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# Planetary Health Report

## Card:

*University of Liverpool*

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UNIVERSITY OF  

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LIVERPOOL

## **2021-2022 Contributing Team**

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## Summary of Findings

<b>Overall</b>	<b>C</b>
<b>Curriculum</b>	<b>B</b>
<ul style="list-style-type: none"> <li>The medical school curriculum briefly touches upon the links between planetary health and individual health, however most topics lack appropriate knowledge and depth. In year 3 lectures highlight the waste generated by the NHS and ways to tackle the environmental burden, and longitudinal education in CCP (communications) for eliciting thorough social and environmental histories exist. Introducing conversations of climate change and health would make a worthy addition to CCP training (perhaps in later years). The significance of topics is diminished however when PH/ESH are signposted with an image or often skip lecture slides however. There are also few opportunities for students to undertake elective learning in this area, however as discussed a base of researchers is being collated.</li> <li>There is a joint hope that after connecting meaningfully with the interdisciplinary Climate Futures theme, alongside getting Global Health and Medical Education experts involved in the creation of the course, the Education for Sustainable Healthcare (ESH) as well as improvements in planetary health education in the core curriculum will be present in the following academic years.</li> </ul>	
<b>Interdisciplinary Research</b>	<b>C</b>
<ul style="list-style-type: none"> <li>The school has been making efforts this year to increase the coverage of PH and Sustainability in research and create a strong foundation of PH research, and has been approached by The LUHFT Clinical Sustainability Group, building a base of researchers interested in PH and Sustainability. Furthermore, the wider institution has been developing a Climate Futures theme to centralise all researchers in this area across the university, thus creating an interdisciplinary network. However, this is rather disjointed from the medical school at present and the students are somewhat disconnected from the researchers alongside experts in GH and PH. Additionally, methods to encourage marginalised populations to be involved are still in the ideation stage of development. The medical school is also not currently part of wider organisations such as the PHA or GCCHE.</li> </ul>	
<b>Community Outreach and Advocacy</b>	<b>C</b>
<ul style="list-style-type: none"> <li>Many affiliated hospitals have readily accessible patient information on environmental exposures and infectious diseases, although few provide information on the much broader topic of climate change and its effects. Regarding the school itself, whilst global health and sustainability updates are sometimes included on email communications, these are not regular and often dependent on student society events rather than information from the school or institution. We recommend increased communications either weekly or monthly, perhaps with a dedicated PH/sustainability section to include relative society events, external links and resources, and relevant news to engage and encourage students and staff. The school should also think about forming links and partnerships with relevant organisations to offer events, and to increase the number of specific CPD courses and elective courses.</li> </ul>	
<b>Support for Student-Led Initiatives</b>	<b>C-</b>
<ul style="list-style-type: none"> <li>The support provided for Student-Led initiatives is encouraging, with efforts being made to increase the number of projects available for students to undertake research. A student staff relationship has been established with the working group being created this year, meeting every 6-8 weeks, to encourage and support student participation with sustainable issues. The lack of funding for student-led initiatives is the main weakness for this section, however there are plans for funding/prizes to be introduced for the coming academic year.</li> </ul>	
<b>Campus Sustainability</b>	<b>C+</b>
<ul style="list-style-type: none"> <li>Overall, general campus sustainability is promising. There are currently many strategies to further develop the sustainability of the medical school and begin to make conscious decisions as an institution regarding sustainability. Strengths of both the school and institution are that staff and working groups are dedicated to make plans for sustainability in the university and achieve net zero, sustainable building plans and divestment from fossil fuels. Weaknesses are due to current ideas not being implemented yet, e.g. buildings are not retrofitted with sustainable materials but plans do exist for this. Sustainable travel and the recycling/ composting programmes are not promoted enough. Food and beverage, procurement, events and lab spaces have no requirement to be sustainable.</li> </ul>	

# Statement of Purpose

*Planetary health is human health.*

The Planetary Health Alliance defines planetary health as “a solutions-oriented, transdisciplinary field and social movement focused on analysing and addressing the impacts of human disruptions to Earth’s natural systems on human health and all life on Earth.” This definition is intentionally broad, intended to encompass the multitude of ways that the environment can affect health, including water scarcity, changing food systems, urbanisation, biodiversity shifts, natural disasters, climate change, changing land use and land cover, global pollution, and changing biogeochemical flows. The health of humanity is dependent on our environment and our environment is changing rapidly and in disastrous ways. Although the World Health Organization has called climate change “the greatest threat to global health in the 21st century,” many 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 colour, older adults sensitive to health threats, and individuals in low-resource settings), these issues are inherently ones of equity and justice.

With the purpose of increasing planetary health awareness and accountability among 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 centred on environmental health impacts 5) medical school campus sustainability.

