Planetary Health Report Card (Medicine):

Northwestern University - Feinberg School of Medicine

2023-2024 Contributing Team:
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Summary of Findings

Overall	C+

Curriculum	B

- **Strengths:** Feinberg promotes understanding of planetary health as an important determinant of individual and community health. Feinberg is also willing to translate student feedback into action at the curricular level.
- **Recommendations:** There are opportunities to 1) distribute and more evenly integrate environmental health content across all the phases of the curriculum 2) add more planetary health-related topics to the pre-clinical phase of the curriculum (e.g. the effect of extreme heat on cardiovascular outcomes, the neuropsychological effects of environmental degradation) 3) design and offer elective courses on planetary and environmental health for interested students.

Interdisciplinary Research	A-

- **Strengths:** Northwestern University's Institute for Sustainability & Energy is an excellent hub for interdisciplinary research and education on environmental health with an accessible and open platform, conducive to collaboration.
- **Recommendations:** There are opportunities to promote interdisciplinary research collaboration between ISEN and the Feinberg School of Medicine on planetary and environmental health topics.

Community Outreach and Advocacy	D

- **Recommendations:** There is currently little community engagement on topics relating to planetary health. There are opportunities to 1) partner with local Chicago organizations on planetary health initiatives 2) offer public talks and events related to planetary health 3) create CME courses related to planetary health.

Support for Student-Led Initiatives	B

- **Strengths:** The Feinberg School of Medicine has a student group (Climate Action Group) dedicated to community engagement and discussing the health effects of climate change. The Resnick Family Social Impact Program funds student sustainability-related initiatives, though this is not targeted toward medical students.
- **Recommendations:** There are opportunities to get medical students involved with sustainability-related initiatives. There are opportunities to 1) create a more specific and up-to-date web page that features opportunities for students to get involved with planetary health initiatives/research at the medical school.

Campus Sustainability	C-

- **Strengths:** Northwestern University has the explicit goal of net zero emissions by 2050. Sustainable building practices are utilized for new buildings on the medical school campus, and the majority of old buildings on the medical school campus have been retrofitted to be more sustainable.
- **Recommendations:** There is still much to improve with Feinberg campus sustainability. There are opportunities to 1) provide receptacles for composting in medical school buildings 2) create strong sustainability guidelines for Feinberg events, which should include robust guidelines for food and beverage selections, including reducing meat and decreasing plastic packaging.

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: *There are no elective courses offered as part of the Feinberg curriculum that are focused on topics within ESH or Planetary Health.* *However, in one elective course titled "Native Health & Healthcare in a Settler Society," there is a lecture entitled "Chronic Structural Violence and Perpetual Gaslighting" in which students engage with the intimate connection between the natural environment and Native American Health. Students are asked to explore and discuss policies and actions by governmental and societal actors that have disrupted and desecrated native land and connect this to downstream health inequities experienced by Native peoples.* ***Areas for improvement:*** *Organizing an elective which focuses on sustainability, planetary health, and climate change*	

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 lecture"Race, Climate Change and Lung Health," climate change and warming temperatures are related to increased flooding and wildfires. Several slides describe how these extreme weather events are connected to individual health conditions such as asthma, allergies, respiratory infections, and respiratory disease.*

In the lecture "Global Environmental Health Policy," there are the following testable learning objectives:
- *Describe how climate change is impacting health outcomes*
- *Describe how climate change is exacerbating existing health disparities in the US and globally*

In a problem-based learning (PBL) case (Quackenbush), students are prompted to explore measures of urban greenness and their relationship to Hypertensive Disorders of Pregnancy.

In the lecture on "Climate Change and Women's Health," the impact of environmental changes on pregnancy outcomes and neonatal health are discussed.

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 lecture"Climate Change and Lung Health," climate change and warming temperatures are related to increased flooding and wildfires. Several slides describe how these extreme weather events are connected to individual health conditions such as asthma, allergies, respiratory infections, and respiratory disease.*

In the lecture "Global Environmental Health Policy," the health effects of wildfires, flooding, heat waves, and cold spots are briefly mentioned. Additionally, the lecture adds how severe weather events are connected to traumas/injuries and how they affect human health by causing large-scale human migration/displacement.

