Planetary Health Report Card (Medicine):

West Virginia University School of Medicine

2022-2023 Contributing Team:

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Summary of Findings

Overall	C-

Curriculum	C -

- The West Virginia University School of Medicine does include planetary health in its curriculum. However, holistically, greater emphasis needs to be placed on included topics and there needs to be an increased integration of planetary health topics in the core curriculum, rather than electives.
- **Recommendations:** Lecturers that briefly mention key concepts should transition into generating testable content. Metrics that could easily be incorporated into existing lectures, such as the planetary and health co-benefits of a plant-based diet, should also be added.

Interdisciplinary Research	C

- The West Virginia University School of Medicine has sufficient research opportunities in planetary health, but lacks larger institutional structures related to planetary health research and significant communication with students and public regarding said research.
- **Recommendations**: They could create a webpage that centralizes planetary health research opportunities and also join the Planetary Health Alliance and the Global Consortium on Climate and Health Education.

Community Outreach and Advocacy	D -

- The West Virginia University School of Medicine has very little community outreach relating to planetary health. Current modes of outreach include educational materials for patients related to environmental exposures with minimal efforts beyond this.
- **Recommendations**: Some key initial steps to be taken include: creating educational materials for patients related to climate change and its health effects, include planetary health/sustainable healthcare issues in email communications, and offer a planetary health event for the community in the next year.

Support for Student-Led Initiatives	B

- The West Virginia University School of Medicine supports the student group EnvironMed through funding and access to a faculty mentor. EnvironMed is an organization dedicated to planetary health; it conducts several recycling initiatives and raises funds for environmental agencies in the community. Some additional avenues in which students can become involved at WVU include: planetary health and sustainability research, outdoor programs, and engagement in sustainable food systems.
- **Recommendations**: The medical school offers great support for students to get involved in planetary health. Some simple ways to bolster this strength include creating a webpage that centralizes projects in sustainable healthcare and available mentors and to create a space for a student sustainability representative on the curriculum committee.

Campus Sustainability	D

- The West Virginia University School of Medicine has made minimal efforts to create a sustainable campus, including having an Office of Sustainability associated with the overall institution and having a recycling program on campus.
- **Recommendations**: There is much to improve regarding campus sustainability. A reasonable short-term goal that could make a significant impact would be to bring sustainability efforts into labs and to create some sustainability guidelines for events held at the medical school. A larger goal that the institution should strive for in the coming years would be to create a plan to reach carbon neutrality.

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 last year, 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. Did your medical school offer elective courses (student selected modules) to engage students in Education for Sustainable Healthcare or Planetary Health in the last year?	
3	Yes, the medical school has offered **more than one** elective whose primary focus is ESH/planetary health in the past year.
2	**Yes, the medical school has offered one elective whose primary focus is ESH/planetary health in the past year.**
1	The medical school does **not** have any electives whose primary focus is ESH/planetary health, but there are one or more electives that include a **lecture** on planetary health.
0	No, the medical school has **not** offered any electives on planetary health or electives that include ESH/planetary health topics in the past year.
Score explanation: The WVU SoM offers the elective "Climate Change and Healthcare" to fourth year medical students, described here: https://medicine.hsc.wvu.edu/ms4catalog/morgantown-rotations/online-courses/climate-change-and-healthcare-virtual/ *The medical school also offers two other electives that include climate change and legislation related to the environment and policy, but not as a primary focus.*	

Curriculum: Health Effects of Climate Change

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

Score explanation: There is a slide in the environmental pathology lecture that states the global temperature increase affects the incidence of disease exacerbated by heat. This topic is additionally covered in the elective "Climate Change and Healthcare". https://medicine.hsc.wvu.edu/ms4catalog/morgantown-rotations/online-courses/climate-change-and-healthcare-virtual/

3. Does your medical school curriculum address the impacts of extreme weather events on individual health and/or on healthcare systems?	
3	This topic was explored **in depth** by the **core** curriculum.
2	**This topic was briefly covered in the core curriculum.**
1	This topic was covered in **elective** coursework.
0	This topic was **not** covered.
Score explanation: There is a slide in the environmental pathology lecture that mentions the impact of extreme weather on health. This topic is additionally covered in the elective "Climate Change and Healthcare". https://medicine.hsc.wvu.edu/ms4catalog/morgantown-rotations/online-courses/climate-change-and-healthcare-virtual/	

4. Does your medical school curriculum address the impact of climate change on the changing patterns of infectious diseases?	
3	This topic was explored **in depth** by the **core** curriculum.
2	**This topic was briefly covered in the core curriculum.**
1	This topic was covered in **elective** coursework.
0	This topic was **not** covered.
Score explanation: There is a slide in the environmental pathology lecture that global temperature increase affects the incidence of water-borne and vector-borne infectious diseases. The Global Health Track Curriculum cites changes in land use and global climate change as major factors in vector redistribution and changes in infectious disease patterns in many of its lectures. This topic is additionally covered in the elective "Climate Change and Healthcare". https://medicine.hsc.wvu.edu/ms4catalog/morgantown-rotations/online-courses/climate-change-and-healthcare-virtual/	

5. Does your medical school curriculum address the respiratory health effects of climate change and air pollution?	
3	**This topic was explored in depth by the core curriculum.**
2	This topic was **briefly** covered in the **core** curriculum.

