



Planetary Health Report Card:

University of Nottingham



The University of
Nottingham

UNITED KINGDOM • CHINA • MALAYSIA

2020-2021 Contributing Team:

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Summary of Findings

Curriculum	C
<ul style="list-style-type: none"> • There is some planetary health content throughout the preclinical curriculum, with the Public Health team delivering the majority of the content in their core lectures. Planetary health also finds its way into the respiratory lecture content, through looking at the global impact of COPD. • Recommendations: The Medical School needs to work at integrating planetary health and sustainable healthcare topics longitudinally into the curriculum, possibly by introducing the content into seminars. This would give students the opportunity to reflect on what they have learnt, so they can put it into practice as healthcare professionals. 	
Interdisciplinary Research	C
<ul style="list-style-type: none"> • Over the past few years, the University of Nottingham has greatly expanded its interdisciplinary research into planetary health and sustainability through its Beacons of Excellence, which aim to meet the United Nations 17 Sustainable Development goals. However, the Medical School needs to do more to engage with this research, especially when it comes to sustainable healthcare. • Recommendations: The Medical School should seek to engage more with planetary health research focusing on sustainable healthcare. A key step would be to join the Planetary Health Alliance and/or the Global Consortium. 	
Community Outreach and Advocacy	F+
<ul style="list-style-type: none"> • This is the University's weakest area. Whilst there have been some events looking into factors affecting planetary health, these have been few and far between. • Recommendations: The Medical School needs to engage with community organisations to increase awareness of planetary health and sustainable healthcare. Furthermore, there needs to be more information available to patients on the impact of climate change and environmental exposure on their health. This could be addressed through an optional module where students have to research and produce leaflets on various factors such as exposure to air pollution, for example. 	
Support for Student-Led Initiatives	B-
<ul style="list-style-type: none"> • There are funded research opportunities available for students interested in climate change and sustainability, but these are all centralised and not Medicine-specific. • Recommendations: The Medical School should introduce some specific planetary health or sustainable healthcare research projects with specific mentors that have a keen interest in these areas. Furthermore, the School would benefit from having a named sustainability student liaison that could work with University teams to advocate for Medicine-specific interests. 	
Sustainability	B+
<ul style="list-style-type: none"> • This is clearly the University of Nottingham's strongest area, with the University declaring a Climate Emergency in March 2020 and committing to becoming carbon-neutral by 2028, in line with Nottingham's goals to become the UK's first carbon-neutral city. • Recommendations: The University should look into having a full-time sustainability lead within the Medical School, as well as working to reduce its reliance on non-renewable fuel sources. 	

Statement of Purpose

Planetary health is human health.

The Planetary Health Alliance defines planetary health as “a field focused on characterizing the human health impacts of human-caused disruptions of Earth's natural systems.” 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 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.

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 change. Therefore, it is critical that medical students are trained to understand the health effects of climate change, as well as planetary health 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 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.
<i>Currently, the University of Nottingham does not have any electives/student selected components with planetary health as the main focus during either the clinical or pre-clinical phases.</i>	

Curriculum: Health Effects of Climate Change

2. Does your medical school curriculum address the relationship between extreme temperature health risks and climate change, as well as the socioeconomic/racial disparities in extreme heat exposure?	
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.
<i>As part of the core Public Health lecture series for second year students, Dr. Andrew Fogarty gave a lecture entitled "Environment, Occupation and Health." This lecture aimed to address the learning objective "Recognise the role of ecological and environmental hazards, including climate change, in</i>	

ill-health” and looked at the risks of climate change, focusing mainly on air pollution and extreme temperature as the key case studies. When speaking about the impacts of the latter, he touched on socioeconomic disparities by explaining that mortality in the elderly due to extreme heat will be more concentrated in poorer countries.

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.

There is a single slide in Dr. Andrew Fogarty’s lecture “Environment, Occupation and Health” that lists extreme weather events such as flooding and heatwaves as a consequence of climate change. However, it does not address the impacts of extreme weather events and is not mentioned in the learning objectives for the Public Health lecture series, therefore no points can be awarded.