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

3	This topic was explored **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: *The following lectures are part of the M1 Core Curriculum:*

The lecture "Global Environmental Health Policy" discusses how climate change is expanding the tick habitat and thereby increasing the prevalence of tick-borne disease.

In the lecture "CNS Infections," the following is mentioned in one slide: "CFP [Ciguatera Fish Poisoning] is increasing worldwide. Growth, distribution and abundance of CFP-associated dinoflagellates are largely temperature driven and are shifting in response to climate induced changes as ocean temperatures rise."

The lecture "Climate Change and Women's Health," has the following learning objective: "To understand how climate change leads to a variety of 'exposure pathways' which ultimately impact physical health." The presentation goes over changes in the geographic distribution of different infectious disease vectors and connects this to womens' health and fetal health.

The lecture "HIV and Emerging Viruses" cites a 3–fold increase in the burden of Ades-transmitted viral diseases (Dengue) over the past 50 years with the spread of the main mosquito vectors due to warming temperatures globally, as well as increased globalization and urbanization.

1.5. Does your medical school 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: *The M1 Core Curriculum includes a lecture titled "Race, Climate Change, and Lung Health." This lecture included the following testable learning objective: "List three ways that climate change may negatively affect respiratory health."*

There additionally was a small group learning session in the M1 curriculum that had the following learning objectives: "Identify environmental triggers for asthma exacerbation. Identify the determinants (especially environmental and occupational) and predisposing factors for asthma and COPD."

1.6. Does your medical school 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 M1 Core Curriculum lecture: "Global Cardiovascular Health and Disease", CVH was related to planetary health, citing that much of the world's population fails to be provided nutritious food and current agricultural and farming practices are "a major driver of land use change, biodiversity loss, freshwater depletion, air & water pollution, and climate change".*

As part of the lecture "Climate Change and Women's Health," the effects of extreme heat on women's cardiovascular health and fetal cardiovascular health were presented in a few brief slides.

In a peer-based learning session, students were also prompted to investigate the following questions: "Are there associations between low urban greenness and hypertensive disorders in pregnancy? What tools exist to assess urban greenness?"

Area for improvement: *expanding upon the effects of heat and environmental impacts on cardiovascular health including the effects of heat.*

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: *In the lecture "Climate Change and Women's Health," there is a brief discussion of the impacts of climate change on mental health, specifically focusing on its impact on women and pregnant persons. Specifically there is a focus on how extreme weather and natural disasters related to climate change can lead to higher rates of sexual assault, traumatic experiences, and stress, which can have negative effects on mental health and neuropsychological outcomes. Hurricane Maria is used as an example.*
Area for improvement: *expanding upon the mental health impacts of environmental degradation beyond a maternal-fetal health focus, particularly in the Psychiatry module provided late in the Fall of M2 curriculum.*

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: *As part of the lecture "Global Environmental Health Policy" in the M1 Core Curriculum, climate change and ecosystem health are connected to food and water system quality and*

thereby to individual health outcomes. That said, this concept was not explicitly emphasized and only appeared in slides modelling the complex interplay of environment, social, and individual factors in environmental health. It is not integrated into testable learning objectives for this lecture.

In the lecture "Climate Change and Women's Health," there is brief discussion of the impacts of climate change on both water scarcity and food insecurity and how that can lead to poor health outcomes that disproportionately impact women in many countries. This content is part of the testable learning objective: "To understand how climate change leads to a variety of "exposure pathways" which ultimately impact physical health."

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

3	This topic was explored **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 M2 Core Curriculum, there is an entire lecture, titled "Climate Change and Women's Health" that includes the following testable learning objective: "To understand why women are more susceptible to the impact of climate change on their health." It includes many examples of how women are disproportionately impacted by the health effects of climate change through a variety of mechanisms.*

Additionally, in the M1 Core Curriculum, the lectures "Race, Climate Change, and Lung Health," "Place Matters: Built and Social Environment and CV Health,"and the Pulmonary Module Plenary Session all briefly discuss how environmental changes can disproportionately affect marginalized communities such as communities of color.