1	This topic was covered in **elective** coursework.
0	This topic was **not** covered.

Score explanation: Air pollutants and their impacts are covered extensively in the core curriculum. Air pollutants are covered in the environmental pathology lecture, as well as in the context of occupational lung diseases, COPD, and asthma in the lung block and [briefly] in the carcinogenesis lecture. The pharmacology lecture respiratory toxicology discusses the impact of particulate pollution on humans. These lectures are given across the first and second years of the curriculum. This topic is additionally covered in the elective "Climate Change and Healthcare".
https://medicine.hsc.wvu.edu/ms4catalog/morgantown-rotations/online-courses/climate-change-and-healthcare-virtual/

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

Score explanation: The Global Health Track covers cardiovascular health effects in heat-related illness. The "Heat Associated Illness" lecture covers this topic while also mentioning rising global temperatures. This topic is additionally covered in the elective "Climate Change and Healthcare".
https://medicine.hsc.wvu.edu/ms4catalog/morgantown-rotations/online-courses/climate-change-and-healthcare-virtual/

7. Does your medical school curriculum address the mental health and neuropsychological effects of environmental degradation and climate change?	
3	This topic was explored **in depth** by the **core** curriculum.
2	This topic was **briefly** covered in the **core** curriculum.
1	**This topic was covered in elective coursework.**
0	This topic was **not** covered.

Score explanation: The Global Health Track lectures titled "Refugee Care" and "Global Mental Health" discuss how refugees and those in certain areas experience higher rates of depression, PTSD, and anxiety after being displaced due to natural disasters influenced by climate change. This topic is additionally covered in the elective "Climate Change and Healthcare".
https://medicine.hsc.wvu.edu/ms4catalog/morgantown-rotations/online-courses/climate-change-and-healthcare-virtual/

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 **in depth** by the **core** curriculum.
2	This topic was **briefly** covered in the **core** curriculum.
1	**This topic was covered in elective coursework.**
0	This topic was **not** covered.
Score explanation: The Global Health Track discusses factors that affect health including one's physical environment, access to food and water, and local ecosystem health. The lecture "Health in All Places" highlights the importance of health equity in the background of these issues. This topic is additionally covered in the elective "Climate Change and Healthcare". https://medicine.hsc.wvu.edu/ms4catalog/morgantown-rotations/online-courses/climate-change-and-healthcare-virtual/	

9. Does your medical school curriculum address the outsized impact of climate change on marginalized populations such as those with low SES, women, communities of color, Indigenous communities, children, homeless populations, and older adults?	
3	This topic was explored **in depth** by the **core** curriculum.
2	This topic was **briefly** covered in the **core** curriculum.
1	**This topic was covered in elective coursework.**
0	This topic was **not** covered.
Score explanation: The Global Health Track curriculum's "Environmental Health" lecture briefly covers special populations like those in poverty, children, and the elderly are more susceptible to environmental health issues. This lecture also discusses how Indigenous populations are more vulnerable to foreign industry chemical plant disasters and lists historical examples. This topic is additionally covered in the elective "Climate Change and Healthcare". https://medicine.hsc.wvu.edu/ms4catalog/morgantown-rotations/online-courses/climate-change-and-healthcare-virtual/	

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

Score explanation: The Global Health Track discusses the UN Sustainable Development Goals and how climate change disproportionately affects certain groups and populations in the "Health in all Places" lecture.

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

11. Does your <u>medical school</u> curriculum address the reproductive health effects of industry-related environmental toxins (e.g. air pollution, pesticides)?	
3	**This topic was explored in depth by the core curriculum.**
2	This topic was **briefly** covered in the **core** curriculum.
1	This topic was covered in **elective** coursework.
0	This topic was **not** covered.
Score explanation: The pharmacology lecture "Developmental and reproductive toxicology" has testable content on the impact of a variety of industry-related environmental toxins, such as contamination of ground water with endocrine disruptors like BPA.	

12. Does your <u>medical school</u> curriculum address important human-caused environmental threats that are relevant to the university's surrounding community?	
3	This topic was explored **in depth** by the **core** curriculum.
2	**This topic was briefly covered in the core curriculum.**
1	This topic was covered in **elective** coursework.
0	This topic was **not** covered.
Score explanation: Silicosis, asbestosis, and coal-workers' pneumoconiosis are discussed in a case in the WVU Problem Based Learning course which briefly highlights the history of the Hawks Nest Tunnel disaster in West Virginia. The case goes on to discuss how the majority exposed were African Americans from the southern US. The case also touches on the surveys done by public health officials that led to improvements in occupational hazard safety in the Appalachian region.	

