u> curriculum address the respiratory health effects of climate change and air pollution?	
This topic was explored in depth by the core curriculum. (3 points)	
This topic was briefly covered in the core curriculum. (2 points)	
This topic was covered in elective coursework. (1 point)	
This topic was not covered. (0 points)	
Score Assigned:	2
<p><i>Score explanation:</i> The respiratory health effects of climate change and air pollution were discussed briefly during several small group learning sessions of the “homeostasis block.” Specific learning objectives addressed include: “List common environmental and genetic mechanisms causing chronic airflow obstruction. Explain how climate change effects further worsen COPD,” and “How would you explain the effect of climate change on the patient’s COPD, and what advice would you give?”. This topic was also addressed in one lecture on pulmonary disease during the homeostasis block.</p>	

1.6. Does your <u>medical school</u> curriculum address the cardiovascular health effects of climate change, including increased heat	
This topic was explored in depth by the core curriculum. (3 points)	
This topic was briefly covered in the core curriculum. (2 points)	
This topic was covered in elective coursework. (1 point)	
This topic was not covered. (0 points)	
Score Assigned:	2
<p><i>Score explanation:</i> The cardiovascular health effects of climate change were discussed briefly during several small group learning sessions of the “homeostasis block.” Specific questions and learning objectives addressed include: “Does heat from climate change influence cardiovascular health?” and</p>	

"Explain how climate change, especially rising temperatures, affect the development of cardiovascular disease."

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

This topic was explored **in depth** by the **core** curriculum. (3 points)

This topic was **briefly** covered in the **core** curriculum. (2 points)

This topic was covered in **elective** coursework. (1 point)

This topic was **not** covered. (0 points)

Score Assigned:

0

Score explanation:

CWRU's curriculum briefly addresses how environmental degradation can cause neurological disease. However, the impact of climate change on neurological and psychiatric disease and the impact of environmental devastation on mental health are not discussed.

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

This topic was explored **in depth** by the **core** curriculum. (3 points)

This topic was **briefly** covered in the **core** curriculum. (2 points)

This topic was covered in **elective** coursework. (1 point)

This topic was **not** covered. (0 points)

Score Assigned:

2

Score explanation:

The relationship between health, individual patient food and water security, ecosystem health, and climate change was covered in sessions including "Team Based Learning - Climate Change" and throughout the lecture "Occupational Health as a Social Determinant". There was one question regarding the impact of climate change on the Great Lakes ecosystem. Moreover, during the Occupational Health lecture, the impact of climate change on food and water security were discussed. Topics specifically addressed include how water quality is impacted by natural disasters, how climate change can reduce micronutrients in soil therefore producing less nutrient-dense food, and how climate change as a whole impacts agricultural yields and can result in malnutrition.

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

This topic was explored **in depth** by the **core** curriculum. (3 points)

This topic was **briefly** covered in the **core** curriculum. (2 points)

This topic was covered in **elective** coursework. (1 point)

This topic was **not** covered. (0 points)

Score Assigned:

3

Score explanation:

The outsized impact of climate change on marginalized populations was covered in sessions including “Team Based Learning - Climate Change” and throughout the lecture “Occupational Health as a Social Determinant”.

During the lecture, there were multiple slides addressing the intersection of social determinants of health and vulnerability to climate change. Specifically, the increased exposure to climate change health threats, the sensitivity of these populations due to increased incidence of underlying chronic health conditions, and the decreased adaptive capacity to climate threats were addressed.

Occupational hazards from climate change also disproportionately impacting the poor were also discussed. Finally, there was a small group session which covered the question “Describe the impacts of changing climatic conditions on human health with emphasis on vulnerable populations.”

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

This topic was explored **in depth** by the **core** curriculum. (3 points)

This topic was **briefly** covered in the **core** curriculum. (2 points)

This topic was covered in **elective** coursework. (1 point)

This topic was **not** covered. (0 points)

Score Assigned:

2

Score explanation:

The unequal regional health impacts of climate change globally were covered briefly in the “Team Based Learning - Climate Change.” Specifically, there was one question during this team based session that demonstrated that industrialized nations were responsible for the majority of greenhouse gas emissions despite the poorest countries carrying the greatest burden of climate change effects.

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

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

This topic was explored **in depth** by the **core** curriculum. (3 points)

This topic was **briefly** covered in the **core** curriculum. (2 points)

This topic was covered in **elective** coursework. (1 point)

This topic was **not** covered. (0 points)

Score Assigned:

2

Score explanation:

The effects of lead exposure and endocrine disrupting chemicals on development and the age of menarche respectively were covered briefly during a small group session with the question “discuss the role of environmental exposures in early onset menarche and the risk factors associated with early onset menarche.”

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

This topic was explored **in depth** by the **core** curriculum. (3 points)

This topic was **briefly** covered in the **core** curriculum. (2 points)

This topic was covered in **elective** coursework. (1 point)

This topic was **not** covered. (0 points)

Score Assigned:

3

Score explanation:

CWRU’s M1 core curriculum includes a lecture called “Environmental Influences on Health” and team based learning session called “Team Based Learning - Climate Change” that discuss air pollution due to industry and wildfires, lead exposure, and the relative exposure to hazardous waste across Cleveland, Ohio and the broader Cuyahoga county. This topic is also mentioned briefly in other blocks throughout the preclinical clerkship, specifically how air pollution in Cleveland impacts cardiovascular and respiratory diseases during the “homeostasis block.”

