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# Planetary Health Report Card (Medicine): *Vanderbilt University School of Medicine*

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2023-2024 Contributing Team:

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## Summary of Findings

Overall	B-
<u>Curriculum</u>	B-
<ul style="list-style-type: none"> <li>Using the results of report cards from previous years, a group of students developed a longitudinal climate health curriculum proposal that included a plan for integration of planetary health and sustainability concepts throughout the four-year MD curriculum. Starting this year, many of these proposal elements have been integrated into the preclinical curriculum for M1s (specifically the Microbes and Immunity, Homeostasis, and Renal and Digestion blocks). The Vanderbilt School of Medicine’s core preclinical curriculum is largely focused on biomedical pathophysiology of disease (eg, changing patterns of infectious disease vectors, air pollution and lung disease, heat stress and cardiovascular disease). At present discussion of the sociopolitical impacts of climate change and their impact on vulnerable populations is not extensively covered in the core curriculum. However, these topics are discussed extensively in the elective course <i>Ecology and Health: Climate, Food, and Justice</i>, taught by Dr. Eva Parker.</li> <li><b>Recommendations:</b> Additions have been made to 3 of the 6 blocks in the M1 curriculum. We hope to continue to intersperse climate health content throughout the M1 curriculum in the following blocks: Human Blueprint and Architecture, Reproduction and Endocrine, and Brain, Behavior, and Movement. We hope to continue to integrate discussion of systems-wide impacts of a changing climate and limited resources, specifically the impacts on vulnerable populations, into the curriculum. A lecture through the Foundations of Healthcare Delivery course for the M2 class is planned in April and will cover these topics. The lecture will also introduce further discussion of the intersection of climate change and clinical practice (eg, taking an environmental history, medical waste and climate change, etc). Future curriculum improvements include addition of climate health content into the clerkship phase. Topics to consider may include medical waste in ORs, the role of anesthetic gasses in climate change, the effects of extreme heat on maternal and fetal outcomes, etc.</li> </ul>	
<u>Interdisciplinary Research</u>	B
<ul style="list-style-type: none"> <li>Several Vanderbilt University Medical school faculty in the dermatology, radiology, and anesthesiology departments are dedicated to planetary health issues in their research and broader careers.</li> <li><b>Recommendations:</b> Vanderbilt University and the medical center have both organized conferences/events related to planetary health. We would encourage the medical school to also plan and host conferences on this topic. The medical school could also join the Planetary Health Alliance and the Global Consortium on Climate and Health Education and connect with communities affected by climate change to inform research priorities.</li> </ul>	
<u>Community Outreach and Advocacy</u>	C
<ul style="list-style-type: none"> <li>Vanderbilt University regularly hosts events focused on planetary health which are open to the community.</li> <li><b>Recommendations:</b> This year a group of students founded a VUSM chapter of Medical Students for Sustainable Future (MS4SF). Through this chapter the medical school can offer more community-facing courses or events regarding planetary health. We also would encourage exploration of ways for students to more regularly receive communication updates on planetary health and sustainability efforts through existing newsletters.</li> </ul>	
<u>Support for Student-Led Initiatives</u>	B
<ul style="list-style-type: none"> <li>The medical school has been very supportive of student-led sustainability efforts through the Social Mission Committee (SMC), including the completion of the annual planetary health report card as well as the development and integration of the longitudinal climate health curriculum proposal. In addition to the</li> </ul>	

integration of changes throughout the M1 preclinical curriculum, the Foundations of Healthcare Delivery course invited physicians and researchers who are incorporating climate conscious efforts into their everyday practice to speak with students about potential QI and research projects they could get involved in.

- **Recommendations:** There may be opportunities in the future to design a research program, fellowship, or funding opportunities/grants for students interested in doing planetary health/healthcare sustainability research. Additionally, we recommend creation of a medical school specific webpage to better inform the student body of current initiatives and promote networking amongst researchers and students.

## Campus Sustainability

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- Vanderbilt University (VU) has taken great strides in sustainable operation, boasting dedicated sustainability officers and pledging carbon neutrality by 2030. While the medical school is housed within the LEED-certified Eskin Biomedical Library (EBL), many older facilities on campus have not yet been retrofitted in a sustainable fashion. VU has posted guidelines for greening of laboratory space, which many labs within the Vanderbilt University Medical Center network have begun to adapt.
- **Recommendations:** Although many newer facilities have been built with sustainable practice in mind, measures could be taken to retrofit some of the most productive patient care facilities, with focus on more sustainable energy usage, waste management, and materials sourcing. Although composting services are present in VU dining facilities, they are not present within the medical school buildings. To further increase sustainability, compost bins could be installed in EBL.

# 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 <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?	
3	Yes, the medical school has offered <b>more than one</b> elective whose primary focus is ESH/planetary health in the past year.
2	Yes, the medical school has offered <b>one</b> elective whose primary focus is ESH/planetary health in the past year.
1	The medical school does <b>not</b> have any electives whose primary focus is ESH/planetary health, but there are one or more electives that include a <b>lecture</b> on planetary health.
0	No, the medical school has <b>not</b> offered any electives on planetary health or electives that include ESH/planetary health topics in the past year.
<p><i>Score explanation: Vanderbilt University School of Medicine offers one elective course called "Ecology and Health: Climate, Food and Justice" open to third and fourth year medical students. There are also certificates for health equity and global health that discuss concepts like climate and sustainability within them.</i></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?	
3	This topic was explored <b>in depth</b> by the <b>core</b> curriculum.
2	This topic was <b>briefly</b> covered in the <b>core</b> curriculum.
1	This topic was covered in <b>elective</b> coursework.
0	This topic was <b>not</b> covered.
<p><i>Score explanation: The Renal and Digestion block of the M1 curriculum includes lectures on Acute Kidney Injury (AKI) and Chronic Kidney Disease (CKD). The AKI lecture delineates the different types of AKI and discusses how incidence of prerenal AKI is increased by extreme heat. The lecture on CKD discusses how it is a public health problem compounded by rising global temperatures. The learning</i></p>	

objectives for both courses reflected the impact of climate change on these conditions. Additionally, during the renal pathology lectures the relationship between increased ambient temperature and increased incidence of urinary tract infections (especially in women) is covered. The renal pathology lectures also cover other aspects of the relationship between climate change and renal conditions such as the link between increased pollution and poor air quality with increased incidence of membranous nephropathy. A lecture is planned to be integrated into the Repro and Endocrine block of the M1 curriculum next year exploring the relationship between heat exposure and pregnancy outcomes. The relationship between extreme heat and health is also explored in the M2 curriculum. During the neurology clerkship, block directors highlighted the connection between extreme heat and multiple sclerosis exacerbations or flares (Uthoff's phenomenon) in a case-based didactic session that all students attend.