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.

In the second-year lecture by Dr. Andrew Fogarty entitled “Environment, Occupation and Health,” there is a single slide that addresses this topic. Dr. Fogarty explains that due to the changing environment, infectious diseases will change as microorganisms adapt in order to survive.

5. Does your medical school curriculum address the cardiorespiratory health effects of climate change, including 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.
<p><i>This topic was covered comprehensively in both first- and second-year lectures. In first year, the plenary lecture on COPD delivered by Dr. Charlotte Bolton addresses the issue of air pollution in other countries, focusing mainly on how pollution exacerbates COPD. In second year, Dr. Fogarty's "Environment, Occupation and Health" lecture addresses cardiorespiratory mortality associated with air pollution, as well as exploring a range of potential public health strategies to reduce mortality, ranging from minimal to maximal intervention at national and local levels. Dr. Fogarty also mentions local transport strategies put in place to encourage walking and cycling, thereby helping to reduce local air pollution.</i></p>	

6. 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.
<p><i>It is mentioned very briefly in Dr. Fogarty's lecture that there are mental health consequences of climate change, but he does not expand on this by explaining what they are or how they affect the healthcare system. It is also not mentioned in the learning objectives for the lecture, so it cannot be awarded any points.</i></p>	

7. 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.
<p><i>Whilst the causes of malnutrition are briefly addressed in first year, there is no mention of climate change as a contributing factor. In Dr. Fogarty's lecture for second year students, he explains that climate change will lead to a decrease in food availability in the tropics, resulting in undernutrition for large populations. Furthermore, he briefly addresses the ecosystem-mediated health effects of climate change, including reduced food yields and a depletion of natural medicines.</i></p>	

8. 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, 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.

Dr. Fogarty briefly addresses this in his “Environment, Occupation and Health” lecture by explaining that many populations may become displaced due to climate change, which would lead to an increase in slum dwelling. However, there is no mention in the syllabus of other marginalized groups such as women or communities of colour.

9. Does your medical school curriculum address the unequal 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.

Dr. Fogarty addresses this in his second-year lecture when he explains how poorer countries will experience a greater increase in mortality due to increasing temperatures. He also explains that the tropics will experience a greater loss of food security, leading to greater undernutrition in these areas.

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

10. 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 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.

Whilst teratogens have been covered in detail throughout the pre-clinical course, there has been no mention of the effects of climate change on reproductive health. This is a key area that needs addressing.

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

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

Environmental threats have been covered to some extent, but that has been no mention of the effect locally; it has mainly been focused on the global scale.

12. Does your medical school curriculum address the unique climate and environmental health challenges that have impacted and are impacting Indigenous communities?

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.

There has been no mention of this topic anywhere in the curriculum.

13. 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, 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.

This topic was briefly covered by Dr. Charlotte Bolton's lecture on COPD for first-year students. She addresses that certain communities in poorer countries have to cook over an open flame indoors,

thereby increasing their exposure to anthropogenic toxins. She also explains that exposure to air pollution due to traffic is much greater in populations with a lower SES.

Curriculum: Sustainability

14. Does your medical school curriculum address the environmental and health co-benefits of a plant-based diet?	
3	This topic was explored in depth by the core curriculum.
2	This topic was briefly covered in the core curriculum.
1	This topic was covered in elective coursework.
0	This topic was not covered.
<p><i>Surprisingly, there has been no lecture content on the benefits of a plant-based diet, with plant-based diets barely being mentioned in the curriculum. As of this year, the “Sustainable Healthcare” resource bank has provided students with resources on the benefits of a plant-based diet and how to discuss this with patients. The resource bank is available to all medical students to complete in their own time and contains websites, papers, podcasts and other resources to increase students’ knowledge of planetary health and sustainable healthcare.</i></p>	

15. Does your medical school curriculum highlight the waste generated by the healthcare system and identify ways to advocate for and implement sustainable best practices in health care?	
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.
<p><i>This topic has not been mentioned in the core curriculum. As of this year, medical students have access to a “Sustainable Healthcare” resource bank which does contain information and activities on how the healthcare sector contributes to climate change, which is a much-needed step in the right direction.</i></p>	