In the M1 lecture "Global Environmental Health Policy" there are the following testable learning objectives: "Describe how climate change is exacerbating existing health disparities in the US and globally." It includes a graphic that highlights the following populations as particularly vulnerable to the effects of climate change: communities of color, older adults, children, and low-income communities.

Areas for improvement: *There is no known discussion of how climate change effects can disproportionately affect the homeless in the current curriculum.*

1.10. Does your medical school 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: *The lecture "Global Environmental Health Policy", which is a part of the M1 Core Curriculum, has the following testable learning objective: "Describe how climate change is exacerbating existing health disparities in the US and globally." In the learning guide it is noted that : "These types of impacts [from climate change] are felt globally and are most severe in poor countries that cannot afford the costs of adaptation." This is supported by graphs, maps, and data presented within the slides of this lecture.*

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: *In the M2 Core Curriculum, as part of the ReproGU module, there is lecture titled "Climate Change and Women's Health," that includes the following testable learning objective: "To understand how climate change leads to a variety of exposure pathways which ultimately impact physical health." This was achieved with an overview on the increasing incidence of extreme weather events, exposure pathways (e.g. vector ecology, heat, population displacement, air and water pollution), and negative health outcomes related to greenhouse gas emissions. Notably, the disproportionate impact these changes have on vulnerable groups, including women, was discussed as a function both of increased exposure and decreased ability to cope with and recover from damages. Several slides covered the unique impacts of heat, air quality, water quality, vector ecology, and food security on women's health and how climate change drives or influences them each.*

In the M1 Core Curriculum, the learning guide for the lecture "Global Environmental Health Policy" includes the following statement: "coal externalities include health impacts on the lungs, brain, heart, and <u>reproductive systems in humans</u>."

1.12. Does your <u>medical school</u> curriculum address important human-caused environmental threats that are relevant to the university's surrounding community?	
3	This topic was explored **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 M1 Curriculum, during the Pulmonary Module Plenary Session, there is a slide that specifically focuses on environmental racism and lung health. In the notes of this slide it reads: "And Chicago is home to many glaring examples of environmental racism, the most egregious of*

which is probably the area around the Altgeld Gardens on the city's south side which is surrounded by the largest concentration of hazardous waste sites in the country, and not surprisingly afflicted with high rates of cancer and respiratory problems like asthma." This is not testable material or a session during which students are expected to actively learn or engage with the material (a Plenary Session serves as an introduction to the module, in this case, the Pulmonary Module).

Area for improvement: *Greater discussion of specific environmental health challenges (including testable material) specific to the Chicago area, possibly within small group sessions. For example, discussing cases like that of the Crawford Power Plant in Little Village, or of ethylene oxide exposure in Willowbrook, IL.*

1.13. To what extent does your <u>medical school</u> emphasize the importance of Indigenous knowledge and value systems as essential components of planetary health solutions?	
3	Indigenous knowledge and value systems are **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: *As part of the medical humanities seminars, students have the option to take a class titled: "Native Health + Healthcare in a Settler Society." In this seminar, students are taught how historical practices have polluted native land and have led to health disparities (for example, students watch the video "How the US poisoned Navajo Nation," which explains how the mining industry caused radioactive pollution of native lands and the effect this had on the Navajo in Church Rock, NM). The elective explores how governmental practices like creating dams and diverting water uniquely disrupted native land in certain nations and how this led to tribal dependance on sugary, unhealthy government-supplied food, leading to high rates of diabetes.*

Areas for improvement: *More explicit connections between climate change and their inequitable health impacts within native communities within the core curriculum*

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: *In the M1 Curriculum, during the Pulmonary Module Plenary, there is a slide that specifically focuses on environmental racism and lung health. In the notes of this slide, it reads: "And*

Chicago is home to many glaring examples of environmental racism, the most egregious of which is probably the area around the Altgeld Gardens on the city's south side which is surrounded by the largest concentration of hazardous waste sites in the country, and not surprisingly afflicted with high rates of cancer and respiratory problems like asthma." This is not testable material or a session during which students are expected to actively learn or engage with the material.