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

This topic was explored **in depth** by the **core** curriculum. (3 points)

This topic was **briefly** covered in the **core** curriculum. (2 points)

This topic was covered in **elective** coursework. (1 point)

This topic was not covered. (0 points)	
Score Assigned:	0
<i>Score explanation: This topic was not covered by CWRU SOM.</i>	

1.14. Does your <u>medical school</u> curriculum address the outsized impact of anthropogenic environmental toxins on marginalised populations such as those with low SES, women, communities of colour, children, homeless populations, Indigenous populations, and older adults?	
This topic was explored in depth by the core curriculum. (3 points)	
This topic was briefly covered in the core curriculum. (2 points)	
This topic was covered in elective coursework. (1 point)	
This topic was not covered. (0 points)	
Score Assigned:	3
<i>Score explanation:</i> CWRU School of Medicine offers lectures such as “Health Equity,” “Environmental Influences on Health,” and “Occupational Health as a Social Determinant,” along with a team-based learning session on “Climate Change.” These sessions emphasize critical learning objectives, including understanding the impact of climate change and anthropogenic toxins on human health, with a focus on vulnerable populations, and exploring the effects of environmental and structural racism on population health.	

Curriculum: Sustainability

1.15. Does your <u>medical school</u> curriculum address the environmental and health co-benefits of a plant-based diet?	
This topic was explored in depth by the core curriculum. (3 points)	
This topic was briefly covered in the core curriculum. (2 points)	
This topic was covered in elective coursework. (1 point)	
This topic was not covered. (0 points)	
Score Assigned:	0
<i>Score explanation:</i> At CWRU, the health and environmental benefits of a plant based diet are discussed during Nutrition Immersion week. Students go to the CWRU nutrition teaching kitchen and learn to prepare plant-based foods for cardiovascular disease prevention. However, the environmental co-benefits of a plant based diet, such as a reduced carbon footprint, are not discussed.	

1.16. Does your <u>medical school</u> curriculum address the carbon footprint of healthcare systems?	
This topic was explored in depth by the core curriculum. (3 points)	
This topic was briefly covered in the core curriculum. (2 points)	
This topic was covered in elective coursework. (1 point)	
This topic was not covered. (0 points)	
Score Assigned:	2
<p><i>Score explanation:</i> <i>At CWRU, students learn of the healthcare system's climate impact and carbon footprint during a group session integrated into the core curriculum titled "Team Based Learning - Climate Change." Before the session, there is a pre-reading assignment related to the carbon footprint of the healthcare system. There are also team based activities during the session where students discuss mitigation strategies that healthcare systems can use to reduce their carbon footprints.</i></p>	

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)	Score
The health and environmental co-benefits of avoiding over-medicalisation, over-investigation and/or over-treatment (2 points)	0
The environmental impact of pharmaceuticals and over-prescribing as a cause of climate health harm. Alternatively teaching on deprescribing where possible and its environmental and health co-benefits would fulfil this metric. (2 points) .	0
The health and environmental co-benefits of non-pharmaceutical management of conditions where appropriate such as exercise or yoga classes for type 2 diabetes; social group activities such as gardening for mental health conditions; active transport such as bicycle schemes. This is commonly known as social prescribing in the UK. (1 point)	1
Environmental impact of surgical healthcare on planetary health and the climate crisis, and how can it be mitigated. (1 point)	0
The impact of anaesthetic gases on the healthcare carbon footprint and ways to reduce anaesthesia's environmental impacts, such as total intravenous anaesthesia or choosing less environmentally harmful anaesthetic gas options with reduced greenhouse gas emissions. (1 point)	0
The impact of inhalers on the healthcare carbon footprint and the environmental benefit of dry powdered inhalers over metered dose inhalers. (1 point)	0
Waste production within healthcare clinics and strategies for reducing waste in clinical activities (e.g. single use items in the inpatient or outpatient setting) (1 point)	1

Score explanation:

- CWRU's core curriculum does cover the health benefits of avoiding over-medicalization, over-investigation, and/ or over treatment during the longitudinal Science & Art of Medicine- Integrated curriculum but does not cover the environmental co-benefits.
- The core curriculum does not cover the environmental impact of pharmaceuticals and over-prescribing as a cause of climate health harm.
- The core curriculum does address health and environmental co-benefits of non-pharmaceutical management of conditions where appropriate during the "Team Based Learning - Climate Change" group session.
- The core curriculum does not address the impact of surgical healthcare on planetary health and the climate crisis.
- The core curriculum does not address the impact of anaesthetic gases on the healthcare carbon footprint.
- The core curriculum does not address the impact of inhalers on the healthcare carbon footprint.
- The core curriculum does address waste production within healthcare clinics and strategies for reducing waste during the "Team Based Learning - Climate Change" group session.