**1.3. Does your medical school curriculum address the impacts of extreme weather events on individual health and/or on healthcare systems?**

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

*Source explanation: Twice in the M1 curriculum, natural disasters are mentioned in relation to PTSD and/or trauma-informed care.*

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

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

*Score explanation: In the M1 curriculum, climate is mentioned in relation to mosquito-borne illnesses (e.g., flaviviruses, togaviruses), as well as rotavirus, influenza, and RSV. Additionally, first year students are taught that adverse weather events such as wind storms are associated with Coccidioides outbreaks, but the effect of climate change is not addressed. In an introductory lecture for the Microbes & Immunity block, it is mentioned that climate change, weather, and changing ecosystems will affect the emergence and distribution of infectious disease. M1 students were taught that climate change is responsible for increased global spread of Vibrio vulnificus infections during an exam review session. In a lecture on herpesviruses, students are taught about elephant endotheliotropic herpesviruses and herpes-like viruses and their respective effects on species conservation and coral reef destruction. Students are also given information on changing vector patterns for tick-borne illnesses. A lecture on food-borne illnesses covered the impact of increasing temperatures on these pathogens and their increased likelihood of transmission during hotter months. During the Renal and Digestion block, students had two relevant Case Based Learning cases— one discussing the association between climate*



*change and increased spread of infectious hepatitis, and another discussing the risks of proton pump inhibitor use in relation to climate-related changes in infectious disease patterns.*

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

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

*Source explanation: In the M1 curriculum, required reading for a class activity on asthma involved information on pollutants inducing airway hyperresponsiveness. Lectures during the pulmonary portion of the Homeostasis block discussed the importance of considering industrial hazards and air pollution as factors in the etiology and pathogenesis of lung cancer and interstitial lung disease. Exposure to fumes and industrial hazards are also mentioned as a risk factor for developing COPD. Students in the first year core curriculum also had a Cased Based Learning case that discussed COPD, where air pollution was a potential risk factor that was discussed. Additionally, a lecture on pharmacology of the autonomic nervous system during the cardiovascular portion of the Homeostasis block included mention of the deaths resulting from the Bhopal gas disaster, which involved a leakage of Sevin, an insecticide. The M1 curriculum also addresses the relationship between air pollution and other pathologies such as how decreased air quality is linked to increased incidence of membranous nephropathy and eosinophilic esophagitis during the renal pathology lectures in the Renal and Digestion block. Lastly, a new session discussing the public health threat of climate change will be included in April of the Foundations of Healthcare Delivery course for the second year students. Through this lecture the relationship between air pollution and respiratory health effects will be extensively covered with the inclusion of case studies.*

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

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

*Score explanation: As a part of the elective course “Ecology and Health: Climate, Food and Justice” students read and discuss the article entitled “The 2022 report of The Lancet Countdown on health and climate change: health at the mercy of fossil fuels.” This report addresses the cardiovascular health effects of extreme heat and explores global trends in heat-related deaths. The M1 curriculum for the cardiovascular portion of the Homeostasis block discusses air pollution as a risk factor for arteriosclerosis. Lastly, a new session discussing the public health threat of climate change will be included in April of the Foundations of Healthcare Delivery course for the second year students.*

Through this lecture the relationship between heat and cardiovascular health effects will be extensively covered with the inclusion of case studies.

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

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

*Score explanation: First year medical students are taught about the association between lead poisoning and ADHD in the lecture titled “Clinical Potpourri”. The “Delirium” lecture also discussed the relationship between heavy metal exposure and delirium. There was also discussion on the connection between heavy metal exposure and other conditions such as ATI and dilated cardiomyopathy. However, the context of heavy metal exposure (eg, due to environmental degradation vs lead paint in older homes) was not specified or discussed. There was no discussion on the impact of displacement, climate disasters, or food insecurity on mental health. As a part of the elective course “Ecology and Health: Climate, Food and Justice”, there is a session dedicated to Mental Health, Ecoanxiety, and Hope. Required readings include the following: Treanor, Brian, “Hope in the Age of the Anthropocene,” pgs. 95-110 and Cianconi et al, “The Impact of Climate Change on Mental Health: A Systematic Descriptive Review.”*

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

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

*Score explanation: As a part of the elective course “Ecology and Health: Climate, Food and Justice”, there was a discussion focused on Industrialized Food and Alternatives. In preparation for this discussion, students read “How Big Food Subsidizes Poor Health”, “Toward a Civic Agriculture”, and “Combining the Effects of Increased Carbon Dioxide on Protein, Iron, and Zinc Availability and Projected Climate Change on Global Diets: A Modeling Study”. Additionally, another reading for the same course, “The 2020 report of The Lancet countdown on health” summarizes evidence of both terrestrial and marine food insecurity and undernutrition, as well as increasing droughts and flooding as a consequence of global warming.*

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

3	This topic was explored <b>in depth</b> by the <b>core</b> curriculum.
2	This topic was <b>briefly</b> covered in the <b>core</b> curriculum.
1	This topic was covered in <b>elective</b> coursework.
0	This topic was <b>not</b> covered.
<p><i>Score explanation: Within the core curriculum third year students participate in a Foundations of Healthcare Delivery Immersion Week: Public Health, Population Health, and Prevention in which these subjects are touched on. This topic is also touched on in the third and fourth year Immersion phase through a recurring lecture titled “Health and Environmental Justice” given during the Community Healthcare: Patients, Populations, and Systems Integrated Science Course. As a part of the elective course “Ecology and Health: Climate, Food and Justice”, there is a session titled Climate Change and Social Determinants of Health: Focus on Vulnerable and Marginalized Populations. Readings for this session explore the impact of climate health on vulnerable populations, including indigenous communities, the LGBTQ+ community, etc. This topic is also explored in another session of the elective course titled “Environmental Justice and Health Equity”. A new session discussing the public health threat of climate change will be included in April of the Foundations of Healthcare Delivery course for the second year students. This session will include discussions on the disproportionate impacts of climate change on traditionally marginalized populations, both domestically and internationally.</i></p>	

<b>1.10. Does your <u>medical school</u> curriculum address the unequal regional health impacts of climate change globally?</b>	
3	This topic was explored <b>in depth</b> by the <b>core</b> curriculum.
2	This topic was <b>briefly</b> covered in the <b>core</b> curriculum.
1	This topic was covered in <b>elective</b> coursework.
0	This topic was <b>not</b> covered.
<p><i>Score explanation: Within the core curriculum third year students participate in a Foundations of Healthcare Delivery Immersion Week: Public Health, Population Health, and Prevention in which these subjects are touched on. A session discussing the public health threat of climate change will also be included in April of the Foundations of Healthcare Delivery course of the second year. This session will include discussions on the disproportionate impacts of climate change on traditionally marginalized populations, both domestically and internationally. As a part of the elective course “Ecology and Health: Climate, Food and Justice” students read and discuss the article entitled “The 2022 report of The Lancet countdown on health and climate change: health at the mercy of fossil fuels,” which addresses this concept. An introductory lecture given during week 1 of the elective course addresses these global inequities. A deeper dive into this topic is further performed through sessions titled “Climate Migration and Disease” and “Environmental Justice and Health Equity”. During the environmental justice session, the legacy of colonialism with respect to climate impacts and reparations to LMICs is discussed.</i></p>	

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

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

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

*Score explanation: Through Vanderbilt University’s elective course “Ecology and Health: Climate, Food, and Justice”, there is a reading entitled “Heat Exposure and Maternal Health in the Face of Climate Change”, which discusses the effects of rising temperatures on pregnancies on an international scale. During first year students’ Human Blueprint and Architecture course, exogenous chemicals and gasses and their impacts on cell signaling and DNA damage is mentioned. However, there is no specific discussion with regards to how environmental toxin exposure is detrimental to reproductive health. A lecture is planned to be integrated into the Repro and Endocrine block of the M1 curriculum next year exploring the relationship between heat exposure and pregnancy outcomes.*