Curriculum: Clinical Applications

16. 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
<p><i>Prior to this year, there has been no content on this topic. However, the “Sustainable Healthcare” resource bank contains resources on speaking to patients about the impacts of climate change on their health.</i></p>	

17. In training for patient encounters, does your medical school’s 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.
<p><i>The core curriculum covers taking a full family and social history, including multiple questions about smoking and possible exposures through employment. Students are introduced to history taking in the second week of the course through the lectures “Introduction to Communication Skills, Verbal and Non-Verbal Communication in Medicine” by Dr. Katy Jones and “Conducting the 5 minute Interview” by Dr. Elena Nixon. These lectures cover the basics of history taking and include a checklist where taking a full social history including smoking is a necessary requirement. This checklist is applied in practical sessions the following week where students are recorded taking a basic history from each other and given feedback by their peers. History taking involving environmental and exposure history is then repeatedly examined throughout the course via OSCEs.</i></p>	

Curriculum: Administrative Support for Planetary Health

18. Is your medical school currently in the process of improving Education for Sustainable Healthcare (ESH)/planetary health education?
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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.
<p><i>Nottingham has taken some steps in the past academic year and faculty are keen to make more based on the findings of this document. Professor Gill Pinner has been working with Brooke to integrate teaching on sustainability into the core curriculum. So far, we have a “Sustainable Healthcare” resource bank on the medical school online learning platform. We have found that staff are keen to implement change but are unsure what needs changing, so hopefully this project will enable us to make large improvements.</i></p>	

19. How well are the aforementioned planetary health/Education for Sustainable Healthcare topics integrated longitudinally into the core 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.
<p><i>Currently, there is some teaching on planetary health, but it is very poorly integrated. The content is delivered in standalone lectures and there are no opportunities to reflect on this teaching in seminars or group discussions.</i></p>	

20. Bonus: Does your medical school have a program that offers incentives for faculty/departments to develop new planetary health/ESH courses and/or incorporate planetary health/ESH into existing courses?	
1*	Yes, the medical school has an incentive program.
0	No, the medical school does not have an incentive program.
<p><i>Currently, there are no incentives available within the medical school for developing new planetary health courses.</i></p>	

Section Total (28 out of 58)	28
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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?	
4	Yes, there are faculty members at the School of Medicine who have a primary research focus in planetary health and healthcare sustainability.
3	Yes, there are faculty members at the School of Medicine who have a primary research focus in a planetary health or healthcare sustainability.
2	Yes, there are individual faculty members at the School of Medicine 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.
<p><i>Whilst there are no specific researchers within the School of Medicine, there is a large amount of research into planetary health going on within the university as a whole, especially into food security and sustainability. The University of Nottingham funds six Beacons of Excellence (https://www.nottingham.ac.uk/research/beacons-of-excellence/) which are a huge investment into tackling global challenges. The Future Food Beacon is an open research platform that is ‘working across global food systems to deliver sustainable food and nutritional security.’ The Propulsion Futures Beacon is researching greener transport in order to reduce global reliance on fossil fuels, and the Green Chemicals Beacon focuses on UK manufacturing and its effect on the health of the global population.</i></p>	

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.
<p><i>The aforementioned Beacons of Excellence work across departments to tackle global challenges, with three of the six focusing on factors affecting planetary health. Research themes include “Food for sustainable livelihoods” within Food Futures and an “economic and environmental impact assessment” within Green Chemicals.</i></p>	

3. Is there a process by which communities disproportionately impacted by climate change and environmental injustice give input or make decisions about the research agenda at your medical school?	
3	Yes, there is a process in which community members impacted by climate and environmental injustice have decision-making power in the climate + environmental research agenda.
2	Yes, there is a process in which community members impacted by climate and environmental injustice advise the climate + environmental research agenda.
1	No, but there are current efforts to establish a process for community members to advise or make decisions on the research agenda.
0	There is no process, and no efforts to create such a process.
<p><i>There is no standard process at the University for community members to give input. However, several research projects have worked with those disproportionately affected by climate change to make changes. For example, within the Future Food beacon, there have been several projects in Brazil and Sub-Saharan Africa looking at the impacts of agriculture on the environment and methods of changing these to make them more sustainable.</i></p>	

4. Does your institution have a planetary health website, or a website centralizing various campus resources 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.