Curriculum: Clinical Applications

1.18. In training for patient encounters, does your medical school's curriculum introduce strategies to have conversations with patients about the health effects of climate change?

Yes, there are strategies introduced for having conversations with patients about climate change in the **core** curriculum. (2 points)

Yes, there are strategies introduced for having conversations with patients about climate change in **elective** coursework. (1 points)

No, there are **not** strategies introduced for having conversations with patients about climate change. (0 points)

Score Assigned:

2

Score explanation:

The Clinical Reasoning Primary Care Simulation in Block 8, Case 1 includes an exposure history and impact of heat and humidity. About half of all students are randomly assigned to this case while others observe. Select students have a standardized patient encounter where they identify extreme heat exposures the patient had which are exacerbating their chronic diseases. They then work on educating the patient and providing resources. Following the patient encounter, all students must answer reflection questions on climate change exposures. Reflections include questions on how to formulate an action plan with a patient to mitigate the effects of climate change and what further questions should be asked to the patient related to their climate exposures.

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

Yes, the **core** curriculum includes strategies for taking an environmental history. (2 points)

Only elective coursework includes strategies for taking an environmental history. (1 point)	
No, the curriculum does not include strategies for taking an environmental history. (0 points)	
Score Assigned:	2
<p><i>Score explanation:</i> At CWRU, all students gain experience with taking an exposure/environmental history. Communication workshops, clinical skills exams, and clinical reasoning standardized patient encounters are integrated into the longitudinal patient care (Block 8) curriculum. Environmental and occupational history are introduced in history taking and are featured in the 2nd and 3rd communication workshops and are a part of the patient encounter checklists.</p>	

Curriculum: Administrative Support for Planetary Health

1.20. Is your <u>medical school</u> currently in the process of implementing or improving Education for Sustainable Healthcare (ESH)/planetary health education?	
Yes, the medical school is currently in the process of making major improvements to ESH/planetary health education. (4 points)	
Yes, the medical school is currently in the process of making minor improvements to ESH/planetary health education. (2 points)	
No, there are no improvements to planetary health education in progress. (0 points)	
Score Assigned:	4
<p><i>Score explanation:</i> CWRU SOM has both faculty and student efforts to improve planetary health education. Methodic changes have been made within the first year's curriculum in both lecture, small group, and clinical practice formats. Ongoing efforts to further expand the themes of planetary health education into the 2nd and 3rd year are in development.</p>	

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

Score explanation:

CWRU SOM has a large focus on the relationship between health and the environment throughout the first year with lectures dedicated to climate change and environmental influences on health. These themes are revisited throughout the preclerkship curriculum with small group patient cases highlighting the interplay between the environment and health, for example heat exhaustion and cardiovascular pathology tied to warming climates. Mandatory clinical simulations also underline the importance of analyzing patients in context of their exposure history with cases on recognizing the role of air pollution and workplace exposures in exacerbating COPD and its management.

1.22. Does your medical school employ a member of faculty to specifically oversee and take responsibility for the incorporation of planetary health and sustainable healthcare as a theme throughout the course?

Yes, the medical school has a specific faculty/staff member responsible for overseeing curricular integration of planetary health and sustainable healthcare. (1 point)

No, the medical school does not have a specific faculty/staff member responsible for overseeing curricular integration of planetary health and sustainable healthcare. (0 points)

Score Assigned:

0

Score explanation:

There are ongoing efforts to implement planetary health topics throughout the curriculum. These changes have been guided by individuals who are passionate about curricular integration of planetary health topics and already hired by the university in other roles. There is no dedicated faculty member employed for this purpose.

Section Total (47 out of 72)

65.3%

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Interdisciplinary Research

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

2.1. Are there researchers engaged in planetary health research and healthcare sustainability research at your institution?

Yes, there are faculty members at the **institution** who have a **primary** research focus in planetary health **or** sustainable healthcare/vetcare. (3 points)

Yes, there are individual faculty members at the **institution** who are conducting research **related** to planetary health or healthcare sustainability, OR are part of a national/international sustainability working group, but it is not their primary research focus. (2 points)

There are sustainability researchers at the **institution**, but not specifically associated with healthcare/vetcare. (1 point)

No, there are **no** planetary health and/or sustainability researchers at the **institution** at this time. (0 points)

Score Assigned:

3

Score explanation:

Within the School of Medicine Department of Pathology, there are researchers that integrate basic laboratory research with ecology and the distribution of infection and disease of major tropical illnesses (malaria, hookworm, dengue). [The Center for Global Health and Diseases | Pathology | School of Medicine | Case Western Reserve University](#)

Additionally, faculty at the Swetland Center for Environmental Health, such as Dr. Dearborn specifically, have a primary focus on environmental health including air quality and environmental hazards on human health. [Historical Swetland Research | Swetland Center for Environmental Health | Case Western Reserve University](#).