# Definitions & Other Considerations

## Definitions:

- **Planetary Health:** is defined by the *Planetary Health Alliance* as “a solutions-oriented, transdisciplinary field and social movement focused on analysing and addressing the impacts of human disruptions to Earth’s natural systems on human health and all life on Earth.” 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.
- **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. 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<sup>1</sup> 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 (for example, undergraduate departments (USA), other related departments eg 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. Paediatrics, General medicine, Psychiatry etc) in the UK.

#### **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 2020 Harvard report card as an example).

**Added to our resources this 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 to engage students in Education for Sustainable Healthcare (ESH) 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.
<p><i>Research Project: Third year medical students are provided with a list of research projects, one of which they must complete. These include: “Reviewing the Evidence of the Effectiveness for Improving Diets of Population Level Interventions”, “Chronic Kidney Disease of Nontraditional Cause (CKDnt): challenges for research and diagnostics”, “Systematic review of covid therapeutics with assessment of evidence for use in low or middle income countries”, and “Any topic for a systematic review or audit/service evaluation within an Acute Medicine of Infectious Diseases context.” This includes some PH themes and allows students to explore the socioeconomic impacts of PH and some PH and sustainable healthcare themes, however it is not explicit and requires individual interest. For example, a 3rd year (Htet Niang) RS project looking into PPE use with Dr Iain Young.</i></p> <p><i>There is current work in the medical school faculty, Sustainability Network/QI in the Royal Liverpool Hospital trust doctors, and discussions in the Staff-Student Sustainability Working group to include the Sustainability/PH theme in the curriculum. Rather than having a singular module/theme highlighting PH and sustainability, they are including the ESH longitudinally in multiple medical blocks/modules, which may change this score the following year.</i></p>	

**Curriculum: Health Effects of Climate Change**

<b>2. Does your medical school curriculum address the relationship between extreme heat, health risks, and climate change?</b>	
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>A Sustainable Healthcare workshop for year 1 students covered a range of health impacts of global warming - briefly mentioning heat stress and cardiovascular failure in relation to extreme heat. However, it did not mention the socioeconomic aspects of this topic.</i></p> <p><i>This workshop signposts many areas of PH, encourages discussion amongst students, however the singular session and reading/resource lists lacked depth.</i></p> <p><i>Note - The Medical School is aware of this issue and are working on developing the course.</i></p>	

<b>3. Does your medical school curriculum address the impacts of extreme weather events on individual health and/or on healthcare systems?</b>	
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>A Sustainable Healthcare workshop for year 1 students covered a range of health impacts of extreme weather - such as the effects of severe weather on crops, and how this can lead to malnutrition and food insecurity. It also began a discussion surrounding the major sustainability issues that may affect the UK or global health and health services.</i></p> <p><i>A lecture on Biological threats to the body: Bacteria by Prof. Aras Kadioglu mentions how sandstorms can have a negative impact on pneumococcal disease outcomes.</i></p> <p><i>There is also a 'Responding to Climate Change in Primary Care' video, which provides a brief overview of various effects of climate change and mitigation strategies from Dr Nicola Dowling, using IPCC tools. This covers desertification in Cape Town, and also increased flooding locally, in the Mersey area.</i></p>	



**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.

*A Sustainable Healthcare workshop for year 1 students briefly mentioned that climate change will lead to an increase in infectious diseases. This is mentioned now and again throughout the course in higher years also, especially considering migration and infectious disease modules, however there is no lecture to substantiate this nor any slide explaining the process and contributing factors.*

**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.

*In a lecture on the global health aspects of the respiratory system, Dr Dan Pope talks about household air pollution and how it affects different parts of the world. He mentions WHO initiatives specifically in African countries.*

*A lecture on paediatric asthma pathology by Dr Ian Sinha explains links between asthma and air pollution and also talks about the impact of socioeconomic differences in relation to asthma. This relates to problems in the local vicinity around Liverpool and the north.*

*Another lecture on respiratory signs and symptoms by Dr Calum Semple details the main risk factors for severe respiratory tract infections, including pollution and socioeconomic differences. A lecture on Biological threats to the body: Bacteria by Prof. Aras Kadioglu mentions the links between air pollution and pneumococcal disease. A Sustainable Healthcare workshop for year 1 students briefly mentioned that climate change will lead to an increase in air pollution, and the impacts that will have on our cardiorespiratory health.*

*There is also a 'Responding to Climate Change in Primary Care' video, which provides a brief overview of various effects of climate change and mitigation strategies from Dr Nicola Dowling, using IPCC tools. This covers the effect of air pollution at a national level, which describes respiratory and cardiorespiratory effects of climate change. This also compares deaths between diabetes and air pollution to stress how big an issue it is.*

**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.

*There is a 'Responding to Climate Change in Primary Care' video, which provides a brief overview of various effects of climate change and mitigation strategies from Dr Nicola Dowling, using IPCC tools. This covers the effect of air pollution at a national level, which describes respiratory and cardiorespiratory effects of climate change, such as heart disease and stroke.*

**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.

*A Sustainable Healthcare workshop for year 1 students briefly mentioned/signposted that climate change will lead to an increase in poverty and mental health issues, but did not elicit any meaningful discussion on this. This was not covered in higher years. Thus we gave it a zero.*