13. To what extent does your <u>medical school</u> emphasize the importance of Indigenous knowledge and value systems as essential components of planetary health solutions?	
3	Indigenous knowledge and value systems are **integrated throughout** the medical school's planetary health education
2	Indigenous knowledge and value systems as essential components of planetary health solutions are included **briefly** in the core curriculum.
1	Indigenous knowledge and value systems as essential components of planetary health solutions are included in **elective** coursework.

0	**This topic was not covered.**
Score explanation: The importance of indigenous knowledge and value systems as they relate to planetary health is not discussed in the WVU SoM curriculum in any capacity.	

14. Does your <u>medical school</u> curriculum address the outsized impact of anthropogenic environmental toxins on marginalized populations such as those with low SES, women, communities of color, children, homeless populations, Indigenous populations, and older adults?	
3	This topic was explored **in depth** by the **core** curriculum.
2	This topic was **briefly** covered in the **core** curriculum.
1	**This topic was covered in elective coursework.**
0	This topic was **not** covered.
Score explanation: This topic is covered in the elective "Climate Change and Healthcare". https://medicine.hsc.wvu.edu/ms4catalog/morgantown-rotations/online-courses/climate-change-and-healthcare-virtual/	

Curriculum: Sustainability

15. Does your <u>medical school</u> curriculum address the environmental and health co-benefits of a plant-based diet?	
3	This topic was explored **in depth** by the **core** curriculum.
2	This topic was **briefly** covered in the **core** curriculum.
1	This topic was covered in **elective** coursework.
0	**This topic was not covered.**
Score explanation: This topic is not covered anywhere in the WVU SoM core or elective curriculum.	

16. Does your <u>medical school</u> curriculum address the carbon footprint of healthcare systems?	
3	This topic was explored **in depth** by the **core** curriculum
2	This topic was **briefly** covered in the **core** curriculum.
1	**This topic was covered in elective coursework.**
0	This topic was **not** covered.
Score explanation: This topic is covered in the elective course "Climate Change and Healthcare", as evidenced by the following excerpt from the course description, "Identify characteristics of climate change resilient health systems. WHO declared climate change as the biggest public health threat of	

the 21st century. Healthcare has a significant contribution, especially in developed countries like USA- whose contribution is the largest globally (28% of global healthcare carbon footprint). Tackling this problem needs global efforts, especially from countries contributing the most. US pledged to reduce its healthcare emissions at the recent COP26 climate change conference in 2021. Physicians, healthcare workers, hospitals and healthcare systems all bear responsibility towards this. Acknowledgement, Awareness and Education are key to start addressing this huge problem and learning about it in medical school is the best way to create a culture of thinking and tackling this issue by budding healthcare providers." This topic is additionally covered in the elective "Climate Change and Healthcare". https://medicine.hsc.wvu.edu/ms4catalog/morgantown-rotations/online-courses/climate-change-and-healthcare-virtual/

17. Does your medical school curriculum cover these components of sustainable clinical practice in the core curriculum? (points for each)	
2	The health **and** environmental **co-benefits** of **avoiding** over-medicalisation, over-investigation and/or over-treatment
2	The environmental impact of **pharmaceuticals** and over-prescribing as a cause of climate health harm. Alternatively teaching on **deprescribing** where possible and its environmental and health co-benefits would fulfill this metric.
1	The health **and** environmental **co-benefits** of **non-pharmaceutical management** of conditions where appropriate such as exercise or yoga classes for type 2 diabetes; social group activities such as gardening for mental health conditions; active transport such as bicycle schemes. This is commonly known as social prescribing in the UK.
1	Environmental impact of **surgical** healthcare on planetary health and the climate crisis, and how can it be mitigated
1	The impact of **anaesthetic** gases on the healthcare carbon footprint and ways to reduce anesthesia environmental impacts, such as total intravenous anaesthesia or choosing less environmentally harmful anaesthetic gas options with reduced greenhouse gas emissions
1	The impact of **inhalers** on the healthcare carbon footprint and the environmental benefit of dry powdered inhalers over metered dose inhalers.
1	**Waste production** within healthcare **clinics** and strategies for reducing waste in clinical activities (e.g. single use items in the inpatient or outpatient setting)
	Score explanation: WVU School of Medicine does not cover any of the above components of sustainable clinical practice in the core curriculum.

Curriculum: Clinical Applications

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

2	Yes, there are strategies introduced for having conversations with patients about climate change in the **core** curriculum.
1	**Yes, there are strategies introduced for having conversations with patients about climate change in elective coursework.**
0	No, there are **not** strategies introduced for having conversations with patients about climate change.
Score explanation: One of the learning objectives in the elective course "Climate Change and Healthcare"is "Explain why and how to educate patients and families about environmental sustainability and the benefits of climate change mitigation."	