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

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

*Score explanation: As a part of the core curriculum, first-year students take a “Foundations of the Profession” course. This course discussed differences across Nashville neighborhoods, including redlining and racially motivated public construction projects, but failed to include varying toxin exposures across the city. Students in this course were expected to research different neighborhoods surrounding the school in terms of their “built environment.” Part of this discussion included discussing the differences in accessibility of green spaces. Certain students in the Vanderbilt University School of Medicine and Vanderbilt University School of Nursing have the ability to take a course that is considered part of the core curriculum called Vanderbilt Program in Interprofessional Learning. As a part of this course, students followed a patient and looked at their home environment. Topics that were covered included housing and zoning of neighborhoods, quality of open and green spaces, natural spaces and boundaries, and signs of neighborhood decay. In both courses, it was not explicitly expected for students to discuss human-caused environmental threats, but the required topics lent themselves to allowing students to have that discussion if they chose to do so. During the third and fourth year Immersion phase this topic is also touched on in a recurring lecture titled “Health and Environmental Justice” given during the Community Healthcare: Patients, Populations, and Systems Integrated Science Course. A session discussing the public health threat of climate change will be included in April of the Foundations of Healthcare Delivery course for the second year class. This session will include discussions on the disproportionate impacts of climate change on traditionally marginalized populations, both domestically and internationally. This session will include Nashville neighborhoods and communities that are at risk of harm from environmental threats. Additionally, an elective course titled “Ecology and Health: Climate, Food, and Justice” spends one week examining*

healthcare's contribution to climate change and opportunities for sustainability. Another session titled "Integration of Climate Adaptation, Mitigation, and Resiliency into Communities of Care" addresses this topic.

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

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

*Score explanation: This topic is addressed in many discussions in the course "Ecology and Health: Climate, Food, and Justice". Readings in this course include the following: Brand et al, "Embedding Indigenous knowledges and voices in planetary health education", Redvers et al, "Indigenous Peoples: Traditional knowledges, climate change, and health", and Jones, "How Native Tribes Are Taking the Lead on Planning for Climate Change". Students in the Foundations of Health Equity I course have a session led by an Indigenous speaker who discusses the Indigenous knowledge system, but this discussion was not specific to climate health.*

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

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

*Score explanation: Vanderbilt University School of Medicine has a course titled "Foundations of Healthcare Delivery" built into the core curriculum. First-year students had a lecture on health equity (titled "Social Determinants of Health") which explained that the sum total of a person's health was dependent not only on access to healthcare, but also socioeconomic factors, the physical environment, and health behaviors. In this lecture, environmental toxins were an example of one of the components of an individual's physical environment that can contribute to poorer health outcomes downstream. The lecture discussed that these drivers of health contributed to disparities observed in communities of color and those with low SES. This topic is also extensively addressed in many sessions of the elective course "Ecology and Health: Climate, Food, and Justice". Guest faculty whose research is focused on this topic are present for several sessions.*

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

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

*Score explanation: As a part of Vanderbilt University's elective course "Ecology and Health: Climate, Food and Justice" students are assigned the reading "The 2022 report of The Lancet countdown on health: health at the mercy of fossil fuels". One section of the report details diet and health co-benefits of a diet that limits red meat consumption. Additionally, the elective course has an entire session titled Agriculture, Land Use, Industrialized Food, Food Security, in which this topic is discussed. Reading for this session includes Xu et al, "Global greenhouse gas emissions from animal-based foods are twice those of plant-based foods". One of the full-time course faculty is the Director of Rooted Community Health (<https://www.vumc.org/cbmes/rooted-community-health>) and one of the guest faculty is the CEO of the Nashville Food Project.*

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

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

*Score explanation: Foundations of Healthcare Delivery is a longitudinal VUSM course that has recently added more discussion on carbon footprint. Second-year students have already had sessions on the cost of healthcare (in terms of management, resources, tests/orders in the hospital, etc.) in terms of money and impact on the environment. Additionally, the elective course "Ecology and Health: Climate, Food, and Justice" has an entire session titled Healthcare Decarbonization and Sustainability, which is dedicated to this topic. A new session discussing the public health threat of climate change will be included in April of the Foundations of Healthcare Delivery course for the second year students. This session will include discussions on the carbon footprint of healthcare systems.*

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

2	The health <b>and</b> environmental <b>co-benefits</b> of <b>avoiding</b> over-medicalisation, over-investigation and/or over-treatment
2	The environmental impact of <b>pharmaceuticals</b> and over-prescribing as a cause of climate health harm. Alternatively teaching on <b>deprescribing</b> where possible and its environmental and health co-benefits would fulfill this metric.



1	The health <b>and</b> environmental <b>co-benefits of non-pharmaceutical management</b> of conditions where appropriate such as exercise or yoga classes for type 2 diabetes; social group activities such as gardening for mental health conditions; active transport such as bicycle schemes. This is commonly known as social prescribing in the UK.
1	Environmental impact of <b>surgical</b> healthcare on planetary health and the climate crisis, and how can it be mitigated
1	The impact of <b>anaesthetic</b> gases on the healthcare carbon footprint and ways to reduce anesthesia environmental impacts, such as total intravenous anaesthesia or choosing less environmentally harmful anaesthetic gas options with reduced greenhouse gas emissions
1	The impact of <b>inhalers</b> on the healthcare carbon footprint and the environmental benefit of dry powdered inhalers over metered dose inhalers.
1	<b>Waste production</b> within healthcare <b>clinics</b> and strategies for reducing waste in clinical activities (e.g. single use items in the inpatient or outpatient setting)
	<i>Score explanation: In the core curriculum for first-year students at Vanderbilt University School of Medicine, non-pharmaceutical management of conditions such as diabetes and obesity were covered in the learning objectives for students' Case Based Learning groups as well as lectures on management and treatment of cardiovascular health and risk factors. This topic was also discussed in the students' longitudinal Foundations of Healthcare Delivery course within the context of social drivers of health and access to care. The health benefits of avoiding over-medicalisation were discussed within the context of steadily increasing antibiotic resistance during students' Microbes and Immunity course block. This topic was covered in lecture as well as Case Based Learning groups as a means to draw attention to the importance of antibiotic stewardship. Second year students also received a lecture as a part of the "Foundations of Healthcare Delivery" course regarding deprescribing medications in the context of polypharmacy and its harm. The second-year "Foundations of Healthcare Delivery" course also emphasized the importance of avoiding excessive investigation of labs and imaging. However, environmental co-benefits were not mentioned for any of these topics. A session discussing the public health threat of climate change will be included in April of the Foundations of Healthcare Delivery course of the second year. This session will include ways that the healthcare system contributes to waste in the clinic, hospital, and ORs. In a lecture on colorectal cancer screening techniques, M1 students were taught about the amount of waste produced by colonoscopies and strategies to reduce waste production. In a Case Based Learning case, students were also directed to investigate the amount of waste produced by endoscopy and strategies to reduce waste production, including avoiding over-investigation with unnecessary endoscopies.</i>

**Curriculum: Clinical Applications**

<b>1.18. In training for patient encounters, does your <u>medical school's</u> curriculum introduce strategies to have conversations with patients about the health effects of climate change?</b>	
2	Yes, there are strategies introduced for having conversations with patients about climate change in the <b>core</b> curriculum.
1	Yes, there are strategies introduced for having conversations with patients about climate change in <b>elective</b> coursework.