**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.

*COPD pharmacology lecture delivered by Dr Hassan Burhan talks about the environmental impact inhalers have and their ecological footprint. Mentions that they are the largest contributor to NHS carbon footprint. In Yr 4, there is a GP extra resource covering this as well, as well as the Green Toolkit by the RACGP.*

*There is also a 'Responding to Climate Change in Primary Care' video, which provides a brief overview of various effects of climate change and mitigation strategies from Dr Nicola Dowling, using IPCC tools. This covers food security and water security.*

*A lecture on paediatric asthma pathology by Dr Ian Sinha explores the links between asthma and pollution, malnutrition and socio-economic status. A Sustainable Healthcare workshop for year 1 students highlights the environmental impact of inhalers, as well as how food and water security is at risk due to changes in extreme weather events.*

**9. Does your medical school curriculum address the outsized impact of climate change on marginalised populations such as those with low SES, women, communities of colour, 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.

*A Sustainable Healthcare workshop for year 1 students briefly mentioned that the major impacts of climate change are going to impact children much more.*

*Dr Ian Sinha's paediatric respiratory lecture covers in depth how children are affected, especially those from lower-socioeconomic backgrounds, and children and adults in the developed world experience cardiorespiratory problems due to air pollution and cause lower life expectancy and wider social issues. Furthermore, he covered international climate issues, and discussed the social divide, where the rich and affluent would be able to cope with climate changes.*

*The GP lead CCT (Community Clinical Teaching) sessions are trying to include more PH themes, such as in the Women's health (O&G), where they considered the unequal distribution and access to contraceptives and women's health. They have included a 25 minute video considering impacts of climate change, as a brief introduction to it, by the GP Climate Change lead.*

*Not all of the topics are covered appropriately or in depth, such as in the elderly (heat, isolation), homeless populations, women's health, SES, however there is significant effort during this academic year which is continuing with the broadening PH faculty/support.*

**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.
<p><i>A Sustainable Healthcare workshop for year 1 students briefly mentioned that rising sea levels due to climate change is responsible for the creation of 'environmental refugees' in countries that are most affected by these changes. It also mentioned the unfair impact this will have on children and their health if we do not begin to make changes with planetary health in mind. A lecture on Biological threats to the body: Bacteria by Prof. Aras Kadioglu mentions how sandstorms in the Sahara and western africa can impact disease and how pollution and diesel exhaust particles have a negative impact also.</i></p> <p><i>There is also a 'Responding to Climate Change in Primary Care' video, which provides a brief overview of various effects of climate change and mitigation strategies from Dr Nicola Dowling, using IPCC tools. This covers local issues such as increased flooding around the Mersey region, more extreme weather nationally, as well as global issues of desertification. This also covers increased migration to and thus how issues that may seem far and also something we must consider.</i></p>	

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

<b>11. Does your medical school curriculum address the reproductive health effects of industry-related environmental toxins (e.g. air pollution, pesticides)?</b>	
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>No, this topic is not currently covered in either the core curriculum or elective coursework. In the year 2 urogenital block gynaecological conditions lecture, it was suggested that environmental exposure is a risk factor for endometriosis. However, there was no further elaboration.</i></p>	

<b>12. Does your medical school curriculum address important human-caused environmental threats that are relevant to the university's surrounding community?</b>	
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>Covers air pollution in year 4 for paediatric patients, with Dr Ian Sinha, and how they're trying to reduce threats by ensuring people cannot live near landfills etc, by taking people to court and making systemic changes.</i></p>	

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

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>No, not covered in elective or core coursework.</i>	

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

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 year 3 - Public, Preventative & Global Health (PPGH), there are learning outcomes that briefly mention the impact of climate change on global health - "Understand how globalisation and climate change is causing profound changes to the burden of infectious diseases". The learning outcome "Critically interpret the role of poverty, urbanisation and food insecurity" also prompted a discussion on how such populations affected by these factors encounter health impacts at a higher proportion. However, it does not address other marginalised populations.*

*In year 4, a lecture in the paediatrics block: The Impact of Poverty on the Health of Children discussed about the injustice of air pollution - people of low socioeconomic class, particularly women and children in poverty generate the least air pollution but are exposed to it the most and benefit the least from environmental policies. Pre-placement lectures for General Practice also signposted many resources for students to refer to for information on how climate change impacts health and opportunities for greener prescribing. The BMA's policy document on Sustainable and Environmentally Friendly General Practice was also assigned as pre-session reading for students before the CCT (Community Clinical Teaching) session.*

*The curriculum addresses how climate change and air pollution impacts some marginalised populations but specific impacts of anthropogenic environmental toxins were not explicitly mentioned.*