19. In training for patient encounters, does your <u>medical school's</u> curriculum introduce strategies for taking an environmental history or exposure history?	
2	**Yes, the core curriculum includes strategies for taking an environmental history.**
1	Only **elective** coursework includes strategies for taking an environmental history.
0	No, the curriculum does **not** include strategies for taking an environmental history.
Score explanation: In the WVU SoM course PDCI (Physical Diagnosis and Clinical Integration), students are taught how to take a history. They are taught to ask about the patient's home environment, including the source of water and heating. In addition, students receive an entire lecture about a wide variety of occupational exposures and relevant questions to ask patients regarding them.	

Curriculum: Administrative Support for Planetary Health

20. Is your <u>medical school</u> currently in the process of implementing or improving Education for Sustainable Healthcare (ESH)/planetary health education?	
4	Yes, the medical school is currently in the process of making **major** improvements to ESH/planetary health education.
2	**Yes, the medical school is currently in the process of making minor improvements to ESH/planetary health education.**
0	No, there are **no** improvements to planetary health education in progress.
Score explanation: Within the past several years, most notably, the administration has added the elective "Climate Change and Healthcare" to the fourth year curriculum. In addition, with the advent of the medical school's redesigned curriculum, lecturers/courses have begun to incorporate impacts of climate change on health that were not previously mentioned.	

21. How well are the aforementioned planetary health/Education for Sustainable Healthcare topics integrated longitudinally into the <u>core</u> curriculum?

6	Planetary health/ESH topics are **well integrated** into the core medical school curriculum.
4	**Some planetary health/ESH topics are appropriately integrated into the core medical student curriculum.**
2	Planetary health/ESH is not integrated and is primarily addressed in **(a) standalone lecture(s).**
0	There is **minimal/no** education for sustainable healthcare.
Score explanation: At the WVU SoM, planetary health material is sprinkled throughout a variety of courses, including pathology, pharmacology, the Global Health Track, a new "Climate Change and Healthcare Elective", etc. While not clustered excessively enough into a lecture or two to earn a score of 2, many topics need to be expanded on; therefore, a score of 6 would also be inappropriate.	

22. Does your <u>medical school</u> employ a member of faculty to specifically oversee and take responsibility for the incorporation of planetary health and sustainable healthcare as a theme throughout the course?	
1	**Yes,** the **medical school** has a specific faculty/staff member responsible for overseeing curricular integration of planetary health and sustainable healthcare
0	**No, the medical school does not have a specific faculty/staff member responsible for overseeing curricular integration of planetary health and sustainable healthcare.**
Score explanation: The WVU SoM has no such staff member.	

Section Total (32 out of 72)	**44.4%**

Back to Summary Page here

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.*

1. Are there researchers engaged in planetary health research and healthcare sustainability research at your medical school?	
3	**Yes, there are faculty members at the medical school who have a primary research focus in planetary health or healthcare sustainability.**
2	Yes, there are individual faculty members at the **medical school** who are conducting research **related** to planetary health or healthcare sustainability, but it is not their primary research focus.
1	There are planetary health and/or healthcare sustainability researchers at the **institution**, but none associated with the medical school.
0	No, there are **no** planetary health and/or healthcare sustainability researchers at the **institution** or **medical school** at this time.
Score explanation: There is a faculty member at the School of Medicine (Dr. Swapna Gayam) whose focus is healthcare sustainability. There are currently a few projects being worked on relating to the carbon footprint of medical journals and proper use of sharps container disposals.	

2. Is there a dedicated department or institute for interdisciplinary planetary health research at your institution?	
3	There is at least one dedicated department or institute for interdisciplinary planetary health research.
2	There is **not currently** a department or institute for interdisciplinary planetary health research, but there are **plans** to open one in the next 3 years.
1	**There is an Occupational and Environmental Health department, but no interdisciplinary department or institute for planetary health research.**
0	There is **no** dedicated department or institute.
Score explanation: WVU has a department of Occupational and Environmental Health Sciences which is made up of basic scientists, toxicologists, engineers, physicians, bioinformaticians, epidemiologists, and other public health scientists. Their emphasis is on occupational injury and illness, industrial hygiene, environmental health, and toxicology.	