Furthermore, in a peer-based learning session (Quackenbus), students were also prompted to investigate the following questions: "Are there associations between low urban greenness and hypertensive disorders in pregnancy? What tools exist to assess urban greenness?". This is in the context of a patient presentation living in the Pilsen community of Chicago, a neighborhood in the Lower West Side of Chicago with little green space and a large immigrant population.

***Area for improvement:** Anthropogenic environmental toxins are covered within the curriculum in the lecture on Occupational Diseases. That lecture could explore the differential effect that anthropogenic toxins have on different communities.*

Curriculum: Sustainability

1.15. Does your medical school curriculum address the environmental and health co-benefits of a plant-based diet?	
3	This topic was explored **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 following M1 Core Curriculum lectures: "Dietary Guidance to Prevent and Treat Cardiometabolic Disease Over the Life Course" and "Diet and Nutrition"it presents evidence supporting the cardiovascular health benefits of plant based diets. However these lectures do not explicitly address the environmental impact of a plant-based diet.*

In the M1 Core Curriculum lecture: "Global Cardiovascular Health and Disease", CVH was related to planetary health, citing that much of the world's population fails to be provided nutritious food and current agricultural and farming practices are "a major driver of land use change, biodiversity loss, freshwater depletion, air & water pollution, and climate change".

***Areas for improvement:** Greater discussion on the environmental impact of livestock production and meat consumption in addition to the link between consumption of fatty meats and increased risk of cardiovascular diseases and cancer as evidenced by the 2020 article titled Meat consumption: Which are the current global risks? A review of recent (2010-2020) evidences by N. Gonzalez, M. Marques, M. Nadal, and J. Domingo.*

1.16. Does your medical school 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: *In the M1 Core Curriculum, the lecture "Global Environmental Health Policy" presents several detailed slides providing evidence of the contribution of healthcare systems to the global climate crisis.* *In the M2 Core Curriculum, the lecture "Climate Change and Women's Health" provides a brief discussion of the large contribution of the health care sector to the global climate footprint.*	

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: *In the M1 Core Curriculum, the lecture "Global Environmental Health Policy " identifies the healthcare sector as a major contributor to global waste production and greenhouse gas emissions. It further provides examples of how investing in energy-saving interventions in hospitals (such as installing high-efficiency electric motors and fume hoods or applying solar films on windows) can not only reduce waste, but also provide significant financial savings that are in health systems best interest. Finally it provides examples of medical professional associations' (such as the AMA , WMA, and AAP's) commitments and actions to reducing healthcare waste and addressing sustainability.* *Furthermore, the lecture "Integrative Medicine", also included in the M1 core curriculum, also explored non-pharmaceutical treatments for various conditions (ex. arthropathies) including botanicals/herbs and nutritional supplements.*

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: *There are no known lectures within the Feinberg curriculum that explicitly address this topic/skill.*	

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: *In the M1 Core Curriculum, there is a lecture titled "Occupational Disorders" which covers approaches to taking an occupational history and identifying environmental hazards/exposures at one's workplace. It has the following testable learning objective: "Explain the basic components of an occupational history."*	

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?	
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: *There is a Curriculum Development team that meets regularly and has invited student groups engaged with environmental health to review the curriculum and make recommendations. In previous years, the feedback given by students has translated into direct changes within the curriculum. The lecture "Global Environmental Health Policy" (mentioned above several times) was recently added based on the recommendation of students. The lecture is specifically given by*	

an environmental health specialist that teaches outside the Feinberg/Northwestern system, attesting to the efforts of the school to find experts to present this material. *Furthermore, a dedicated team of students under the advisory of a faculty member are currently investigating areas of the current preclinical curriculum for areas of improvement in these areas.*

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: *The majority of the planetary/environmental health topics addressed in the curriculum at Feinberg are integrated into its organ-based modules. For example, the lecture on "Race, Climate Change, and Lung Health" is incorporated into the pulmonary unit and builds upon the other material within the "Health Equity and Advocacy" component of the curriculum. That said, full marks were not given as the majority of the planetary health lectures within the curriculum are very concentrated within the first year of the curriculum. There is a steep fall in known planetary health content in years 2, 3, and 4 during clinical rotations.*	