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

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

*In year 1, there is a learning outcome in the gastrointestinal block that discusses the significance of a plant based diet - Explain how diet impacts on the microbiota and microbial activity. Lecture 15 describes how the human gut microbiota can be altered by short term dietary intervention and scientifically how the gut microbiota is shaped by habitual diet, stressing the importance of diet as a factor shaping microbial composition. Some benefits of a plant based diet are also explained - high fruit fibre intake may protect against Crohn's disease and it may be effective towards cancer prevention.*

*This is continued yearly in the GI block, predominantly in IBD and IBS lectures (e.g. lectures by Prof Probert).*

*In year 2, there is further discussion on research on diet- fruit fibre being protective towards IBD.*

*In year 3, there is a lecture on climate crisis and primary care and it explains how a planetary health diet, which highlights a plant-forward diet, can prevent 11 million premature deaths and lead to a sustainable global food system by 2050 (referred to the EAT-Lancet Commission).*

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

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

*In the Year 3 'General Practice & Community Clinical Teaching' (CCT) module, there is discussion of the environmental impacts of metered-dose inhalers, which includes figures and statistics of the carbon footprint produced by metered-dose inhalers and alternative methods to reduce the environmental impacts of inhalers. The session highlights key points to minimise the environmental burden of inhalers such as optimising asthma care and switching from metered-dose inhalers to dry powder inhalers.*

*In the student-led elective coursework 'Sustainability in Action,' there are a number of infographics and useful resources made available to students that highlight the waste generated by the healthcare system, namely the module discussing the impact of COVID-19 on the planet.*

*There is also a 'Responding to Climate Change in Primary Care' video and slides in CCT presentation which has the graph of the NHS carbon footprint, and discusses different contributors to the carbon footprint, the impact of the NHS to this, and how to reduce it. This was covered in depth.*

*Furthermore, on the side, in elective projects, there are ways to get involved in sustainable QI projects. Furthermore, SfGH Liverpool (Students of Global Health Liverpool) and The LUHFT (Liverpool University Hospitals Foundation Trust) Clinical Sustainability Group provided a workshop during this academic year regarding this in depth, but though this was outside of the curriculum it was promoted throughout the medical school via the Mbchb News Team.*

**17. Does your medical school curriculum cover these components of sustainable clinical practice in the core curriculum? (1 point each)**

1	Waste production within the healthcare system and strategies for reducing waste in clinical activities, such as in the operating room
1	The impact of inhalers on the healthcare carbon footprint and the environmental benefit of dry powdered inhalers over metered dose inhalers.
1	The impact of anaesthetic gases on the healthcare carbon footprint and ways to reduce anaesthesia environmental impacts, such as total intravenous anaesthesia or choosing less environmentally anaesthetic gas options with reduced greenhouse gas emissions
1	The environmental impact of pharmaceuticals and over-prescribing as a cause of climate health harm. Alternatively teaching on deprescribing where possible and its environmental and health co-benefits would fulfil this metric.
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 for obesity. This is commonly known as social prescribing in the UK.
1	The health and environmental co-benefits of avoiding over-medicalisation, over-investigation and/or over-treatment

*Some of these are covered in Year 4 CCT (GP) groups. The issue of anaesthetic gases and dry-powder inhaler use is covered briefly here. The graph showing percentage proportions of NHS Carbon footprint is repeated to emphasise instrument use and pharmaceuticals compared to waste production, however waste production is discussed as well. This format in these interactive CCT sessions was a good way of introducing discussion.*

*There is also a 'Responding to Climate Change in Primary Care' video, which provides a brief overview of various effects of climate change and mitigation strategies from Dr Nicola Dowling, using IPCC tools. This covers the issue of pharmaceuticals and over-prescribing, by looking at percentages use, and how a large percentage of prescriptions are coming from primary care and highlighting how this was an issue that needed greater exploration as a profession. This also covers the environmental and health co-benefits of conservative managements, such as improving active transport, exploring the relationship between commute transport and percentage body fat. Furthermore this covers how we should be thinking about and highlighting inefficiencies in the system, in terms of over-investigation and over-treatment.*

*The new lecture in 5th year by a medical educator from the Centre of Sustainable Healthcare also covers many of these issues.*

### ***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

*Strategies not specific to climate change include the ICE framework - Ideas, Concerns, Expectations, and the social and environmental history.*

*Year 4 Population and Global Health workshop on "Public Health is Everywhere", talks about the wider determinants of health, which does introduce discussions about what doctors can do, talking to patients about factors that cause climate change (smoking), foods, promoting wellbeing.*

*No specific work in CCP theme (communication for clinical practice) on how to approach these topics in practice. However in the 'Responding to Climate Change in Primary Care' video, from Dr Nicola Dowling, the GP PH lead, she covers raising awareness and how to talk to patients about climate change, including giving advice about thinking about climate change, the power of shared decision making, and highlighting it when you could.*

**19. 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.

*In the longitudinal curriculum theme 'Communication for Clinical Practice' (CCP), which is implemented from year 1 to year 5, medical students are taught to elicit a full social history from*



patients. This includes asking patients about their environmental and occupational exposures (e.g. dust, asbestos, chemicals, and pollutants).