3. Is there a process by which communities disproportionately impacted by climate change and environmental injustice give input or make decisions about the research agenda at your <u>medical school</u>?	
3	Yes, there is a process in which community members impacted by climate and environmental injustice have **decision-making power** in the climate + environmental research agenda.
2	**Yes, there is a process in which community members impacted by climate and environmental injustice advise the climate + environmental research agenda.**
1	**No**, but there are **current efforts** to establish a process for community members to advise or make decisions on the research agenda.
0	There is **no** process, and **no** efforts to create such a process.
Score explanation: WVU Center for Resilient Communities has an Environmental Justice Lab that aims to "promote more sustainable communities by democratising access to environmental resources, promoting shared governance, and increasing equity and community participation in decision-making processes around livable healthy places, water security, food access, climate change adaptation, disaster preparedness and more." *https://resilientcommunities.wvu.edu/labs/ejl*	

4. Does your <u>institution</u> have a planetary health website that centralizes ongoing and past research related to health and the environment?	
3	There is an **easy-to-use, adequately comprehensive** website that **centralizes** various campus resources related to health and the environment including all of the following: upcoming events, leaders in planetary health at your institution, and relevant funding opportunities.
2	There is a website that **attempts to centralize** various campus resources related to health and the environment, but it is hard-to-use, not updated, or not adequately comprehensive.
1	**The institution has an Office of Sustainability website that includes some resources related to health and the environment.**
0	There is **no** website.
Score explanation: WVU has an Office of Sustainability website that includes current campus efforts and ways to get involved. *https://sustainability.wvu.edu/*	

5. Has your <u>institution</u> recently hosted a conference or symposium on topics related to planetary health?	
4	Yes, the **medical school** has hosted at least one conference or symposium on topics related to planetary health in the past year.

3	Yes, the **institution** has hosted at least one conference or symposium on topics related to planetary health in the past year.
2	**Yes, the institution has hosted a conference on topics related to planetary health in the past three years.**
1	The **institution** has not hosted any conferences directly, but they have provided financial support for a local planetary health event.
0	No, the **institution** has not hosted a conference on topics related to planetary health in the past three years.
Score explanation: WVU College of Law's Center for Energy and Sustainable Development has hosted multiple conferences related to climate change and public health. *https://energy.law.wvu.edu/events*	

6. Is your medical school a member of a national or international planetary health or ESH organization?	
1	Yes, the medical school is a member of a national or international planetary health **or** ESH organization
0	**No, the medical school is not a member of such an organization**
Score explanation: WVU SoM is not a member.	

Section Total (9 out of 17)	**52.9%**

Back to summary page here

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.*

1. Does your medical school partner with community organisations to promote planetary and environmental health?	
3	Yes, the **medical school** meaningfully partners with **multiple** community organizations to promote planetary and environmental health.
2	Yes, the **medical school** meaningfully partners with **one** community organization to promote planetary and environmental health.
1	**The institution partners with community organizations, but the medical school is not part of that partnership.**
0	No, there is **no** such meaningful community partnership.
Score explanation: WVU Center for Resilient Communities partners with multiple community organizations. Some of their focuses are challenging food system insecurities, environmental justice initiatives, and development of cooperative and community-centered enterprises. *https://resilientcommunities.wvu.edu/home*	

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

3. Does your medical school have regular coverage of issues related to planetary health and/or sustainable healthcare in university update communications?	
2	Yes, all students **regularly** receive communication updates dedicated to planetary health and/or sustainable healthcare.
1	Yes, planetary health and/or sustainable healthcare topics are **sometimes** included in communication updates.
0	**Students do not receive communications about planetary health or sustainable healthcare.**
Score explanation: Students at the West Virginia University School of Medicine do NOT receive communications, via email or otherwise, about elements of planetary health or sustainable healthcare.	

4. Does the institution or main affiliated hospital trust engage in professional education activities targeting individuals post graduation with the aim of ensuring their knowledge and skills in planetary health and sustainable healthcare remain up to date during their professional career?	
2	Yes, the **institution** or **main affiliated hospital trust** offers multiple in-person or online courses relating to planetary health and/or sustainable healthcare for post-graduate providers, including at least one with a primary focus of planetary health.
1	Yes, the **institution** or **main affiliated hospital trust** offers one course relating to planetary health and/or sustainable healthcare for post-graduate providers
0	**There are no such accessible courses for post-graduate providers**
Score explanation: There are no planetary health or sustainable healthcare courses offered to post-graduates by WVU or the main affiliated hospital trust.	

5. Does your medical school or its primary affiliated hospital have accessible educational materials for patients about environmental health exposures?	
2	**Yes, all affiliated hospitals have accessible educational materials for patients.**
1	Some affiliated hospitals have accessible educational materials for patients.
0	**No** affiliated medical centers have accessible educational materials for patients.
Score explanation: WVU Medicine has a website dedicated to educating patients about various conditions and diseases as well as healthy lifestyle strategies. There are also quizzes to test your knowledge as well as educational animations and short videos. There is a section dedicated to environmental medicine. *http://healthlibrary.wvumedicine.org/*	

6. Does your medical school or its primary affiliated hospital have accessible educational

materials for patients about climate change and health impacts?	
2	Yes, **all** affiliated hospitals have accessible educational materials for patients.
1	**Some** affiliated hospitals have accessible educational materials for patients.
0	**No affiliated hospitals have accessible educational materials for patients.**
Score explanation: There are no educational materials about climate change and its health impacts offered to patients.	