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: *The Associate Dean for Curriculum and the Phase 1 Directors are directly charged with overseeing curricular improvements prompted both externally (climate change/environmental health is a "hot topic" identified by the LCME) and internally (Program Evaluation reports and student-initiated efforts). However, these responsibilities fall in their purview, and there is no staff member whose responsibilities are uniquely dedicated to overseeing curricular integration of planetary health and sustainable healthcare.*	

Section Total (x out of 72)	**47**

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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: *There are a number of researchers associated with the medical school that do work on climate change and its effects on health. However, it does not seem to be their primary focus. For example, within the field of otolaryngology, research into the negative impact of climate change on the environment and its associated with rhinologic disease morbidity.*	

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: *Northwestern University has the Paula M. Trienens Institute for Sustainability and Energy (formerly the Institute for Sustainability and Energy (ISEN)) that seeks to engage in interdisciplinary research on sustainability issues. They offer research programs, courses, fellowships, certifications, a masters program, and study abroad opportunities.*	

2.3. Is there a process by which communities disproportionately impacted by climate change and environmental injustice give input or make decisions about the research agenda at your <u>medical school</u>?	
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 Institute for Public Health and Medicine (IPHAM)'s ARCC (Alliance for Research In Chicagoland Communities) actively collaborates with communities impacted by climate change and environmental injustice.* *"Established in 2008, the Alliance for Research in Chicagoland Communities (ARCC) supports authentic community-academic research partnerships between Chicagoland communities and Northwestern University that benefit the people being researched and improve health and equity. ARCC advocates for a collaborative approach to research that honors, is driven by, and shares power with communities, as local, cultural, and lived experience experts…A primary focus of ARCC's community engagement is Black, Indigenous, People of Color and other marginalized communities most experiencing health inequities in Chicagoland."*	

2.4. Does your <u>institution</u> 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: *Northwestern University has a website for the Paula M. Trienens Institute for Sustainability and Energy which compiles sustainability-related news, research, and educational opportunities at the institution.*	

2.5. Has your <u>institution</u> 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: *Northwestern University's Kellogg School of Management hosted ClimateCAP in spring 2022, an international summit discussing the intersection of business and climate change.*	

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 Feinberg School of Medicine is part of the Global Consortium on Climate and Health Education.*	

Section Total (x out of 17)	**14**

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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: *The Feinberg School of Medicine has no planetary or environmental health partnerships with community organizations. However, Northwestern University as an institution does. sustainNU has partnerships with the US Department of Energy, Association for the Advancement of Sustainability in Higher Education, the City of Chicago, the City of Evanston, the Chicagoland Network for Sustainability in Higher Education, and the Active Transportation Alliance. Additionally, students can work with community organizations through student groups such as Wild Roots, a community garden, and the local branch of Engineers for a Sustainable World.*	

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: *The medical school has not planned any community-facing events. However, sustainNU has a podcast series called "Conversations with sustainNU" about sustainability and*	

environmental justice. Additionally, Northwestern helps host the One Earth Film Festival, a Chicago area film festival that uses film to spread understanding of climate change and sustainability issues.

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: *Medical students do not receive any communications about sustainability or planetary health.*	

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: *No CME courses on planetary or sustainable healthcare topics are currently offered.*	

3.5. Does your medical school or its affiliated teaching hospitals have accessible educational materials for patients about environmental health exposures?	
2	Yes, the **medical school** or **all 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: *Northwestern Medicine has a patient-facing online encyclopedia of patient information, including a section on environmental diseases. These articles can be found here. Shirley Ryan Ability Lab and Lurie Children's hospital do not have similar online articles.*	

3.6. Does your medical school or its affiliated teaching hospitals have accessible educational materials for patients about the health impacts of climate change?	
2	Yes, the **medical school** or **all affiliated hospitals** have accessible educational materials for patients.
1	**Some** affiliated hospitals have accessible educational materials for patients.
0	**No** affiliated hospitals have accessible educational materials for patients.
Score explanation: *Northwestern Medicine has a short article on the health impacts of climate change here. Lurie Children's hospital has an article here. The Shirley Ryan Ability Lab does not have any online education materials on climate change.*	