0	No, there are <b>not</b> strategies introduced for having conversations with patients about climate change
<p><i>Score explanation: First-year students at Vanderbilt University take a Physical Diagnosis course, which instructs students' in basic physical exam maneuvers and findings as well as the skill of history taking. There is no discussion during this course about having conversations about the effects of climate change on health. In the elective course, "Ecology and Health: Climate, Food and Justice" there is one class on the topic of Communicating Climate Change in the Age of Misinformation and Polarization. A session discussing the public health threat of climate change will be included in April 2024 of the Foundations of Healthcare Delivery course of the second year. This session will educate students on the skills to have climate conscious conversations with their patients.</i></p>	

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 <b>core</b> curriculum includes strategies for taking an environmental history.
1	Only <b>elective</b> coursework includes strategies for taking an environmental history.
0	No, the curriculum does <b>not</b> include strategies for taking an environmental history.
<p><i>Score explanation: First-year students at Vanderbilt University take a Physical Diagnosis course, which instructs students' in basic physical exam maneuvers and findings as well as the skill of history taking. "Occupational exposures" is listed as a category under "Social History", but there were no specific lectures regarding strategies as to how to assess environmental and exposure history. It is stressed (like in the Interstitial Lung Disease lecture) that taking a thorough exposure history is very important, but there are still no specific lectures or strategies on this. A session discussing the public health threat of climate change will be included in April of the Foundations of Healthcare Delivery course of the second year. This session will educate clerkship students on the skills to have climate conscious social history with their patients. Specific examples will be provided for students on the Medicine and Pediatrics clerkships on how to approach these conversations.</i></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?	
4	Yes, the medical school is currently in the process of making <b>major</b> improvements to ESH/planetary health education.
2	Yes, the medical school is currently in the process of making <b>minor</b> improvements to ESH/planetary health education.
0	No, there are <b>no</b> improvements to planetary health education in progress.
<p><i>Score explanation: The medical school is supportive of and in the process of making major improvements to planetary health education. Last year, a climate change and health proposal that implements changes to the core curriculum, namely the first-year curriculum and "Foundations of Healthcare Delivery" longitudinal course, was introduced to faculty and deans and was overall well received. Some of these changes have already been implemented into the first-year curriculum (like the</i></p>	



*Microbes and Immunity block and Renal and Digestion block) as well as the Foundation of Healthcare Delivery course in first and second year.*

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

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

*Score explanation: There are no lectures in the core curriculum that solely discuss planetary health. However, after discussions with deans and other faculty, more core lectures have begun to incorporate planetary health and climate change concepts as applicable into their lectures. Longitudinal courses in the first-year curriculum (like Microbes and Immunity as well as Renal and Digestion) have now incorporated more elements of planetary health across several lectures as applicable. Foundations of Healthcare Delivery is a longitudinal course that has also incorporated topics like climate change and carbon footprint into lectures and small-group sessions. First-year case-based learning sessions on topics like PTSD and multiple sclerosis may also include elements of planetary health.*

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

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

*Score explanation: While there are faculty members who are interested in planetary health and involved in the process of curricular changes proposed, at present there is no designated faculty mentor to oversee implementation of the topic of planetary health/sustainable healthcare into the curriculum and it is a largely student-driven effort. There is a monthly to bimonthly Environmental and Sustainability Working Group (ESWG), which is a meeting of various faculty and attendings across the university and medical center that is dedicated to climate change efforts. Some of these faculty are focused on incorporation of this information into GME education for residents. However, none of these faculty members are dedicated faculty within the medical school.*

*In 2023, The Department of Radiology created a new position of Associate Professor and Vice Chair of Global Health. This title is currently held by a radiologist who is particularly interested in climate health. In 2023 Dean Lourdes Estrada was appointed to the position of Assistant Dean of Health Equity Education. Her role spans opportunities to add integration of social determinants of health, which includes climate and environment into the curriculum.*

Section Total (44 out of 72)	61.11%
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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.*

<b>2.1. Are there researchers engaged in planetary health research and healthcare sustainability research at your <u>medical school</u>?</b>	
3	Yes, there are faculty members at the <b>medical school</b> who have a <b>primary</b> research focus in planetary health <b>or</b> healthcare sustainability.
2	Yes, there are individual faculty members at the <b>medical school</b> who are conducting research <b>related</b> to planetary health or healthcare sustainability, but it is not their primary research focus.
1	There are planetary health and/or healthcare sustainability researchers at the <b>institution</b> , but none associated with the medical school.
0	No, there are <b>no</b> planetary health and/or healthcare sustainability researchers at the <b>institution</b> or <b>medical school</b> at this time.
<p><i>Score explanation: Vanderbilt University School of Medicine has several faculty members whose primary focus is planetary health. Dr. Eva Parker is an Assistant Professor of Dermatology whose research focuses on the health effects of climate change. Additionally, she is the Co-Chair of American Academy of Dermatology's Expert Resource Group on Climate and Environmental Issues, a member of the International Society of Dermatology's Committee on Climate Change, a member of the Cochrane Climate-Health Working Group, and a faculty supervisor for the Climate Resources for Health Education initiative lead by the Global Consortium on Climate and Health Education. Dr. Parker lectures nationally and internationally and frequently publishes on this topic including the following 2023 publications: a review on the impact of climate change on skin health and dermatologic disease (PMID: 37336870), an examination of intersectionality of the impact of climate change on atopic dermatitis and mental health comorbidities (PMID: 36639925), Public Health Risks, Dermatological Manifestations, and Environmental Justice Associated With Vinyl Chloride Exposure (PMID: 37676716), and Dermatology's call to emergency action on climate change (PMID: 36073606). Dr. Parker is also piloting an e-consent program in Dermatology to decrease paper waste. She founded and co-chairs the Environmental Sustainability Working Group at VUMC, is the Course Director for the Ecology and Health Advanced Elective, and served on the Mayor of Nashville's Sustainability Advisory Committee as the only physician. The VUMC Department of Radiology is actively involved in planetary health research and advocacy, and has a new <a href="#">Global Health &amp; Sustainability initiative</a>. The Department has partnered with Royal Phillips on a <a href="#">project</a> to measure and address energy consumption of diagnostic imaging devices with the end goal of publishing their findings to guide industry efforts. The Department also launched a <a href="#">Climate Action and Sustainability Pilot Grant</a> initiative in April 2023. Dr. John Scheel, who joined the Department of Radiology as an Associate Professor and the Department's first Vice Chair of Global and Planetary Health in November 2022, researches and advocates for sustainable radiology practices. Dr. Scheel was recently the senior author on the Association of University Radiologists Committee on Climate Change and Sustainability's statement (PMID: 37438160). Dr. Reed Omary, the former Carol D. and Henry P. Pendergrass Professor and</i></p>	

Chair of Radiology, stepped down from his Chair in June 2023 to spend a sabbatical year focused on climate change and sustainability. Dr. Omary also recently helped create a toolkit for action on climate change in radiology (PMID: 37070994). Finally, the Department of Radiology's Drs. Asha Sarma (Assistant Professor), Sumit Pruthi (Professor and Section Chief of Pediatric Radiology) and Jessica Leschied (Associate Professor) recently authored a review on the importance of planetary health in pediatric radiology (PMID: 37962606). Additionally, Dr. Frederick-Dyer has published several articles on decreasing the radiology department's environmental impact, and recently authored a paper on reducing waste in the IR suite (PMID: 38042233) and using multi-dose vs single-dose iodinated contrast (PMID: 36621442). The VUMC Radiology Department also disseminated an "EcoRadiology Survey" to faculty and trainees in radiology to gather data on the opinion of importance of sustainability measures. Dr. Diana Carver has also been studying the environmental impact of VUMC's Radiology Department. Dr. Malow is active in advocacy for climate change and has also published articles related to climate change. Dr. Borden Lacy, a professor of structural biology at VU, has done a lot of work helping laboratory spaces at Vanderbilt become more green and sustainable (<https://www.vanderbilt.edu/csb/2022/06/17/science-for-a-green-energy-future/>) through the Center for Structural Biology Green Team. Dr. Roy Neeley, an anesthesiologist at VUMC, has been heading a "Greening Anesthesia" effort at VUMC, including an initiative to alert providers about best practices for sustainability in EPIC. Dr. Tina Hartert studies disparities in exposure to fossil fuel air pollution in TN and the effect this has on maternal and child health. There is also a Climate Health and Energy Equity Lab (CHEEL) as a part of the Vanderbilt Wondry co-founded by Dr. Carol Ziegler, Dr. Zdravka Tzankova and Dr. James Muchira where several research initiatives are ongoing. A majority of these faculty members are part of an Environmental and Sustainability Working Group (ESWG) that meets monthly to bi-monthly to discuss efforts around the institution to increase sustainability.