Section Total (3 out of 14)	**21.4%**

Back to summary page here

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.*

1. Does your medical school or your institution offer support for medical students interested in enacting a sustainability initiative/QI project?	
2	**Yes, the medical school or institution *either* offers grants for students to enact sustainability initiatives/QI projects *or* sustainability QI projects are part of the core curriculum.**
1	The **medical school** or **institution** encourages sustainability QI projects (to fulfill clerkship or longitudinal requirements) and offers resources to help students succeed in these projects, **but** there is no student funding available and there is no requirement to participate.
0	No, **neither** the medical school or the institution offer opportunities or support for sustainability initiatives or QI projects.
Score explanation: We do not have funding specific to QI projects; however, if a student organization wanted to use their allotted funding for a QI project, then that would be allowed. *For example, we have funded students to participate in national conferences to attend Student National Medical Associate (SNMA) meetings, which may lead to specific projects related to improving diversity, equity and inclusion initiatives here at WVU. Another example is EnvironMEd. If students wanted to use their funding for more than just lunches and implement a QI project, then that would be allowed as well. We fund a variety of student organizations who may use the funding for QI projects. We also fund students to present at national meetings (up to $250).*	

2. Does your institution offer opportunities for medical students to do research related to planetary health and/or sustainable healthcare?	
2	The **institution** has a **specific** research program or fellowship for students interested in doing planetary health/sustainable healthcare research.
1	**There are research opportunities for students to perform research related to planetary health/sustainable healthcare, but these require student initiative to seek these out and carry them out in their spare time.**
0	There are **no opportunities** for students to engage in planetary health/sustainable healthcare research.
Score explanation: WVU and the associated hospital have faculty members that research planetary health/sustainable healthcare. While willing to work with medical students, medical students are responsible for organizing these opportunities.	

3. Does the medical school have a webpage where medical students can find specific information related to planetary health and/or sustainable healthcare activities and mentors within the medical school? For example, projects achieved, current initiatives underway at the medical school and/or contact of information of potential mentors.	
2	The **medical school** has a webpage with specific information related to planetary health or sustainable healthcare that includes up-to-date information on relevant initiatives and contact information of potential mentors.
1	There is a **medical school** webpage that features some information on projects and mentors within planetary health and sustainable healthcare within the medical school, but it lacks key information.
0	**There is no medical-school specific webpage for locating planetary health and/or sustainable healthcare projects or mentors.**
Score explanation: While the WVU SoM does have webpages dedicated to projects/mentors in other fields, such as Biochemistry, no such webpage exists for planetary health and/or sustainable healthcare activities.	

4. Does your medical school have registered student groups dedicated towards fostering a culture of planetary health engagement, scholarship, and advocacy on campus, supported by faculty advisors?	
2	**Yes, there is a student organization with faculty support at my medical school dedicated to planetary health or sustainability in healthcare.**
1	Yes, there is a student organization at my medical school dedicated to planetary health or sustainability in healthcare but it **lacks faculty support.**
0	No, there is **not** a student organization at my institution dedicated to planetary health or sustainability in healthcare.
Score explanation: The WVU SoM organization EnvironMed strives for a more sustainable future in the field of healthcare and in the surrounding community through education and outreach and is supported by their physician advisor. *https://medicine.wvu.edu/md-student-services/organizations/environmed/*	

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: West Virginia University has eco-reps that are student ambassadors for the Office of Sustainability. These students work within WVU residence halls or on particular sustainability themes, but are NOT on any decision-making councils, nor involved in any capacity with the medical school.

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: WVU's Adventure WV program offers all students guided trips and workshops in various outdoor activities not limited to kayaking, backpacking, skiing, and climbing. The Environmental Justice Lab at the WVU Center for Resilient Communities hosts roundtables, group readings, speakers, partners with the Appalachian Food Justice Institute, provides a sustainable development internship, and organizes many other projects that highlight environmental and climate challenges in the community. The Center for Resilient Communities also offers programs that relate to sustainable food systems.	

Section Total (10 out of 15)	**66.7%**

Back to summary page here

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.*

1. Does your medical school and/or institution have an Office of Sustainability?	
3	Yes, there is an Office of Sustainability with multiple full-time staff dedicated to campus sustainability. If the Office of Sustainability serves the entire campus, there is **at least one designated staff member** for sustainability at the hospital and/or medical school.
2	**There is an Office of Sustainability with one or more full-time staff dedicated to campus sustainability, but no specific staff member in charge of medical school and/or hospital sustainability.**
1	There are **no salaried sustainability staff,** but there is a sustainability task force or committee
0	There are **no** staff members **or** task force responsible for overseeing campus sustainability
Score explanation: The WVU Office of Sustainability employs a director and conservation specialist as full-time staff, but there is no specific staff member assigned to the medical school/hospital. *https://sustainability.wvu.edu/about-us/our-team*	

2. How ambitious is your institution/medical school plan to reduce its own carbon footprint?	
5	The institution/medical school has a **written and approved plan** to achieve carbon neutrality by **2030**
3	The institution/medical school has a **written and approved plan** to achieve carbon neutrality by **2040**
1	The institution/medical school has a stated goal of carbon neutrality by **2040** but has **not created a plan** to reach that goal or the **plan is inadequate**
0	**The institution/medical school does not meet any of the requirements listed above**
	Score explanation: WVU has not stated a goal to be carbon neutral by any date.