**Curriculum: Administrative Support for Planetary Health**

**20. Is your medical school currently in the process of improving Education for Sustainable Healthcare (ESH)/planetary health education?**

4	Yes, the medical school is currently in the process of making <b>major</b> improvements to ESH/planetary health education.
2	Yes, the medical school is currently in the process of making <b>minor</b> improvements to ESH/planetary health education.
0	No, there are no improvements to planetary health education in progress.

Yes.  
 Medical school faculty members are keen on implementing major changes within the curriculum in order to improve planetary health education. Currently, monthly meetings between medical school faculty members and students in the working group are being held to discuss implementing additional planetary health education within the curriculum. There are many discussions within the faculty with doctors interested in the area to develop workshops, integrated themes, and also to establish a base of doctors to engage in PH research. Furthermore, there is a joint hope that after connecting meaningfully with the interdisciplinary Climate Futures theme, alongside getting Global Health and Medical Education experts involved in the creation of the course, the Education for Sustainable Healthcare (ESH) as well as improvements in planetary health education in the core curriculum will be present in the following academic years.

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

6	Planetary health/ESH topics are 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.

In the earlier years, many ESH topics were delivered in lectures but were not discussed as main learning objectives. Although some were mentioned in the learning outcomes, they were not fully explored. The majority of planetary health education was covered in second and third year.

*However this year there has been addition of lectures in fourth and fifth year, covering ESH and PH topics, such as the Responding to Climate Change in Primary Care video, or the fifth year lecture by a member of the Centre of Sustainable HEalthcare in the UK (an NGO).*

*There is current work on integrating ESH topics longitudinally into the core curriculum, such as in CCT (GP tutor) sessions. There are a few standalone lectures regarding ESH, such as air pollution.*

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

1	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.

*The Medical School has a GP lead for planetary health in CCT sessions (primary care tutoring). There is also a sustainability officer for the overall course, considering sustainability and sustainable healthcare for the Medical School. Planetary Health integration is being considered as a whole via the Director of Education at the school faculty, alongside input from the LUHFT Clinical Sustainability group.*

<b>Section Total (46 out of 69)</b>	<b>46</b>
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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 emphasised.*

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 School of Medicine who have a primary research focus in planetary health <b>or</b> 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.

[Dr Iain Young](#) is Vice Dean of Student Experience and Risk at the Liverpool School of Medicine. His interest in sustainability is long standing, translating this across many disciplines in the university and in 2016 gained national recognition in the Green Gown Awards.

*Additional Note: Over the past year, the medical school has been making steps to create a base of researchers in medicine who have a primary research focus in sustainability and planetary health. Dr Perrara and The LUHFT Clinical Sustainability Group, founded in The Royal Liverpool Hospital, has been creating a network of doctors (and students) in the area who are interested in sustainability. This would help make changes in our affiliated hospitals, in the curriculum, and form a wider base of medical and non-medical individuals who have a (primary) research interest in sustainability or planetary health. This will be rolled out at the end of 2021-22 year, but is not included in this report as it will be created post-March.*

*Within the wider University, there are a number of individuals interested in Climate Change, Health, and Sustainability, some of whom are included below.*

#### *Food Systems and sustainability*

- [Dr Charlotte Hardman](#) - PI on the UKRI-funded project, [Rurban Revolution](#). This project is focused on the potential of urban food growing and greening for health, sustainability and resilience of our food system - broader interests and expertise in interventions for changing dietary behaviours for human and planetary health.
- [Professor Daniel Pope](#) – Researching the health, gender, environment and climate impacts from reliance on polluting sources of household energy in lower-and-middle-income countries

(LMICs) and prevention strategies through clean cooking technologies and fuels.  
<https://www.liverpool.ac.uk/research/research-themes/living-well/clean-air-africa/>

- [Professor Jonathan Ruston](#) - Food systems and their impact on land water and air use. Director of the Global Burden of Animal Diseases programme that will quantify the impact of animal health and welfare issues on resources including natural resources.
- [Professor Andy Morse](#) - Climate variability and climate change impacts on sustainable food systems. This can range from weather disruption to agricultural operations and supply chains, to the use of climate data for seasonal crop yield and animal disease risk, and finally impacts of long term climate change on infrastructure, future animal husbandry, and future crop use.