The University of Nottingham has a comprehensive [webpage](#) dedicated to sustainability. It includes information on policy and performance, research, methods of getting involved, funding opportunities and an extremely detailed “Frequently Asked Questions” section. The University of Nottingham also has a dedicated sustainability Facebook, Instagram, Twitter, blog and newsletter. However, there is limited information with regards to healthcare, so the University can only be awarded a 2 in this section.

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

4	Yes, the institution has hosted more than one conference or symposium on topics related to planetary health in the past year, including at least one on climate change.
3	Yes, the institution has hosted 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.

There have been multiple conferences on topics related to planetary health within the last three years. In March 2020, the Centre for Research in Applied Linguistics held a conference entitled “Health and our Environment.” This aimed to highlight interdisciplinary perspectives on health through the arts and the humanities. In 2018, the School of Health Sciences held an Interprofessional Masterclass entitled “Planetary Health,” with speakers from across the University (<https://www.nottingham.ac.uk/healthsciences/events/interprofessional-masterclass-planetary-health.aspx>).

6. Has your institution or medical school joined the Planetary Health Alliance and/or the Global Consortium on Climate and Health Education?

2	Yes, the medical school has joined the Planetary Health Alliance and/or the Global Consortium on Climate and Health Education.
1	Yes, the institution has joined the Planetary Health Alliance and/or the Global Consortium on Climate and Health Education, but the medical school specifically has not.
0	No, the institution has not joined the Planetary Health Alliance or the Global Consortium on Climate and Health Education.

Neither the institution as a whole nor the medical school has joined either the PHA or the GCCHE.

Section Total (9 out of 19)	9
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Community Outreach and Advocacy

Section Overview: *This section evaluates medical school engagement in community outreach and advocacy efforts associated with planetary health. Researching and teaching planetary health is necessary but not sufficient. It is critical that institutions also directly engage with communities most affected by environmental health harms. Although climate change is a problem largely created by those with power and resources, its impacts fall disproportionately on under-resourced populations and communities of 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 organizations to promote planetary and environmental health?	
3	Yes, the medical school meaningfully partners with multiple community organizations to promote planetary and environmental health.
2	Yes, the medical school meaningfully partners with one community organization to promote planetary and environmental health.
1	The institution partners with community organizations, but the medical school is not part of that partnership.
0	No, there is no such meaningful community partnership.
<i>Currently, there are no meaningful community partnerships.</i>	

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 medical school has not offered such community-facing courses or events.
<i>In 2020, the University of Nottingham held a panel event and workshop with Nottingham City Council and Nottingham Trent University, on their collective plans to make Nottingham a carbon neutral city by 2028. Also in 2020, the City Council organized a 28-day challenge in August to encourage Nottingham residents to think about how they can reduce their environmental impact. One of the challenges was to</i>	

design a roof garden and this was organized by a flooding academic from the University of Nottingham.

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 regularly receive communications about planetary health or sustainable healthcare.

In the past year, our weekly Medicine news email has occasionally contained information about sustainable healthcare.

4. Do hospitals affiliated with your medical school 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.

There are no available materials on environmental health exposures.

5. Do hospitals affiliated with your medical school 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.

There are no accessible education materials for patients.

Section Total (2 out of 12)

2

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 institution offer support for medical students interested in enacting a sustainability initiative?	
2	Yes, the institution offers grants available to medical students for students to enact sustainability initiatives.
1	The medical school 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.
0	No, the institution does not offer opportunities or support for sustainability initiatives.
<p><i>In 2019/20, the University's Environmental Sustainability Committee had a budget of £100,000 to award to student or staff-led sustainability projects through the Environment Initiative Fund. Individuals, groups or student societies are able to bid for funding for projects that enhance sustainability on campus or in the local community. Students are however encouraged to seek funding partners, as collaborative, part-funded projects are more likely to be funded than those seeking full funding. Students are also able to seek funding through the Community Chest scheme, if the project is also promoting community engagement and social responsibility.</i></p>	

2. Does your institution offer opportunities for medical students to do research related to planetary health and/or sustainable healthcare?