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

3	There is <b>at least one</b> dedicated department or institute for interdisciplinary planetary health research.
2	There is <b>not currently</b> a department or institute for interdisciplinary planetary health research, but there are <b>plans</b> to open one in the next 3 years.
1	There is an <b>Occupational and Environmental Health department</b> , but no interdisciplinary department or institute for planetary health research.
0	There is <b>no</b> dedicated department or institute.

Score explanation: Vanderbilt University is home to the [Office of Environmental Health, Safety, and Sustainability](#), which operates with the goal of fostering sustainable action in and around the Vanderbilt community, commissioning multiple comprehensive operational studies to better understand and develop solutions to address the university's environmental impact. There are multiple interdisciplinary academic programs and centers including the program in [Climate and Environmental Studies](#), which offers coursework at the intersection of climate and health, the [Vanderbilt Institute for Energy and Environment \(VIEE\)](#), and the [Vanderbilt Climate Change Initiative](#). Vanderbilt's professional schools are also associated with climate research initiatives, including the Wond'ry and School of Nursing's [Climate, Health, & Energy Equity Lab \(CHEEL\)](#) and the School of Law's [Climate Change Research Network](#), though there are no current groups associated with the School of Medicine or Medical Center, though the Department of Radiology is leading a [Climate Change & Sustainability initiative](#) and hosted the inaugural Climate Action & Sustainability Summit in December 2023. There is also a VUMC Occupational Health department.

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

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

*Score explanation: There is currently no official process or efforts to create such a process. However, individual research projects occurring at VUMC may have their own separate process for eliciting community input. The VUMC Office of Health Equity conducts a yearly Community Health Needs Assessment (CHNA) of the counties surrounding VUMC in Middle TN. The assessment includes an environmental scan of county-specific reports which includes food insecurity and air pollution and interviews with community members and leaders. However, the report does not ask community members for input on research at VUMC, and there is no specific process by which communities disproportionately impacted by climate change can submit input on the research agenda at VUMC.*

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

3	There is an <b>easy-to-use, adequately comprehensive</b> website that <b>centralizes</b> various campus resources related to health and the environment including all of the following: upcoming events, leaders in planetary health at your institution, and relevant funding opportunities.
2	There is a website that <b>attempts to centralize</b> various campus resources related to health and the environment, but it is hard-to-use, not updated, or not adequately comprehensive.
1	The <b>institution</b> has an <b>Office of Sustainability website</b> that includes <b>some</b> resources related to health and the environment.
0	There is <b>no</b> website.

*Score explanation: Vanderbilt University's Office of Environmental Health, Safety, and Sustainability has a [website](#) that outlines the university's sustainability initiatives along with its annual sustainability reports. The page describes the initiatives taken to reach the carbon neutrality goal of 2020 and future goals for 2050. These initiatives, however, are not applicable to the medical center or the medical school community. The VUMC Office of Research does have a [web page](#) dedicated to research sustainability, however, which provides information and resources as well as links current efforts associated with the medical institution.*

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

4	Yes, the <b>medical school</b> has hosted at least one conference or symposium on topics related to planetary health in the past year.
3	Yes, the <b>institution</b> has hosted at least one conference or symposium on topics related to planetary health in the past year.
2	Yes, the <b>institution</b> has hosted a conference on topics related to planetary health in the past three years.
1	The <b>institution</b> has not hosted any conferences directly, but they have provided financial support for a local planetary health event.
0	No, the <b>institution</b> has not hosted a conference on topics related to planetary health in the past three years.

*Score explanation: The inaugural [Climate Action and Sustainability Summit](#) was hosted by the Department of Radiology on December 7, 2023. Additionally, Vanderbilt University also hosted the [Clinton Global Initiative University annual meeting](#) on March 3-5, 2023, and one of the topics addressed at the meeting was the climate crisis. Vanderbilt University also hosted the [Vanderbilt University–Oak Ridge National Laboratory Workshop on Climate Change and Environmental Justice](#) on October 9, 2023. Finally, although not hosted by our institution, Dr. Leah Dundon, who is the Director of the Vanderbilt Climate Change Initiative, led the largest-ever Vanderbilt graduate and undergraduate student presence at the [United Nations Framework Convention on Climate Change \(COP27\)](#) conference in 2022. Vanderbilt earned official United Nations Observer status in 2019. Within the medical school, the Tennessee Medical Association (TMA) - American Medical Association (AMA) Vanderbilt student chapter in addition to the Wilderness Medicine Society hosted a multi part discussion series on the health consequences of climate change in Spring 2024.*

2.6. Is your <b>medical school</b> a member of a national or international planetary health or ESH organization?	
1	Yes, the medical school is a member of a national or international planetary health or ESH organization
0	No, the medical school is <b>not</b> a member of such an organization
<i>Score explanation: Although the Vanderbilt University School of Medicine is not a member of a planetary health or ESH organization, the School of Nursing is a member of the <a href="#">Global Consortium on Climate and Health Education</a>.</i>	

<b>Section Total (12 out of 17)</b>	<b>70.6%</b>
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*Are there additional research resources offered at your medical school or institution not yet asked about that you would like to describe? If so, please do so below.*



## Community Outreach and Advocacy

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

3.1. Does your <b>medical school</b> partner with community organizations to promote planetary and environmental health?	
3	Yes, the <b>medical school</b> meaningfully partners with <b>multiple</b> community organizations to promote planetary and environmental health.
2	Yes, the <b>medical school</b> meaningfully partners with <b>one</b> community organization to promote planetary and environmental health.
1	The <b>institution</b> partners with community organizations, but the medical school is not part of that partnership.
0	No, there is <b>no</b> such meaningful community partnership.
<p><i>Score explanation: The Vanderbilt Educational Garden Initiative (VEGI) is a medical student organization which collaborates with the Vanderbilt University Community Garden and Rooted Community Health to maintain a fruit, vegetable, and herb garden, the produce from which is donated to Shade Tree Clinic patients and their families. <a href="#">Rooted Community Health</a> is an initiative based out of the medical center which partners with nutritional services to “engage partners across the Vanderbilt campus and communities of Middle Tennessee in service to ecological sustainability, health promotion, and human flourishing.” Notably, the initiative partners with multiple local farms (Delvin Farms, Caney Fork Farms, Growing Together) in a <a href="#">community-supported agriculture (CSA) program</a> available to VUMC employees and works to provide for VUMC patients through the <a href="#">Food Security Resource Center</a>.</i></p>	