2.2. Is there a dedicated department or institute for interdisciplinary planetary health research at your institution?

There is **at least one** dedicated department or institute for interdisciplinary planetary health research. (3 points)

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. (2 points)

There is an Occupational and Environmental Health department , but no interdisciplinary department or institute for planetary health research. (1 points)	
There is no dedicated department or institute. (0 points)	
Score Assigned:	3
<p><i>Score explanation:</i> Part of the School of Medicine, the Swetland Center for Environmental Health studies the interconnectedness of the environment and health. This department carries out research that investigates environmental determinants of health inequities, including topics such as food systems and health equity, as well as air quality and environmental justice. Our Research Swetland Center for Environmental Health Case Western Reserve University Additionally, within the College of Arts and Sciences at CWRU, there exists the Department of Earth, Environmental, and Planetary Sciences that carries out interdisciplinary research with a high level of student involvement. Research The Swetland Center for Environmental Health is a dedicated institution for investigating the connection between the environment and health, and also engages in training and community service for local improvement.</p>	

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 institution?	
Yes, there is a process in which community members impacted by climate and environmental injustice have decision-making power in the climate and environmental research agenda. (3 points)	
Yes, there is a process in which community members impacted by climate and environmental injustice advise the climate and environmental research agenda. (2 points)	
No , but there are current efforts to establish a process for community members to advise or make decisions on the research agenda. (1 points)	
There is no process, and no efforts to create such a process. (0 points)	
Score Assigned:	2
<p><i>Score explanation:</i> At Case Western Reserve University, the Swetland Center for Environmental Health engages community members regarding their focus on environmental justice research via the Community Needs Health Assessment. They focus on solution-oriented research and community guided interventions. For example, Swetland researches food systems and health equity and its intersection with environmental health with the assistance of community residents and organizations. There is also a Community Engagement and Racial Equity Action plan to guide the Swetland Center in the coming years. Despite community members having a comprehensive advisory role, there is no community decision-making power in the climate or environmental research agenda. https://case.edu/swetland/about/racial-equity-and-community-engagement https://case.edu/swetland/community/neighborhood-community-health-needs-assessments/buckeye-central-and-kinsman-chna</p>	

2.4. Does your institution have a planetary health website that centralises ongoing and past research related to health and the environment?

There is an **easy-to-use, adequately comprehensive** website that **centralises** 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. (3 points)

There is a website that **attempts to centralise** various campus resources related to health and the environment, but it is hard-to-use, not updated, or not adequately comprehensive. (2 points)

The **institution** has an **Office of Sustainability website** that includes **some** resources related to health and the environment. (1 point)

There is **no** website. (0 points)

Score Assigned:

1

Score explanation:

The CWRU Office of Sustainability website includes a page for research that links to faculty members that engage in sustainability research. There does not exist a centralized website that comprehensively includes events, leaders, and funding opportunities for environmental health research related to CWRU.

[Research | Office of Energy & Sustainability | Case Western Reserve University](#)

2.5. Has your institution recently hosted a conference or symposium on topics related to planetary health?

Yes, the **institution** has hosted at least one conference or symposium on topics related to planetary health in the past year. (4 points)

Yes, the **institution** has hosted at least one conference or symposium on topics related to sustainable healthcare/vetcare in the past year. (3 points)

Yes, the **institution** has hosted a conference on topics related to planetary health /sustainable healthcare in the past three years. (2 points)

The **institution** has not hosted any conferences directly, but they have provided financial support for a local planetary health event. (1 point)

No, the **institution** has not hosted a conference on topics related to planetary health in the past three years. (0 points)

Score Assigned:

4

Score explanation:

Case Western Reserve University hosted the Climate and Health Education Summit in March of 2024 in collaboration with the Cleveland Clinic. The Summit aimed to address inequities in patient health care based on the disproportionate impact of climate change. Furthermore, leaders worked

together to develop climate-health-centered strategies to improve health education and health delivery systems across northeast Ohio.

<https://case.edu/ipe/learning-experiences/cwru-climate-and-health-education-collaborative/resources-and-events/2024>

2.6. Is your institution a member of a national or international planetary health or ESH/ESV organisation?

Yes, the institution is a member of a national or international planetary health or ESH/ESV organisation. (1 points)

No, the institution is **not** a member of such an organisation. (0 points)

Score Assigned:

1

Score explanation:

CWRU SOM as an institution is a member of the Consortium of Universities for Global Health. However, CWRU is not currently a member of any additional national or international planetary health or ESH/ESV organization. CWRU SOM is currently listed on the CUGH website as a member institution. There is no published information on the school's central website claiming any membership to any additional institution.

<https://www.cugh.org/about/member-institutions/members-a-z/>

Section Total (14 out of 17)

82.4%

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Community Outreach and Advocacy

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

3.1. Does your <u>institution</u> partner with community organisations to promote planetary and health?	
Yes, the institution meaningfully partners with multiple community organisations to promote planetary and environmental health. (3 points)	
Yes, the institution meaningfully partners with one community organisation to promote planetary and environmental health. (2 points)	
The institution does not partner with community organisations, but has participated in community focused events relating to planetary health. (1 point)	
No, there is no such meaningful community partnership. (0 points)	
Score Assigned:	3
<i>Score explanation:</i> <i>The CWRU Climate and Health Education Collaborative is a coalition of CWRU's medical school and regional hospitals. This Collaborative works to improve education, both in the medical school and in the community, surrounding the health effects of climate change. One branch of the Collaborative, "Community and Regional Partnerships," works on community education surrounding climate change. There are multiple existing community partnerships within this branch of the Collaborative. Some examples of community partnerships include Cleveland museums, Cuyahoga County libraries, and local farms. There is also a planned future partnership between the medical school and Western Land Conservancy, a local conservation and restoration organization.</i>	