*Biodiversity, infection, and health.*

- [Professor Matthew Baylis](#) is Executive Dean of the Institute of Infection, Veterinary and Ecological Sciences (IVES)
- [Professor Steve Paterson](#) - Director of the [NERC Environmental Omics Facility](#); Genomic approaches to evolution and ecology; adaptation of species to climate change.
- [Dr Cristina Garcia](#) - Impact of climate change on biodiversity and ecosystem services. Impact of anthropic activities (ex. forest fragmentation or defaunation) in shifting the dispersal ability of organisms by impacting mutualistic dispersal interactions. Benefits of biodiversity (including urban diversity) to nature and people. Communicating scientific uncertainty to the general public

*Inequality, Health policy and wellbeing.*

- [Dr Mark Green](#) - Understanding the social and environmental drivers of health inequalities including how future processes may disproportionately affect some population groups and communities more than others. Exploring the sustainability of dietary behaviours and how to encourage healthier and more sustainable diets.
- [Dr Rebecca Geary](#) - Research investigating the impact of green and blue spaces on mental health and wellbeing and systems wide transformations of urban green and blue spaces to reduce inequalities in non-communicable diseases.
- [Dr Sam Solnick](#) - in representations of climate change across literature, performance and visual culture. This includes: environmental justice; imagined/predicted futures; cultural representations of science and scientists and climate denial; energy humanities; extinction; the arts as pathways of engagement and education; historical perceptions of ecology and nature. <https://www.liverpool.ac.uk/english/research/impact/Enriching-Ecological-Understanding-and-Enhancing-Healthcare-Practices/>
- [Professor Sally Sheard](#) -The Governance of Health and policy making.

**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 2 Given.

*There is no dedicated department or institute dedicated to interdisciplinary planetary health research. However, the University has been developing new interdisciplinary research theme '[Climate Futures](#)' (over prev 18 months) – bringing the University's research on climate and the environment under the headings of Science, Society and Solutions*

*This will allow the researchers and topics of Climate change to be focused together and allow increased promotion across the campus - creating a conceptual interdisciplinary department. They hope to bring this into fruition in the next 18 months.*

*In the meantime:*

*There is a [School of Environmental Sciences](#) in the University of Liverpool, which teaches environmental sciences and also collaborates with governmental organisations (e.g. National Environment Research Council) regarding this. This is [affiliated with other departments](#), such as medicine, engineering, etc. However, the focus on Planetary Health is tenuous.*

*Another area where focus on planetary health research may come about is from the Sustainability Team. There is an interdisciplinary [Research Team](#) in the Sustainability Team of UoL, which includes researchers from Health and Life Sciences, Science and Engineering, and Humanities and Social Sciences. They hope to explore different ways in which we contribute to climate change, ways to mitigate and adapt to it in communities, policy, etc.*

*Students and medical students are not yet affiliated with decision making, however the sustainability team have made plans this year to roll out a provisional student council including 9 students across the university to have their input into decisions.*

**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.

*This lack of input by those communities disproportionately affected has been acknowledged by the medical school. The student council next year to be involved in sustainability issues is one method they hope to improve upon this.*

*Similarly, the institution creating the Climate Futures Theme is aware of this and formulating ideas on improving this.*

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

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

*There is a [Sustainability page](#) on the UoL website, which includes what the university is doing, how well they're doing it, research, the vision and goals of the institution, how to get involved, news pertaining to it, and relevant contact. This positively promotes sustainability, with feeds of students and faculty members who have done positive things for the environment in the community. It includes some details on health and environment, but not in depth.*

*The website has been noted to be somewhat confusing and the university faculty, such as those creating the Climate Futures Theme, hope to improve promotions and centralise the content. This provides a base where all researchers throughout the university working on content/ research, relating to climate change and the environment will be centralised.*

**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.

*No conference or symposiums have been held on the PH theme in the past three years.*

*A workshop will be held in collaboration between Leeds University and Liverpool University regarding Climate Change and Health to the interdisciplinary group this year.*

**6. Is your medical school a member of a national or international planetary health or ESH organisation?**

1

Yes, the medical school is a member of a national or international planetary health or ESH organisation

0

No, the medical school is not a member of such an organisation

*Institution and medical school are not part of the PHA or GCCHE, which are international organisations. They are not part of the national PH or ESH organisation, but do have affiliations with the Centre of Sustainable Healthcare, where a medical educator provided a lecture to fifth years regarding ESH.*

**Section Total (8 out of 17)**

**8**

# Community Outreach and Advocacy

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

<b>1. Does your medical school partner with community organisations to promote planetary and environmental health?</b>	
3	Yes, the medical school meaningfully partners with multiple community organisations to promote planetary and environmental health.
2	Yes, the medical school meaningfully partners with one community organisation to promote planetary and environmental health.
1	The institution partners with community organisations, but the medical school is not part of that partnership.
0	No, there is no such meaningful community partnership.
<p><i>The university partners with organisations including CompostWorksUK and LivFoodGrowers. These were involved in the fresher's event although the medical school is not part of this. The medical school partners with recycling and composting as part of the wider institution, however they do not have an active role in promoting this.</i></p> <p><i>The institution also promotes and shares many events and info from groups on their twitter feed @livunisustain, such as global sustainability days and ventures, local lectures and tips for everyday sustainability, among other things.</i></p>	

<b>2. Does your medical school offer community-facing courses or events regarding planetary health?</b>	
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.
<p><i>No community-facing courses or events have been offered by the medical school.</i></p>	