3. Do buildings/infrastructure used by the medical school for teaching (not including the hospital)

utilize renewable energy?	
3	Yes medical school buildings are **100%** powered by renewable energy
2	Medical school buildings source **>80%** of energy needs from off-site and/or on-site renewable energy.
1	Medical school buildings source **>20%** of energy needs from off-site and/or on-site renewable energy.
0	**Medical school buildings source <20% of energy needs from off-site and/or on-site renewable energy.**
Score explanation: According to the Sustainability Tracking, Assessment, and Rating System, WVU buildings do not use renewable energy systems.	

4. Are sustainable building practices utilized for new and old buildings on the <u>medical school</u> campus, with design and construction of new buildings and remodeling of old buildings conforming to a published sustainability rating system or building code/guideline?	
3	Yes, sustainable building practices are utilized for new buildings on the medical school campus and the **majority** of old buildings **have been retrofitted** to be more sustainable.
2	**Sustainable building practices are utilized for new buildings on the medical school campus, but most old buildings have not been retrofitted.**
1	Sustainable building practices are **inadequately or incompletely** implemented for new buildings.
0	Sustainability is **not considered** in the construction of new buildings.
Score explanation: WVU Office of Sustainability has been a performance contracting partner with Siemens since 2008. They state that all new buildings and renovation projects meet many requirements to fulfill LEED certification, though WVU does not apply for official status from the US Green Building Council. There is one LEED certified building, Oglebay Hall, but it is not utilized by the medical school.	

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

Score explanation: The WVU SoM gives students access to the PRT, a transit device that goes to some places on campus/the city, but this is not often utilized by medical students for a variety of reasons, including crowds and break-downs. The school of medicine also has bike racks for student use outside of the health science center. However, most medical students utilize personal vehicles for transportation and environmentally-friendly transportation is not emphasized during orientation.

https://prt.wvu.edu/

6. Does your medical school have an organics recycling program (compost) and a conventional recycling program (aluminum/paper/plastic/glass)?	
2	Yes, the medical school has **both** compost **and** recycling programs accessible to students and faculty.
1	**The medical school has either recycling or compost programs accessible to students and faculty, but not both.**
0	There is **no** compost or recycling program at the medical school.

Score explanation: There are recycling bins on campus, plus a special can and glass jar recycling program through the student organization EnvironMed, but there is not an organics recycling program with compost bins available for students or faculty.

7. Does the medical school apply sustainability criteria when making decisions about the campus food and beverage selections (e.g. local sourcing, reduced meat, decreased plastic packaging)?	
3	Yes, the medical school has a**dequate s**ustainability requirements for food and beverages, including meat-free days or no red-meat, and **is engaged** in efforts to increase food and beverage sustainability.
2	**There are sustainability guidelines for food and beverages, but they are insufficient or optional. The medical school is engaged in efforts to increase food and beverage sustainability.**
1	There are sustainability guidelines for food and beverages, but they are **insufficient or optional.** The medical school is **not** engaged in efforts to increase food and beverage sustainability.
0	There are **no** sustainability guidelines for food and beverages.

Score explanation: WVU Dining Services state many sustainable initiatives on their website.. Some examples are: trayless dining to reduce food waste, sourcing foods from within 250 miles of campus whenever possible, recycling containers in back-of-house operations, eliminating single-serve packaging when possible for condiments and drinks, eliminating the use of Styrofoam in most areas and replacing with recyclable plastic as part of a long-term transition to more eco-friendly disposables, hosting Farmers Market Harvest meals weekly at Hatfield's that feature a local ingredient, offering vegan and vegetarian options at every meal in Hatfield's and Café Evansdale, utilizing a reusable to-go box program, on-campus farmers markets, work with student chapter of Food Recovery Network to donate unused portions, offer Firsthand Coffee, a business from the WVU Center for Resilient

Communities, at select retail locations, commitment to purchasing sustainable seafood and cage-free eggs.

8. Does the medical school or institution apply sustainability criteria when making decisions about supply procurement?	
3	Yes, the medical school has **adequate** sustainability requirements for supply procurement **and** is **engaged** in efforts to increase sustainability of procurement.
2	There are sustainability guidelines for supply procurement, but they are **insufficient or optional.** The medical school is **engaged** in efforts to increase sustainability of procurement.
1	**There are sustainability guidelines for supply procurement, but they are insufficient or optional. The medical school is not engaged in efforts to increase sustainability of procurement.**
0	There are **no** sustainability guidelines for supply procurement.
Score explanation: WVU Office of Sustainability gives examples of campus efforts in regards to purchasing. They report use of eProcurement Tools that save millions of sheets of paper every year. Some major contracts include sustainability based on that supplier's expertise, like Coca-Cola and Enterprise. 33 out of 40 of the most commonly purchased contracted furniture items have third-party sustainability certifications. Most of WVU's most commonly purchased computers and peripherals on the Dell contract have EPEAT Gold or Silver certifications.	