3.2. Does your <u>institution</u> offer community-facing courses or events regarding planetary health?	
The institution offers community-facing courses or events at least once every year. (3 points)	
The institution offers courses or events open to the community at least once per year, but they are not primarily created for a community audience. (2 points)	

The institution has promoted community-facing courses or events, but was not involved in planning those courses or events. (1 point)	
The institution has not offered such community-facing courses or events. (0 points)	
Score Assigned:	3
<i>Score explanation:</i> <i>The CWRU Climate and Health Education Collaborative, as mentioned in question 3.1, offers multiple community facing events per year relating to climate change and health. Some upcoming events this year include museum temporary exhibits concerning climate and health, conversation groups held at local libraries, and book clubs relating to Indigenous approaches to climate change held at the nonprofit Literary Cleveland.</i>	

3.3. Does your <u>institution</u> have regular coverage of issues related to planetary health and/or sustainable healthcare in university update communications?	
Yes, all students regularly receive communication updates dedicated to planetary health and/or sustainable healthcare. (2 points)	
Yes, planetary health and/or sustainable healthcare topics are regularly included in communication updates to some courses . (1 point)	
Students do not receive communications about planetary health or sustainable healthcare. (0 points)	
Score Assigned:	0
<i>Score explanation:</i> <i>Our school of medicine releases a monthly email newsletter to all currently enrolled students. Commonly addressed topics include curriculum updates, student affairs, messages from the registrar, research, and financial aid. In reviewing newsletters from the past year, there was no communication surrounding planetary health.</i>	

3.4. Does the <u>institution</u> or <u>main affiliated hospital trust</u> 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?	
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. (2 points)	
Yes, the institution or main affiliated hospital trust offers one course relating to planetary health and/or sustainable healthcare for post-graduate provider. (1 point)	
There are no such accessible courses for post-graduate providers. (0 points)	
Score Assigned:	0

Score explanation:

In a review of continuing medical education courses (CME) offered by CWRU medical school, there are no modules or courses related to planetary health, environmental health, or climate change and health. Available CME courses for CWRU can be viewed [here](#). There are similarly no CME courses offered by the Cleveland Clinic, CWRU's major hospital affiliation, related to planetary health. Available CME courses for Cleveland Clinic can be viewed [here](#).

3.5. Does your institution or its affiliated teaching hospitals have accessible educational materials for patients about environmental health exposures?

Yes, the **institution** or **all affiliated hospitals** have accessible educational materials for patients. (2 points)

Some affiliated hospitals have accessible educational materials for patients. (1 point)

No affiliated medical centres have accessible educational materials for patients. (0 points)

Score Assigned:

0

Score explanation:

In reviewing patient-gearred resources provided by CWRU's major affiliate hospitals - Cleveland Clinic, University Hospitals of Cleveland, Metro Health, and the Veterans Administration - no resources were found that focused on environmental exposures or pollutants.

3.6. Does your institution or its affiliated teaching hospitals have accessible educational materials for patients about the health impacts of climate change?

Yes, the **institution** or **all affiliated hospitals** have accessible educational materials for patients. (2 points)

Some affiliated hospitals have accessible educational materials for patients. (1 point)

No affiliated hospitals have accessible educational materials for patients. (0 points)

Score Assigned:

1

Score explanation

The Cleveland Clinic Journal of Medicine published a commentary in 2023 titled [“How does climate change impact our patients?”](#). This article highlights the adverse effects on health caused by climate change in four main departments - cardiovascular, respiratory, mental health, and infectious disease. This article is geared toward patients and focuses on how everyone can change their behaviors to reduce these adverse effects.

Section Total (7 out of 14)

50%

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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 <u>institution</u> offer support for students interested in enacting a sustainability initiative/QI project?	
Yes, the institution <i>either</i> offers grants for students to enact sustainability initiatives/QI projects <i>or</i> sustainability QI projects are part of the core curriculum. (2 points)	
The institution encourages sustainability QI projects (to fulfil 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. (1 point)	
No, the institution does not offer opportunities or support for sustainability initiatives or QI projects. (0 points)	
Score Assigned:	2
<p><i>Score explanation:</i> The Swetland Center for Environmental Health offers 2-3 Daniel Lewis Ravin Awards yearly to MD or PhD students showing promise in occupational and environmental health. \$10,000 is awarded to the winning student(s) for development of projects and research in environmental and occupational health initiatives. Awardees work in consultation with a member of the Swetland Center for the project. https://case.edu/swetland/training/daniel-lewis-ravin-md-award</p>	

4.2. Does your <u>institution</u> offer opportunities for students to do research related to planetary health and/or sustainable healthcare/vetcare?	
The institution has a specific research program or fellowship for students interested in doing planetary health/sustainable healthcare/vetcare research. (2 points)	
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. (1 point)	
There are no opportunities for students to engage in planetary health/sustainable healthcare research. (0 points)	
Score Assigned:	1
<i>Score explanation:</i>	

While there are several faculty involved in planetary health research at CWRU, there is not a specific research program or fellowship for planetary health or sustainable healthcare. Students can choose to do research for their MD Thesis or complete an iSCTL (Scholars Collaboration in Teaching and Learning) project related to climate change, but these require student initiative.