Section Total (x out of 14)	**4**

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

Support for Student-Led Planetary Health Initiatives

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

4.1. Does your 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: *While medical students are encouraged to engage in QI projects to satisfy longitudinal requirements (Area of Scholarly Concentration) at the Feinberg School of Medicine, no QI project assignment specifically emphasizes sustainability.* *However, the Trienens Institute and sustainNU oversee a project fellowship program, with funding support from Ameresco, a leading cleantech integrator and renewable asset developer, providing 10 fellowships annually (5 per quarter) for students to "gain real-world experience in energy management and sustainability".*	

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: *Students at the Feinberg School of Medicine have the opportunity to apply for funding through the Paula M. Trienens Institute for Sustainability and Energy (formerly the Institute for Sustainability and Energy (ISEN)) Resnick Family Social Impact Program. The program "supports student projects that address significant local and global challenges in sustainability and energy."*	

The Paula M. Trienens Institute for Sustainability and Energy is the University's institute for sustainability and energy research, education, and engagement. It bridges disciplinary gaps and works across the Northwestern community to build new models for student entrepreneurship, recently receiving a $25 million grant from the Howard and Paula Trienens Fund to advance global sustainability and energy solutions. The Resnick Family Social Impact Program within the office supplies aid for student innovation and expands opportunities for interdisciplinary collaboration across the University. Students of all disciplines can apply for funding to launch research initiatives and projects that address local and global challenges in sustainability and energy. Past funding awards have ranged from $5,000 to $25,000.

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: *Though Feinberg has a sustainability-related website, it has not been kept up-to-date, and it does not list mentors/projects within the medical school. There is a separate webpage, while not specific to sustainability, that does provide information to medical students on how to find and reach out to mentors with an updated directory.*	

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: *Feinberg School of Medicine has the Climate Action Group, which is funded by the school and has faculty support, including faculty in the Augusta Webster, MD, Office of Medical Education (AWOME).*	

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: *There is no student liaison representing sustainability interests who serves on a medical school or institutional decision-making council to advocate for sustainability best practices. Climate Action Group and several interested students do engage in dialogue with the Office of Medical Education (AWOME) in efforts to identify areas of improvement for campus sustainability.*	

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: *The Climate Action Group and "Destination Chicago" organize trips to volunteer at Our Block Garden, a community garden for low- and moderate-income people on the northwest side of Chicago. Climate Action Group also holds speaker events that emphasize the effects of climate change on human health, and volunteers with local organizations such as North Pond Gardeners and Gold Coast Neighbors Association to help with activities that keep local parks clean and accessible (weeding, cleaning litter, placing mulch, planting trees).* *Feinberg has a wilderness medicine student group (WildMed) that has led an environmental excursion this past year. Many events, talks, speaker series, arts events, performances, nature walks etc. take place at the undergraduate campus in Evanston and are not targeted to the medical students at the downtown Chicago Campus.*	

Section Total (x out of 15)	**10**

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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: *SustainNU's initiatives and program areas cover both campuses, including Feinberg, and there is consistent and regular communication with members of the office and students/staff at the medical school. There is not a dedicated full-time employee specifically assigned to Feinberg.*	

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 Northwestern University Strategic Sustainability Plan (2017-2021) states a goal of reducing greenhouse gas emissions from baseline (2012) by 30% in 2030 and zero emissions by 2050, with a concrete plan to achieve this. The next Strategic Sustainability Plan is currently in the process of being finalized for the upcoming 5 years.*

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: *There is no renewable energy production in downtown Chicago due to real estate and financial constraints.*	