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

*Score explanation: Vanderbilt University regularly hosts events focused on planetary health which are open to the community. For example, in March 2023, John Vick, the Director of the Office of Primary Prevention at the Tennessee Department of Health presented a talk on “Resilience, Extreme Events, Climate Change, and Human Health.”*

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

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

*Score explanation: The medical school does not send out regular updates of issues related to planetary health or sustainable healthcare. On the institutional level, students receive biweekly emails from Vanderbilt University which include information on sustainability efforts; however, these are not related to healthcare.*

**3.4. Does the institution or main affiliated hospital trust engage in professional education activities targeting individuals post graduation with the aim of ensuring their knowledge and skills in planetary health and sustainable healthcare remain up to date during their professional career?**

2	Yes, the <b>institution</b> or <b>main affiliated hospital trust</b> offers multiple in-person or online courses relating to planetary health and/or sustainable healthcare for post-graduate providers, including at least one with a primary focus of planetary health.
1	Yes, the <b>institution</b> or <b>main affiliated hospital trust</b> offers one course relating to planetary health and/or sustainable healthcare for post-graduate providers
0	There are <b>no</b> such accessible courses for post-graduate providers

*Score explanation: There are currently no accessible courses for postgraduate providers. The Masters of Public Health (MPH) program at Vanderbilt, which many postgraduate trainees enroll in, does teach environmental health exposures as a part of its curriculum, but these materials are not available to all post graduates at VUMC and do not necessarily focus on planetary health.*

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

2	Yes, the <b>medical school</b> or <b>all affiliated hospitals</b> have accessible educational materials for patients.
1	<b>Some</b> affiliated hospitals have accessible educational materials for patients.



0	<b>No</b> affiliated medical centers have accessible educational materials for patients.
<p><i>Score explanation: Occupational Health at VUMC has several educational materials including brochures and online information for patients about environmental health exposures. Examples include information about chemical spills, airborne exposures, and biological waste with information on risks, treatments, and prevention strategies associated with each exposure. Occupational health also receives reports of smells or exposures in the institution and works with Environmental Services to do an air quality check and alleviate the problem in that area.</i></p>	

<b>3.6. Does your <u>medical school</u> or its <u>affiliated teaching hospitals</u> have accessible educational materials for patients about the health impacts of climate change?</b>	
2	Yes, the <b>medical school</b> or <b>all</b> affiliated hospitals have accessible educational materials for patients.
1	<b>Some</b> affiliated hospitals have accessible educational materials for patients.
0	<b>No</b> affiliated hospitals have accessible educational materials for patients.
<p><i>Score explanation: Vanderbilt Children’s Hospital, Vanderbilt University Hospital and the Nashville VA are the affiliated hospitals of Vanderbilt School of Medicine. “Vanderbilt Health DNA: Discoveries in Action” is a podcast produced by Vanderbilt Health. These episodes are free online and geared toward the public. The podcast hosted 2 climate and health conversations via Twitter Spaces chats on 11/13/22 and 11/14/22. VUMC had an inaugural Climate Action and Sustainability Summit on 12/7/23, hosted by the Department of Radiology, to explore and operationalize climate-friendly business practices; the event was open to the public.</i></p>	

<b>Section Total (7 out of 14)</b>	<b>50.0%</b>
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*Are there additional community engagement and advocacy resources offered at your medical school or institution not yet asked about that you would like to describe? If so, please do so below.*

## Support for Student-Led Planetary Health Initiatives

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

4.1. Does your <b>medical school</b> or your <b>institution</b> offer support for medical students interested in enacting a sustainability initiative/QI project?	
2	Yes, the <b>medical school</b> or <b>institution</b> <i>either</i> offers grants for students to enact sustainability initiatives/QI projects <i>or</i> sustainability QI projects are part of the core curriculum.
1	The <b>medical school</b> or <b>institution</b> encourages sustainability QI projects (to fulfill clerkship or longitudinal requirements) and offers resources to help students succeed in these projects, <b>but</b> there is no student funding available and there is no requirement to participate.
0	No, <b>neither</b> the medical school or the institution offer opportunities or support for sustainability initiatives or QI projects.
<p><i>Score explanation: The Vanderbilt MD curriculum requires that all students complete a quality improvement project during the third and fourth years through the longitudinal Foundations of Healthcare Delivery (FHD) course. For example, as a part of this course, students have completed QI projects related to OR waste. During the first week of third year there is a FHD Immersion course through which students are provided with an introduction to the QI process and learn more about the public health system and healthcare delivery. During this week, there was a “Faces of Public Health” panel in which students were introduced to physicians and researchers who are incorporating climate conscious efforts into their everyday practice as well as members of the Vanderbilt Climate, Health, and Energy Equity Lab (CHEEL Lab). Members of the CHEEL lab discussed the projects they were currently working on as well as opportunities for medical student involvement through sustainability-focused QI projects.</i></p>	

4.2. Does your <b>institution</b> offer opportunities for medical students to do research related to planetary health and/or sustainable healthcare?	
2	The <b>institution</b> has a <b>specific</b> research program or fellowship for students interested in doing planetary health/sustainable healthcare research.
1	There are research opportunities for students to perform research related to planetary health/sustainable healthcare, but these <b>require student initiative</b> to seek these out and carry them out in their spare time.
0	There are <b>no opportunities</b> for students to engage in planetary health/sustainable healthcare research.
<p><i>Score explanation: During the third year Foundations of Healthcare Delivery (FHD) Immersion week course, students had the opportunity to meet with members of the Vanderbilt Climate, Health, and Energy Equity Lab (CHEEL Lab) and learn about research projects they could pursue. At present there</i></p>	

is no funding source for students specifically interested in planetary health/sustainable healthcare research. However, there are general funding sources for medical student research such as the [Medical Scholars Program](#) could likely be applied to a research project related to planetary health.

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

2	The <b>medical school</b> has a webpage with specific information related to planetary health or sustainable healthcare that includes up-to-date information on relevant initiatives and contact information of potential mentors.
1	There is a <b>medical school</b> webpage that features some information on projects and mentors within planetary health and sustainable healthcare within the medical school, but it lacks key information.
0	There is <b>no medical-school</b> specific webpage for locating planetary health and/or sustainable healthcare projects or mentors.

*Score explanation: There is no medical-school specific webpage, nor is there a larger institutional planetary health website. [Vanderbilt University](#) does have a sustainability-specific website.*

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

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

*Score explanation: The Social Mission Committee (SMC) at Vanderbilt Medical School is a broad organization that encompasses all student organizations related to service, health equity, etc. There are projects within SMC including the Planetary Health Report Card that are dedicated to planetary health. Through SMC, we are also working with faculty and deans to propose a Climate Change and Health Proposal for the core curriculum. We have faculty support through the Vanderbilt Center for Biomedical Ethics, which also runs the elective course offered to medical students about climate change and health. Additionally, this year we founded a VUSM chapter of Medical Students for Sustainable Future (MS4SF), which is a national organization focused on giving medical students the skills to engage in climate-smart healthcare. Our chapter's mission is "...to effect change in the Vanderbilt medical community as well as the Nashville community through advocacy, curriculum reform, and climate change informed health care."*

**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: The Vanderbilt University School of Medicine’s Wellness Committee has a dedicated student board position (Sustainability and Service chair) to represent sustainable interests. Currently, three students fill this board position and work closely with the other members of the Wellness Committee as well as the School of Medicine deans to engage the medical student body in sustainable action and advocate for adoption of more sustainable practices and education within the School of Medicine.*

**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 Vanderbilt Education Garden Initiative (VEGI) is a medical-student-run organization that has planting events open to medical students.*

*From March 3-5, 2023 Vanderbilt hosted the Clinton Global Initiative University Annual Meeting, where students from around the world gathered to discuss their Commitments to Action to address challenges in their local, state, and national communities. Climate change was a central topic at this meeting and a plenary session titled “The Race Towards Climate Justice” was held on March 4, 2023. On January 26, 2023 Vanderbilt held a lecture titled “Martin Luther King Jr: The Intersection of Civil Rights and Environmental Justice”, presented by Dorceta Taylor. Dorceta Taylor is a senior associate dean of diversity, equity, and inclusion and a professor of environmental justice at Yale University. John Vick (Director of the Office of Primary Prevention at the Tennessee Department of Health and alumnus*

of Peabody College) also presented a lecture titled “Resilience, Extreme Events, Climate Change, and Human Health”.