4.3. Does the institution have a webpage where students can find specific information related to planetary health and/or sustainable healthcare activities and mentors within the institution? For example, projects achieved, current initiatives underway at the institution and/or contact of information of potential mentors.

The institution 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. (2 points)

There is an institution webpage that features some information on projects and mentors within planetary health and sustainable healthcare within the institution, but it lacks key information. (1 point)

There is **no institution** specific webpage for locating planetary health and/or sustainable healthcare projects or mentors. (0 points)

Score Assigned:

1

Score explanation:

The Office of Energy and Sustainability has a webpage featuring on-campus activities and faculty mentors with sustainability-related research projects. There is no contact information provided for these research mentors, nor specific information about the exact research topics on which they focus.

<https://case.edu/sustainability/academics/faculty-research>

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

Yes, there is a student organisation **with faculty support** at my institution dedicated to planetary health or sustainability in healthcare. (2 points)

Yes, there is a student organisation at my institution dedicated to planetary health or sustainability in healthcare but it **lacks faculty support**. (1 point)

No, there is **not** a student organisation at my institution dedicated to planetary health or sustainability in healthcare. (0 points)

Score Assigned:

2

Score explanation:

Case Western Reserve University School of Medicine has a chapter of Med Students For a Sustainable Future (MS4SF). The group is supported by a faculty sponsor/mentor and can apply for funding from the university for events. Previous events have included recycling dissection kits for anatomy lab, organizing box drives, and organizing visits to the University Farm in Chagrin Falls, OH. There is also a Climate & Health Pathway through the pathways program at the medical school. Students apply to enter the 4-year pathway where they participate in seminars, workshops, and other experiential learning to improve their knowledge of climate change and incorporate it into their medical practice. Students can also pursue research and scholarship through the Climate and Health Pathway. Finally, there is a Case Western Climate Collaborative which is dedicated to planetary health in the Cleveland community. It is comprised of students, staff, and healthcare professionals from all of the major Cleveland hospitals. Students can pursue scholarship and advocacy through this collaborative as well.

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

Yes, there is a student representative that serves on a department or institutional decision-making council/committee. (1 points)

No, there is no such student representative. (0 points)

Score Assigned:

0

Score explanation:

The Committee of Student Representatives (CSR) is the medical student government at CWRU, and there is no specific student liaison in this group with a role dedicated to sustainability. The Office of Energy & Sustainability has a "Sustainability Ambassadors" program, where students can apply for positions in which they can accelerate sustainability initiatives on campus. However, this does not represent a specific student liaison position in a department or institutional decision-making counsel.

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)

Score

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.	0
Wilderness or outdoors programs (e.g., that organise hiking, backpacking, kayaking, or other outings for students)	1
<p><i>Score explanation:</i></p> <ul style="list-style-type: none"> • <i>There is a University Farm at CWRU that is open to students and staff. The goal of the University Farm is “to take advantage of the property’s rich and unique potential to enhance and complement the University’s mission of education, research, and community benefit through the lens of nature. In moving towards this goal, the Farm’s historic role in CWRU’s education, research, and recreation strive to be maintained, and its natural environment and rural character preserved”</i> • <i>In 2024, a Climate and Health Summit was hosted at CWRU’s Health Education Campus with workshops, posters, and discussions. The summit was open to faculty and students with goals to create strategies and initiate activities to “incorporate climate health impacts into both health education and health delivery systems.” Members of organizations from all over the Cleveland area participated.</i> • <i>At the Climate and Health Summit, a presentation from the Executive Director of moCa on “The Intersection of Contemporary Art & Climate Change”</i> • <i>Case Western Reserve University School of Medicine has a chapter of Med Students For a Sustainable Future (MS4SF). The group hosts organized events, including outdoor hikes in local Cleveland MetroParks.</i> 	
Section Total (11 out of 15)	73.3%

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Campus Sustainability

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

5.1. Does your <u>institution</u> have an Office of Sustainability?	
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. (3 points)	
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 hospital sustainability. (2 points)	
There are no salaried sustainability staff , but there is a sustainability task force or committee. (1 point)	
There are no staff members or task force responsible for overseeing campus sustainability. (0 points)	
Score Assigned:	2
<p><i>Score explanation:</i> The CWRU Office of Sustainability has multiple full time staff dedicated to campus sustainability. There are also multiple student interns, termed “Sustainability Ambassadors,” who rotate through the Office of Sustainability. While there is no designated staff member at CWRU that is in charge of sustainability for all affiliated hospitals, each affiliated hospital has a separate department of sustainability. Of the three hospitals affiliated with CWRU (Cleveland Clinic, University Hospitals, and Metro Health), all three have sustainability offices or teams.</p>	