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: *Most Feinberg buildings have had some form of energy efficiency upgrade – whether it's lighting/relamping programs, smart building automation systems, or Aircuity to reduce building energy intensity. Feinberg lighting was retrofitted to T8 in the late 2000's / early 2010's, and Noresco performed a full audit of their portfolio with implementation of roughly $9M of projects in the 2014 timeframe. There was close collaboration with Feinberg leadership to align with their construction/renovation scopes. Northwestern designs all new construction projects (eg: Simpson-Querrey Biomedical Research Center) and major renovations to achieve LEED certification.*	

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: *Feinberg School of Medicine is located in a city center where most students live within walking distance of campus. Students who live farther away are able to commute via public transportation using the U-Pass included in tuition. Northwestern also operates an Intercampus Shuttle between the Evanston and Chicago campuses with passes available for students to purchase. The medical school also expanded electric vehicle charging infrastructure at the Chicago campus, adding four charging stations (accomadates 8 vehicles) with three hours of free charging available at each.*

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: *Northwestern students and faculty have access to recycling bins but not compost receptacles in Feinberg buildings.*

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: *The next 5-Year Sustainability Plan will address purchasing of organic, sustainable, plant forward, local and diverse suppliers in retail, dining, and catering across both campuses. Past initiatives supported purchase of sustainable food for the Evanston and Chicago, but the Real Food Challenge was determined not to be the best fit for Northwestern operations. The student group driving that effort, NU Real Food, did not determine that the Good Food Purchasing Policy was a match either because it was not designed for higher education, but they have been open to adapting it*

to the college setting. The medical school does not run its own cafeterias and makes only relatively limited food/beverage purchases, compared to the Evanston campus. The next Strategic Sustainability Plan is currently in the process of being finalized for the upcoming 5 years.

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: *Sustainability guidelines for supply procurement can be found here. They are optional and include a list of approved, sustainable vendors. As far as we are aware, there are no current efforts to increase the sustainability of procurement. The previous 5-year Strategic Sustainability Plan (2017-2021) made sustainable procurement practices a priority, and it is possible that the next plan will do the same.*	

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: *The Office of Special Events prioritizes vendors that offer eco-friendly and lower-waste products and services. The medical school does not require events to abide by sustainable practices, but it offers recommendations. To minimize waste, student organizations that book spaces on campus for their events are advised to notify the student body of leftover refreshments using email lists and group messages.*	

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: *A voluntary Green Lab Certification Program encourages the use of best sustainability practices in lab operations and culture. In an effort to reduce the environmental impact of labs, Northwestern is encouraging labs to get Green Lab certification: "Participating labs receive assistance with implementing sustainability initiatives to conserve resources, reduce costs, and improve lab member wellbeing. Certified labs receive University-wide recognition and certification materials, including a framed certificate, certification stickers and window clings, and a logo that can be used on websites and email signatures." This certification is available at both the undergraduate campus in Evanston, as well as graduate and medical programs in the Chicago campus, and is currently being explored by anatomy lab faculty in further efforts to promote sustainable laboratory practices on campus.*

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: *Northwestern has not divested from fossil-fuel companies, but the student organization Fossil Free NU advocates for Northwestern to fully divest its endowment from fossil fuels and to reinvest it in the surrounding Evanston community. It is notable that Northwestern released investment guidelines in 2022, which include limiting investments in companies in the fossil fuel industry and supporting investments in cleaner energy technologies.*	

Section Total (x out of 32)	**13**

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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%

**Within each grade bracket, a score in the top 5% (_5 to_9%), receives a "+", and a score in the bottom 5% (_0-_4%) receives a "--". For example, a percentage score of 78% would be a B+.*

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

Section	Raw Score %	Letter Grade
Planetary Health Curriculum (30%)	(47/72) x 100 = 65.28%	B
Interdisciplinary Research (17.5%)	(14/17) x 100 = 82.35%	A-
Community Outreach and Advocacy (17.5%)	(4/14) x 100 = 28.57%	D
Support for Student-led Planetary Health Initiatives (17.5%)	(10/15) x 100= 66.67%	B
Campus Sustainability (17.5%)	(13/32) x 100 = 40.63%	C-
Institutional Grade	**(Ax0.3 + Bx0.175 + Cx0.175 + Dx0.175 + Ex0.175) = 58.19%**	**C+**

Report Card Trends

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