3*	The institution offers an explicit paid fellowship for medical students to do research related to planetary health and/or sustainable healthcare.
2*	The institution offers paid research opportunities for students and planetary health/sustainable healthcare projects would be considered eligible.
1	There are unfunded research opportunities for students to perform research related to planetary health/sustainable healthcare.
0	There are no opportunities for students to receive funding for planetary health/sustainable healthcare research.

Within the Future Food Beacon of Excellence, there is the opportunity for students to undertake a doctorate in International Agriculture, with candidates able to take part in a fellowship scheme with Rothamsted International. This scheme allows students to undertake research into the impact of agriculture globally and more sustainable methods for the future.

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.

On the medical school's online learning platform (not accessible by public), there is a page entitled "Sustainable Healthcare," with a large selection of resources available, as well as information on various groups that students can engage with. It does not, however, contain contact information of potential mentors.

4. Does your medical school have funded, 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 funded student organization with faculty support at my medical school dedicated to planetary health or sustainability in healthcare.
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1	Yes, there is a student organization at my medical school dedicated to planetary health or sustainability in healthcare but it lacks faculty support and/or funding.
0	No, there is not a student organization at my institution dedicated to planetary health or sustainability in healthcare.
<i>Students for Global Health Nottingham is a student society funded by membership fees that works to promote sustainable healthcare in communities at home and around the world.</i>	

5. Is there a student liaison representing sustainability interests who serves on a medical school or institutional decision-making council to advocate for sustainability best practices?	
1	Yes, there is a student representative that serves on a medical school or institutional decision-making council.
0	No, there is no such student representative.
<i>There are student liaisons at the University representing sustainable interests, but there is no committee within the medical school nor is there a medical student representative on University-wide councils.</i>	

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) that follow Leave No Trace principles.
<i>The University of Nottingham has a campus community garden on the University Park campus, and a student allotment on the Sutton Bonington campus. Students can also volunteer with the University's Grounds team on practical biodiversity and landscaping projects. The University's Environmental and</i>	

Social Justice Network regularly holds events for students surrounding various planetary health topics. The University of Nottingham also has a [Wilderness Medicine Society](#).

Section Total (9 out of 14)

9

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
<p><i>The University has multiple teams dedicated to sustainability. There is a Director of Sustainability (Andrew Nolan), with three teams dedicated to energy and carbon management, environment and grounds. There is no dedicated staff member for the School of Medicine.</i></p>	

2. Does your medical school and/or institution have a stated goal of carbon neutrality by 2050?	
4*	The medical school is already carbon neutral.
3	Yes, there is a stated carbon neutrality goal and the medical school has a well-defined and adequate plan in place to achieve this goal.
2	Yes, there is a stated carbon neutrality goal, but the medical school has not created a plan to reach that goal or the plan is inadequate.
1	There is a CO2 emission reduction goal, but it is not one of carbon neutrality.
0	There is no stated goal for reduction of CO2 emissions.
<p><i>The University of Nottingham is highly committed to carbon neutrality. Together with the city of Nottingham, they aim to become carbon-neutral by 2028, which would make Nottingham the UK's first</i></p>	

carbon-neutral city. Campus emissions of carbon dioxide have been reduced by 36% since 2009, exceeding goals set out in 2015. Within the Medical School, there has been an extensive programme of replacing energy-intensive equipment with more sustainable options. By working with the city council and Nottingham Trent University, the University of Nottingham is confident they can become carbon neutral by 2028.

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.

As part of the hospital, the Medical School benefits from a CHP plant for power, heat and some cooling, which uses waste heat energy to generate electricity. However, the primary source of this electricity is still fossil fuels. The University currently has multiple small-scale renewable energy systems and is considering some larger-scale systems such as solar farms and wind turbines for the future.