5.2. How ambitious is your <u>institution's</u> plan to reduce its own carbon footprint?	
The institution has a written and approved plan to achieve carbon neutrality by 2030 (5 points)	
The institution has a written and approved plan to achieve carbon neutrality by 2040 (3 points)	
The institution has a stated goal of carbon neutrality by 2040 but has not created a plan to reach that goal or the plan is inadequate (1 point)	
The institution does not meet any of the requirements listed above (0 points)	
Score Assigned:	0

Score explanation:

CWRU has a Climate Action Plan with a goal of becoming carbon neutral by 2050. There is an additional goal to reduce emissions by 50% by 2030. This Climate Action Plan was formed in 2011 and is updated every five years. Since 2011, CWRU has worked to reduce carbon emissions by approximately 50 million metric tons. Current emissions are around 190 million metric tons. However, the Climate Action Plan is not as ambitious as achieving carbon neutrality by 2030 or 2040.

5.3. Do buildings/infrastructure used by the institution for teaching (not including the hospital) utilize renewable energy?

Yes, institution buildings are **100%** powered by renewable energy. (3 points)

Institution buildings source **>80%** of energy needs from off-site and/or on-site renewable energy. (2 points)

Institution buildings source **>20%** of energy needs from off-site and/or on-site renewable energy. (1 point)

Institution buildings source **<20%** of energy needs from off-site and/or on-site renewable energy. (0 points)

Score Assigned:

0

Score explanation:

Buildings on the CWRU campus utilize a small amount of renewable energy, but this comprises less than 5% of the total energy for gas and less than 11% for electricity. All of this renewable energy is provided through onsite or local near site renewables. There are no offsite renewables purchased via power purchase agreements.

5.4. Are sustainable building practices utilised for new and old buildings on the institution's campus, with design and construction of new buildings and remodelling of old buildings conforming to a published sustainability rating system or building code/guideline?

Yes, sustainable building practices are utilised for new buildings on the institution's campus and the **majority** of old buildings **have been retrofitted** to be more sustainable. (3 points)

Sustainable building practices are utilised for new buildings on the institution's campus, but most old buildings have **not been retrofitted**. (2 points)

Sustainable building practices are **inadequately or incompletely** implemented for new buildings. (1 point)

Sustainability is **not considered** in the construction of new buildings. (0 points)

Score Assigned:

3

Score explanation:

CWRU uses the LEED scoring system for building certification. All new university buildings aim for a Gold LEED designation, and all new university buildings are contractually obligated to achieve at least a Silver LEED designation. For example, the Health Education Campus building where all medical school classes are held is a LEED Gold certified building. These same LEED guidelines apply to old campus buildings that are being renovated. For example, Frigley dining hall and the Mandel school of social work was recently renovated to achieve at least a Silver LEED certification. If simple interior renovations on a building are planned, CWRU follows LEED interior guidelines.

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

Yes, the 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-utilised by students. Alternatively, the campus location is not amenable to unsustainable forms of transportation by default. (2 points)

The institution has implemented **some** strategies to provide environmentally-friendly transportation options, but the options are **unsatisfactorily** accessible or advertised. (1 point)

The institution has **not** implemented strategies to encourage and provide environmentally-friendly transportation options. (0 points)

Score Assigned:

2

Score explanation:

CWRU has a robust and free [shuttle system](#) that is utilized by many undergraduate and graduate students. This shuttle system has expanded in recent years to include routes to the Health Education Campus and the nearby off campus neighborhoods of Murray Hill and Cleveland Heights. Car sharing services through Enterprise are also offered for students. CWRU students also pay a small, steeply discounted annual fee for unlimited access to buses and trains run by the [Regional Transit Authority](#) (RTA), which has routes over all of Cleveland. All of these transit modes are run on gas energy and are not renewable. However, the university is electrifying its fleet vehicles, which are now 30% electric.

5.6. Does your institution have an organics recycling program (compost) and a conventional recycling program (aluminium/paper/plastic/glass)?

Yes, the institution has **both** compost **and** recycling programs accessible to students and faculty. (2 points)

The institution has **either** recycling **or** compost programs accessible to students and faculty, but not both. (1 point)

There is **no** compost or recycling program at the institution. (0 points)

Score Assigned:

2

Score explanation:

CWRU has a robust compost and recycling program that are accessible at the majority of campus buildings. Pre-consumer compost is picked up from all dining halls and transported to the University Farm for composting. This pickup is executed by Rust Belt Riders, a third party composting organisation that CWRU subscribes to. The compost at the University Farm is then used to grow crops, some of which are transported back to the dining halls for a closed loop composting program. Additionally, there is post-consumer (plate scraping) composting at two dining halls. There is interest in starting post-consumer composting at the Health Education Campus (site for the medical school), but contamination is a large concern. The recycling program is also robust - recycling is taken to a local recycling center to be sorted by CWRU staff. These staff transport waste in waste hauling trucks to a local transfer station, where landfill and recycling products are separated and sorted for further transport.

5.7. Does the institution apply sustainability criteria when making decisions about the campus food and beverage selections (e.g. local sourcing, reduced meat, decreased plastic packaging)?