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

10. Does your medical school have programs and initiatives to assist with making lab spaces more environmentally sustainable?	
2	Yes, the medical school has **programs** and **initiatives** to assist with making lab spaces more environmentally sustainable.
1	There are **guidelines** on how to make lab spaces more environmentally sustainable, but not programs or initiatives.
0	**There are no efforts at the medical school to make lab spaces more sustainable.**
Score explanation: Sustainability efforts at WVU do not extend to laboratory spaces.	

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

Section Total (9 out of 32)	**28.1%**

Back to summary page here

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

Grading

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

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

**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+.*

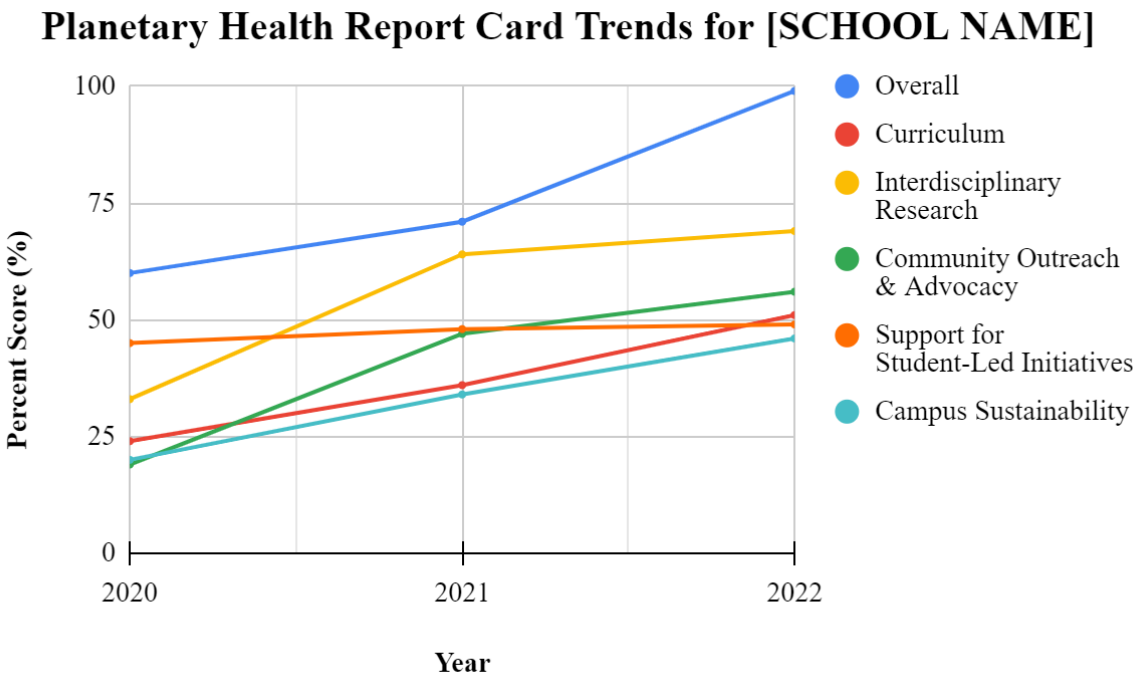
Planetary Health Grades for the WVU School of Medicine

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

Section	Raw Score %	Letter Grade
Planetary Health Curriculum (30%)	(32/72) x 100 = 44.4%	C-
Interdisciplinary Research (17.5%)	(9/17) x 100 = 52.9%	C
Community Outreach and Advocacy (17.5%)	(3/14) x 100 = 21.4%	D-
Support for Student-led Planetary Health Initiatives (17.5%)	(10/15) x 100= 66.7%	B
Campus Sustainability (17.5%)	(9/32) x 100 = 28.1%	D
Institutional Grade	**(Ax0.3 + Bx0.175 + Cx0.175 + Dx0.175 + Ex0.175) = 42.9%**	**C-**

Report Card Trends

Section Overview
This graph demonstrates trends in overall and section grades for the years in which [INSTITUTION NAME] has participated in the Planetary Health Report Card initiative.



(For those teams that have participated in the PHRC initiative for more than one year, we have created this Google spreadsheet which can be used to generate a graphical representation of the school's trends of section-based and overall scores. You can either plug the numbers into the table and then just copy and paste your graph into your report, or you can create a copy of the Google spreadsheet so you can have a version long term to update and edit. **Here is the link to the spreadsheet to create your graph if you would like to include one.)**