The student organization Students Promoting Environmental Awareness and Responsibility (SPEAR) hosted a sustainable art gallery in which 30 pieces were displayed around Alumni Hall. The art of VU students (using upcycled materials) was also featured in the [Trash Talk exhibition](#) from April 1-29 2023 at Turnip Green Creative Reuse. Additionally, a new initiative by the Curb Center resulted in the launch of the [Vanderbilt Eco-Grief Institute](#), “a yearlong collaborative project that will use art as a tool to investigate the complex set of emotions- sorrow, grief, terror, complicity, and a range of others- that come to mind as we contemplate or changing climate and witness its effects on earthly life.” Lastly, a new podcast called the [Art of Interference](#) was launched on October 20, 2023 and “dives deep into the intersection of art, climate change, and humanity’s relationship with the natural world.

The student organization SPEAR organized a river cleanup on October 7. Additionally, groups such as Urban Green Lab, Civic Design Center, TN Environmental Council, Cumberland River Compact have volunteer opportunities related to building community resilience to anthropogenic environmental impacts.

Our medical school also has a Wilderness Medicine Society that organizes backpacking, kayaking, etc. for all medical students.

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

**73.3%**

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

# Campus Sustainability

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

5.1. Does your <u>medical school</u> and/or <u>institution</u> have an Office of Sustainability?	
3	Yes, there is an Office of Sustainability with multiple full-time staff dedicated to campus sustainability. If the Office of Sustainability serves the entire campus, there is <b>at least one designated staff member</b> for sustainability at the hospital and/or medical school.
2	There is an Office of Sustainability with one or more full-time staff dedicated to campus sustainability, but <b>no specific staff member</b> in charge of medical school and/or hospital sustainability.
1	There are <b>no salaried sustainability staff</b> , but there is a sustainability task force or committee
0	There are <b>no</b> staff members <b>or</b> task force responsible for overseeing campus sustainability
<p><i>Score explanation: Vanderbilt University has the <a href="#">Office of Environmental Health, Safety, and Sustainability</a>, which has three full time positions: Director, Environmental Management Systems Coordinator, and Sustainability Outreach Coordinator. They manage campus infrastructure in a sustainable and cost-efficient manner and have a Sustainability Advisory Committee (SAC) composed of students, faculty, and staff that advises University administration. While the Director coordinates sustainability and environmental compliance programs across the academic campus and medical center, there are no specific staff or department for sustainability at the School of Medicine or Medical Center.</i></p>	

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

Score explanation: Vanderbilt University, through a [collaboration](#) with the nonprofit organization Climate Vault, has aimed to address the full extent of its carbon footprint and was able to achieve carbon neutrality in 2021, decades ahead of its initial goal (2050). The initiative effectively removes carbon pollution permits from regulated carbon markets while simultaneously stimulating research into emerging carbon removal technologies. While the university continues to push action and innovations on several fronts, it identified the near-term opportunity to work with Climate Vault and use the cap-and-trade market—which is designed to limit harmful emissions—to accelerate its impact, allowing it to become the first member of the Association of American Universities to achieve carbon neutrality.

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



*Score explanation: Eskind Biomedical Library, the main medical school building at Vanderbilt, is one of the 24 LEED-certified buildings on Vanderbilt's campus. Vanderbilt Health One Hundred Oaks, the home of various clinic rotations, was the first Vanderbilt Medicine building to become LEED certified. The Vanderbilt Technologies for Advanced Genomics (VANTAGE) Laboratory and the School of Nursing are also LEED-certified.*

*Buildings on campus receive energy from both off-site and on-site renewable energy sources. The campus power plant uses natural gas to produce ~30% of campus electricity. Vanderbilt's on-campus Combined Heat and Power (CHP) plant produces a portion of the electricity, all of the steam, and a portion of the chilled water consumed by the Vanderbilt community. This steam is then used for 90% of campus heating, sterilization, and 40% of campus cooling.*

*The remaining electricity is purchased from Nashville Electric Service which sells power generated by TVA. The fuel mix for TVA can be found on page 12 of this report:*

*<https://d18rn0p25nwr6d.cloudfront.net/CIK-0001376986/5c6f8465-9e29-436c-b149-2ac0f9514639.html>*

*Vanderbilt currently has a 20kW solar photovoltaic electrical system installed on the roof of Currey Tennis Center with solar panels that generate electricity from the sun's energy. This power is then fed into the Vanderbilt electricity grid, which feeds the entire campus. Vanderbilt also has Solar-powered electronics charging stations and picnic tables.*

*In 2020, Vanderbilt entered into an agreement with the Tennessee Valley Authority and Nashville Electric Service through TVA's [Green Invest program](#). This partnership facilitates procurement of off-site large-scale renewable energy, with the goal of mitigating campus' greenhouse gas emissions. Vanderbilt is working towards the eventual goal of powering campus entirely with renewable energy and becoming carbon-neutral. In the seven-state TVA region, Vanderbilt is the first customer to partner with a local power company in a similar agreement. The 20-year agreement will support Vanderbilt's goal to power its campus entirely through renewable energy and become carbon neutral by the year 2050. Through this partnership, Vanderbilt unveiled Vanderbilt I Solar Farm, a 35-megawatt solar facility in Bedford County, Tennessee, in April 2023. It was built in collaboration with Nashville Electric, TVA, and Nashville-based [Silicon Ranch Corporation](#), the U.S. solar platform for Shell and one of the largest independent solar power producers in the country. This plant will offset 70 percent of the university's annual indirect greenhouse gas emissions from electricity purchased through Nashville Electric Service. A second farm is planned in Moore County, Tennessee, which will offset the other 30 percent.*

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



*Score explanation: Vanderbilt has a formal set of Sustainable Building Standards that guide how buildings on campus are newly built or largely renovated. The Sustainable Building Standards incorporate FutureVU Sustainability Guidelines, Vanderbilt’s carbon neutrality goal, BlueSky Vision, Zero Waste goal, ASHRAE 90.1-2016, WELL principles, and other sustainability requirements for materials, etc., apply to all capital projects, and are addressed in all Requests for Proposals issued for new projects and referenced in contracts for architects, design consultants, and construction managers.*