**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.

*This is a recent endeavour of the medical school, started this year.*

*Weekly emails sent by the school to the respective year groups will sometimes feature sustainability and global health related topics, such as introducing the staff/student working group recently, and featuring related society events - but the information is not regular. Some students receive updates from the medical school via email, introducing the staff/student working group related to education in relation to sustainability. This doesn't cover topics/news/tips regularly though.*

*The institution on the other hand has a newsletter that has regular updates and information on PH and climate change related information for all disciplines.*

**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

*There are no CME courses focusing primarily on PH or sustainable healthcare.*

*[Global Healthcare Ethics MSc course](#), available for medical students who are intercalating, offers 2 optional modules that are related to public health which can be used for CPD : Health & Society (PUBH150) and Health Policy, Governance and Economics (PUBH170).*

*Also available for intercalating medical students, as offered by the School of Life Sciences: [Sustainable Food Systems MSc](#), including compulsory module of Sustainable Food Systems (LIFE747) and optional modules such as Monitoring Urban Air Pollution (ENVS666), and Health Inequalities: Evidence and Policy (PUBH407). However, modules cannot be taken individually for CPD.*

The School of Medicine offers a [Master of Public Health MPH](#) with modules such as Health Inequalities: Evidence and Policy. (PUBH407), Health Improvement (PUBH130) and more available to be taken individually for CPD

Note: The Institution is currently working on creating new courses centring around sustainability, climate change and healthcare and hope to have some set up in the next 18 months. It is noted that there may have to be greater focus on providing up to date information on PH and greater promotion of these activities to practising clinicians.

**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 centres have accessible educational materials for patients.

Most educational materials for patients regard air pollution and smoking. Some affiliated hospitals such as The Royal Liverpool and Broadgreen hospitals and Liverpool Women's have downloadable patient leaflets concerning cigarette smoke exposure and infection control (microbe exposure) for patients. However, some hospitals only provide leaflets on certain medical conditions with no information on environmental health exposures.

Wirral University Teaching Hospital has a link on their ['Patient Information Leaflets' page](#) to patient.info, containing an article called "[The effect of air pollution on asthma sufferers](#)" and many other articles on air pollution (and other pollutants and exposures). We should note that this information is provided by patient.info, a separate organisation, and is not published by the trust/hospitals themselves.

Blackpool Teaching Hospitals also have a leaflet '[Aspergillosis during Demolition, Renovation and Construction](#)' in their patient leaflet section, as well as leaflets on MSSA, MRSA, C. diff, TB/BCG vaccination in pregnancy, and others. They also have specialised [health videos portal](#), where videos such as 'Stopping the spread of germs', 'Shingles Vaccine' and help to stop smoking can be accessed.

**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.

*Wirral University Teaching Hospital has a link to patient.info under patient information category. The website has a small number of articles on climate change such as "[How to cope with climate change anxiety](#)". These materials are not found on other affiliated hospitals' leaflets for patients.*

**Section Total (7 out of 14)**

**7**

For first year students, they undertake a "Health in the Community" mini placement. This focuses more on work done by organisations within the local community for the local population, as opposed to planetary and global health. Different organisations include Sahir House (an HIV charity) and Imagine If Trust who have a partnership with Love Congo (focusing on health in populations in developing areas) so some aspects of global health can be included, but this varies group to group depending on which charity/organisation they have been assigned.

# 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/QI project?	
2	Yes, the institution <i>either</i> offers grants for students to enact sustainability initiatives/QI projects <i>or</i> sustainability QI projects are part of the core curriculum.
1	The medical school encourages sustainability QI projects (to fulfil clerkship or longitudinal requirements) and offers resources to help students succeed in these projects, but there is no student funding available and there is no requirement to participate.
0	No, the institution does not offer opportunities or support for sustainability initiatives or QI projects.
<p><i>There is the opportunity to undertake projects within the research and scholarship module. This is where students can choose a project, there are some projects that are linked to sustainability, and these projects are completed over two years. One such project is occurring with regards to PPE with a member of faculty.</i></p> <p><i>Although funding is not available at the moment, there is hope to secure funding for following academic years, but this is not concrete. Instead, the Dean will be awarding students for sustainability/QI improvements, efforts and ideas, possibly including a competition effort (individual/group), with monetary value in prizes.</i></p>	

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 receive funding for planetary health/sustainable healthcare research.