Yes, the institution has **adequate** sustainability requirements for food and beverages, including meat-free days or no red-meat, and **is engaged** in efforts to increase food and beverage sustainability. (3 points)

There are sustainability guidelines for food and beverages, but they are **insufficient or optional**. The institution **is engaged** in efforts to increase food and beverage sustainability. (2 points)

There are sustainability guidelines for food and beverages, but they are **insufficient or optional**. The institution is **not** engaged in efforts to increase food and beverage sustainability. (1 point)

There are **no** sustainability guidelines for food and beverages. (0 points)

Score Assigned:

2

Score explanation:

CWRU contracts with Bon Appetite for all of their food and beverage needs. While CWRU does not have any requirements for sustainability of food and beverage at the university, part of the reason they contract with Bon Appetite because Bon Appetite has corporate goals that promote sustainability. For example, while Bon Appetite does use select chain restaurants to procure food for the university, a minimum of 20% of the food used by the company must be from an area within 150 miles of the university. Bon Appetite also sources humane meats and fish from sustainable fisheries.

5.8. Does the institution apply sustainability criteria when making decisions about supply procurement?

Yes, the institution has **adequate** sustainability requirements for supply procurement **and is engaged** in efforts to increase sustainability of procurement. (3 points)

There are sustainability guidelines for supply procurement, but they are **insufficient or optional**. The institution is **engaged** in efforts to increase sustainability of procurement. (2 points)

There are sustainability guidelines for supply procurement, but they are **insufficient or optional**. The institution is **not engaged** in efforts to increase sustainability of procurement. (1 point)

There are **no** sustainability guidelines for supply procurement. (0 points)

Score Assigned:

0

Score explanation:

CWRU does not have universal sustainability guidelines for supply procurement. Despite this, there are areas where CWRU does a good job of promoting sustainability including attempts to make post-consumer recycled paper rather than new paper the norm. The university also offers rebates on more energy efficient items such as -80 degree freezers to save on energy.

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

Every event hosted at the institution **must** abide by sustainability criteria. (2 points)

The institution **strongly recommends or incentivizes** sustainability measures, but they are **not required**. (1 point)

There are **no** sustainability guidelines for institution events. (0 points)

Score Assigned:

1

Score explanation:

CWRU has several voluntary event recommendations for greening events on campus, but there are currently no mandates for events to be sustainable. The Office of Sustainability offers help to make events more sustainable if requested. Moreover, CWRU's contract with its compost hauler, Rust Belt Riders, offers special event composting.

5.10. Does your institution have programs and initiatives to assist with making lab spaces more environmentally sustainable?

Yes, the institution has **programs** and **initiatives** to assist with making lab spaces more environmentally sustainable. (2 points)

There are **guidelines** on how to make lab spaces more environmentally sustainable, but not programs or initiatives. (1 point)

There are **no** efforts at the institution to make lab spaces more sustainable. (0 points)

Score Assigned:

2

Score explanation:

If lab space is not being renovated, making changes to lab spaces can be challenging. Despite this, there are several programs at CWRU to promote more environmentally friendly lab spaces. For example, CWRU offers a rebate program so that labs can purchase the most energy efficient -80 degree freezers possible. These freezers can consume the same amount of energy as one entire

American household per year, so reducing their energy consumption provides substantial environmental benefit. There are also efforts to upgrade fume hoods and valve systems that are old to systems that are newer and allow for more control. There is also a voluntary committee that focuses on greening lab spaces and getting older equipment recycled.

5.11. Does your institution's endowment portfolio investments include fossil-fuel companies?

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. (4 points)

The institution is **entirely divested** from fossil fuels. (3 points)

The institution has **partially divested** from fossil fuel companies **or** has made a **commitment to fully divest**, but **currently** still has fossil fuel investments. (2 points)

The institution has **not divested** from fossil-fuel companies, but faculty and/or students are **conducting organised advocacy** for divestment. (1 point)

Yes, the institution has investments with fossil-fuel companies and there have been **no efforts** to change that. (0 points)

Score Assigned:

2

Score explanation:

CWRU is partially divested from fossil fuel companies and is working toward total divestment over approximately the next 5 years.

Section Total (16 out of 32)

50%

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Grading

Section Overview

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

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

Planetary Health Grades for the Case Western Reserve University School of Medicine - University Program

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

Section	Raw Score %	Letter Grade
Planetary Health Curriculum (30%)	$(47/72) \times 100 = 65.3\%$	B
Interdisciplinary Research (17.5%)	$(14/17) \times 100 = 82.4\%$	A-
Community Outreach and Advocacy (17.5%)	$(7/14) \times 100 = 50\%$	C
Support for Student-led Planetary Health Initiatives (17.5%)	$(11/15) \times 100 = 73.3\%$	B
Campus Sustainability (17.5%)	$(16/32) \times 100 = 50\%$	C
Institutional Grade	$(65.3 \times 0.3 + 82.4 \times 0.175 + 50 \times 0.175 + 73.3 \times 0.175 + 50 \times 0.175) = 64.34\%$	B-