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 rating system or sustainable 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.

The University has committed to developing low-carbon buildings and has set themselves the target of BREEAM Excellent as a minimum for all new capital projects. The University has also worked to make existing buildings more sustainable within the Medical School, as it was the biggest user of energy across all campus buildings. The main Medical School building has undergone an extensive programme to replace chillers, install double glazing and LED lighting, and install better controls for ventilation.

5. Has the medical school 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.

The University has worked to improve sustainable transport options over the past few years. There is a long-term bike hire scheme, free bike maintenance checks and there has been a significant investment in cycling infrastructure. The University also has a free inter-campus hopper bus service between the main campus and the Royal Derby Hospital, which benefits students on placement. As part of an agreement with the city council, students can use the free bus between Queen's Medical Centre and City Hospital. From February 2022, the new clinical phases will reduce the travel burden on students as each phase will mean students are based in one hub only (Nottinghamshire or Derbyshire.)

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.

The University of Nottingham has a comprehensive recycling scheme in place, with clearly marked recycling bins available in all campus buildings. The cafes within the Medical School have green waste bins, where anything biodegradable is sent to be composted. Batteries can be recycled at collection points in all campus libraries. Less than 1% of the University's waste enters landfill and 38% of waste is recycled on site, with aims to further increase this.

7. Does the medical school apply sustainability criteria when making decisions about the campus food and beverage selections?

3	Yes, the medical school has adequate sustainability requirements for food and beverages and is engaged in efforts to increase food and beverage sustainability.
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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.
<i>Approximately 25% of the food is locally sourced, with the rest being sustainably sourced to reduce the impact on the environment. The University is a Fairtrade University and has received accreditations from the Soil Association, MSC and has received the Good Egg Award. The University is also committed to the zero use of products containing palm oil.</i>	

8. Does the medical school or associated 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.
<i>The University has a comprehensive strategy on sustainable procurement, as they consider the environmental, economic and social impact of all supplies ordered. Some achievements include office furniture deliveries being consolidated to one day per week to reduce the number of deliveries and computers being moved from a 3-year to a 4-year replacement cycle.</i>	

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.
<i>There seems to be no sustainability guidelines for medical school events at the University of Nottingham.</i>	

10. Does your medical school have programs and initiatives to assist with making lab spaces more	
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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.
<p><i>At the University as a whole, there are guidelines in place and in 2015, the GSK-Carbon Neutral Laboratory was built, which was the first carbon-neutral laboratory for sustainable chemistry in the UK. It was the first higher education project to receive a BREEAM Outstanding classification, as well as the LEED Environmental Certificate. This is an amazing achievement for the university but such steps have not yet been made within the Medical School.</i></p>	

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	No, the institution is entirely divested from fossil fuels.
2	The institution has partially divested from fossil-fuel companies.
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.
<p><i>After campaigning from students and staff, the University of Nottingham promised to completely divest in April 2018 within a year, a goal that was achieved. At the time, 6% of the University's £50 million endowment fund was invested in the oil and gas sector. Investments in coal and tar sands were withdrawn immediately and complete divestment was achieved in 2019. Whilst the University has invested heavily in renewable energy since then, this was not a commitment outline in the divestment press statement: https://www.nottingham.ac.uk/news/pressreleases/2018/april/the-university-of-nottingham-fossil-fuel-divestment.aspx</i></p>	

Section Total (22 out of 29)	22
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Grading

Section Overview

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

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

Planetary Health Grades for the University of Nottingham School of Medicine

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

Section	Raw Score	Grade
Planetary Health Curriculum (30%)	28 / 58 = 48%	C
Interdisciplinary Research (17.5%)	9 / 19 = 47%	C
Community Outreach and Advocacy (17.5%)	2 / 12 = 17%	F+
Support for Student-led Planetary Health Initiatives (17.5%)	9 / 14 = 64%	B-
Campus Sustainability (17.5%)	22 / 29 = 76%	B+
Institutional Grade	50%	C