*There are four tiers within the Sustainable Buildings Standards. Tier 1 includes all new buildings, additions, or full renovations, which should seek LEED Gold certification, Living Building petal, Net Zero, Fitwel, WELL, and/or Zero Waste Certification if possible. Tier 2 include partial renovations or smaller additions, for which some LEED requirements should be sought. Tier 3 includes renovations to energy impacting systems, which should emphasize energy conservation measures. Teams must research energy efficiency and greenhouse gas reduction. Tier 4 includes landscape projects, carpet replacement, roof replacement, repainting, etc. Project teams must consider materials and waste to ensure Vanderbilt’s sustainability goals are followed.*

*VU’s sustainable building standards say, “Vanderbilt endeavors to build environmentally responsible, long-lasting, and efficient buildings that will foster healthier and productive learning and working environments. Sustainable building entails design and construction practices that meet specified efficiency, environmental and wellness standards for both indoor and outdoor spaces, resolving much of the negative impact of buildings on their occupants and the environment. A well-designed sustainable building combines reducing environmental impacts, safeguarding, and even improving health of building occupants, and improving economic performance while supporting Vanderbilt’s academic mission and strategic goals. Such triple-bottom-line thinking translates into energy savings, financial savings, verified improved building performance, enhanced productivity, increased building value, reduced liability and improved risk management. For Vanderbilt, it means moving into a future where our buildings have a net positive impact.*

*Vanderbilt’s goal is to continuously improve our buildings and building standards to achieve increasing levels of performance, sustainability, and positive environmental and health impacts. These Standards include targets for energy use and greenhouse gas emissions, water conservation, indoor environmental quality, outdoor lighting and noise, and materials, resources & waste.”*

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

2	Yes, the medical school or institution has implemented strategies to encourage and provide <b>environmentally-friendly transportation options</b> such as safe active transport, public transport, or carpooling and these options are well-utilized by students. Alternatively, the campus location is not amenable to unsustainable forms of transportation by default.
1	The medical school or institution has implemented <b>some</b> strategies to provide environmentally-friendly transportation options, but the options are <b>unsatisfactorily</b> accessible or advertised.
0	The medical school or institution has <b>not</b> implemented strategies to encourage and provide environmentally-friendly transportation options.

*Score explanation: MoveVU is Vanderbilt's mobility and transportation plan to create a sustainable, walkable campus with diverse transportation options. MoveVU aspires to lower Vanderbilt University's current drive alone rate. In 2018, the percent of commuters at Vanderbilt driving alone to work was 79%, which decreased to [48% in 2023](#). MoveVU offers a carpool matching tool and daily parking options to encourage sustainable commuting. In 2021, an incentive payments for sustainable commutes was also implemented.*

*Moreover, medical students have access to the Nashville Bus system for free with their student ID. There is also a shuttle available for transportation from the VUMC Main Campus and the VUMC One Hundred Oaks (OHO) location that is frequently utilized by medical students as well as residents, staff, and students of other healthcare professions.*

**5.6. Does your medical school have an organics recycling program (compost) and a conventional recycling program (aluminum/paper/plastic/glass)?**

2	Yes, the medical school has <b>both</b> compost <b>and</b> recycling programs accessible to students and faculty.
1	The medical school has <b>either</b> recycling <b>or</b> compost programs accessible to students and faculty, but not both.
0	There is <b>no</b> compost or recycling program at the medical school.

*Score explanation: The School of Medicine's Eskind Biomedical Library has recycling for paper, plastic, and aluminum, though it does not recycle glass. Recycling within the Medical Center, managed by [Facilities Services](#), is more limited, though efforts are made to coordinate electronic waste recycling. Student-led initiatives are working to jumpstart battery recycling from operating room equipment as well as [silicone recycling](#), though these projects remain in early stages. Moreover, the Vanderbilt Educational Garden Initiative (VEGI) has begun to operate a compost pile in which food waste from the medical school community can be recycled, though the scope of current composting efforts remains small scale.*

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

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

*Score explanation: Although Vanderbilt University Campus Dining is host to an extensive [initiative](#) to improve sustainability for on-campus dining options, there is no such effort or initiative that applies to the School of Medicine or Medical Center.*

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

3	Yes, the medical school has <b>adequate</b> sustainability requirements for supply procurement <b>and is engaged</b> in efforts to increase sustainability of procurement.
2	There are sustainability guidelines for supply procurement, but they are <b>insufficient or optional</b> . The medical school is <b>engaged</b> in efforts to increase sustainability of procurement.
1	There are sustainability guidelines for supply procurement, but they are <b>insufficient or optional</b> . The medical school is <b>not engaged</b> in efforts to increase sustainability of procurement.
0	There are <b>no</b> sustainability guidelines for supply procurement.

*Score explanation: “Vanderbilt’s Purchasing Services’ Department prefers that our suppliers use environmentally-preferable products, materials, and sources wherever economically feasible. If two products are competitive in performance characteristics and pricing, the university will favor the more environmentally-friendly product or company. Procurement Services has worked closely with preferred office products, janitorial products, and laboratory products suppliers to provide more easily identified environmentally-preferable product selections.” One can read more about Procurement and Disbursement Services’ Green Purchasing Program online or in Section 9.16 of the Procurement Policies and Procedures Manual. Sustain VU has a Greening Guide to cultivate green purchasing and procurement.*

*The graduate school has surveyed laboratories in an effort to minimize shipping via styrofoam boxes, but the medical school is not engaged with these efforts to increase sustainable procurement.*

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

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

*Score explanation: There are general sustainability event guidelines by Vanderbilt University, as can be seen [here](#). There are no medical student specific endeavors or incentivifications for event sustainability.*

**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 <b>programs and initiatives</b> to assist with making lab spaces more environmentally sustainable.
1	There are <b>guidelines</b> on how to make lab spaces more environmentally sustainable, but not programs or initiatives.
0	There are <b>no</b> efforts at the medical school to make lab spaces more sustainable.

*Score explanation: FutureVU Sustainability is in the process of developing a laboratory greening program. In the meantime, both the [Office of Environmental Health, Safety, and Sustainability](#) and the [VUMC Office of Research](#) have published greening guides, which are a great resource for information concerning green office and procurement practices. Moreover, the Center for Structural Biology has a [Green Team](#) dedicated to making research at Vanderbilt more sustainable, which holds monthly meetings and provides resources for lab greening. In 2024, Vanderbilt University will be publishing a green lab checklist. In March 2023, the My Green Lab Freezer challenge was started to encourage energy efficient usage of lab freezers.*

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

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

*Score explanation: There are currently no institutional commitments to divest from fossil fuel companies, but students and staff alike are organizing to advocate for divestment. [Divest Vanderbilt](#) is the university's student-led divestment campaign, which has made itself a well-known presence on campus.*

**Section Total (17 out of 32)**

**53.1%**

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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 Vanderbilt University School of Medicine

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

Section	Raw Score %	Letter Grade
<b>Planetary Health Curriculum (30%)</b>	$(44/72) \times 100 = 61.11\%$	B-
<b>Interdisciplinary Research (17.5%)</b>	$(12/17) \times 100 = 70.59\%$	B
<b>Community Outreach and Advocacy (17.5%)</b>	$(7/14) \times 100 = 50.00\%$	C
<b>Support for Student-led Planetary Health Initiatives (17.5%)</b>	$(11/15) \times 100 = 73.33\%$	B
<b>Campus Sustainability (17.5%)</b>	$(17/32) \times 100 = 53.13\%$	C
<b>Institutional Grade</b>	$(Ax0.3 + Bx0.175 + Cx0.175 + Dx0.175 + Ex0.175) = 61.57\%$	B-

# Report Card Trends

## Section Overview

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