*Score explanation - 1: The Research and Scholarship section runs from Years 1-3 and provides opportunity for students to perform research related to various things. Dr Iain Young is currently the only one involved in Sustainable Healthcare research that medical school students have access to in this RS module. However, during this year, the network of sustainability advocates at the Royal Liverpool Hospital, headed by Dr Duranka Perrara, has introduced more doctors/supervisors with a primary research focus and thus more opportunities.*

*This is unfunded. However, prizes with some monetary value have been discussed for the following year as recognition.*

**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 web page 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.

*There is no medical-school specific webpage for locating planetary health and/or sustainable healthcare projects or mentors.*

*The new Climate Futures theme hopes to centralise the information for researchers and key actors in sustainability, PH research, and info on climate change. However this is not yet made. Instead the information is on separate pages and somewhat difficult to access. This is not accessible on the medical school specific page, thus this has been awarded zero. Additionally, the medical school is currently in the process of compiling academics and drs who are interested in this area, and thus there is no webpage with this information.*

**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 organisation with faculty support at my medical school dedicated to planetary health or sustainability in healthcare.
1	Yes, there is a student organisation 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 organisation at my institution dedicated to planetary health or sustainability in healthcare.
<p><i>The staff-student Working Group, started in December 2021, has had three meetings this academic year. There is representation from clinical skill staff, GPs, clinical fellows, faculty, and students from across the year groups. The working group is scheduled to meet every 6-8 weeks. All members are dedicated to planetary health and sustainability and are currently formulating ideas on how to integrate sustainability and planetary health into the curriculum along with having a new sustainability award for students. There are also discussions on how to inspire, promote, advocate and make the area of PH more diverse. However this did not gain a 2 as this was not a student organisation, but a staff-chaired or staff-led organisation. This would be funded as it is held in office hours.</i></p> <p><i>There is a whatsapp student sustainability group created this year by Selina Aziz which promotes local and university events, and encourages participation in the above group, as well as creating a like-minded network passionate for sustainability and planetary health.</i></p>	

<b>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</b>	
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.
<p><i>There are no such student representatives in the medical school.</i></p> <p><i>The institution is hoping to have a council made of 9 students across the university to be involved in a decision making council in sustainability.</i></p>	

<b>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)</b>	
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 organise hiking, backpacking, kayaking, or other outings for students) that follow Leave No Trace principles.
<p><i>Score explanation: These are held by the Medical school student societies.</i></p> <p><i>1 - Students for Global health Liverpool, a student run society, ran in 2021-22 a sustainability-PH healthcare lecture series, in collaboration with societies from Manchester and Leeds are currently running a speaker series. There is a range of topics relating to planetary health and sustainability, the medical school helps to promote these events through the weekly newsletter. This includes topics of challenges in healthcare, planetary health teaching, and discussion groups.</i></p> <p><i>1 - Workshop with a member of the Centre of Sustainable Healthcare and the LUHFT (Liverpool University Hospitals Foundation Trust) Clinical Sustainability group talking about background challenges and providing practical tips on how to put ideas into action. Organised by medical students (Selina Aziz, Anthnoia Adefolaju, Sinead McSorley) in the student sustainability group &amp; SFGH Liv and LUHFT Clinical Sustainability group team, promoted nationally. Though not a local community organisation, the speaker from CSH, does consider local community justice and how healthcare professionals should volunteer and work with them to improve standards.</i></p> <p><i>1 - Outdoor events run by the Wilderness Medicine society follow the Leave no trace principles. The LMSS (Liverpool medical school society) organised a charity hike and also followed the principles.</i></p>	

<b>Section Total (6 out of 15)</b>	<b>6</b>
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# 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 endeavour, the healthcare sector is well poised to lead the world to a more sustainable future. This will involve scrutinising every aspect of how our systems operate, from where we source our energy, to how we build our infrastructure, to what companies we invest in. Our medical schools, clinics, and hospitals must set the standard for sustainable practices, and show other sectors what is possible when it comes to minimising environmental impact.*

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>Medical school has a sustainability working group. The university as a whole has a dedicated sustainability team with seven working groups across the university that all feed into a central sustainability board. This is supported by the sustainability team that includes staff members who are solely salaried as 'sustainability officers' and other members of staff who were already employed by the university for existing roles and also contribute to the sustainability team.</i></p> <p><i>There is a sustainability lead for the medical school but the staff member (Dr James Young) is not based only on sustainability. This was not given a 3 as this staff member is not part of the office of sustainability but is a sustainability lead only for the medical school and thus may have more limited input with regards to changes as compared to one in the sustainability board. There are no leads within the hospitals via the medical school.</i></p>	

2. How ambitious is your medical school/institution's plan to reduce its own carbon footprint?	
4	The institution has a stated goal of carbon neutrality by 2030 or earlier and the medical school / institution has a well-defined and adequate plan in place to achieve this goal.
3	Yes, there is a stated carbon neutrality goal by at least 2040 and the medical school/institution has a well-defined and adequate plan in place to achieve this goal.
2	Yes, there is a stated carbon neutrality goal by at least 2040, but the medical school/institution 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 Medical School worked with the University this year to declare the state of Climate Emergency, however this has been postponed due to other emergencies. The university in early winter as well as the medical school committed to declaring this, however due to the issue of strikes and other local emergencies in the area this has been postponed.</i></p> <p><i>The university has a robust plan in place for this, of which the medical school is part of and must be in accordance with. Institution has a net-zero carbon campus goal by 2035 and a clear plan to achieve this. <a href="https://www.zcri.co.uk/">https://www.zcri.co.uk/</a></i></p> <p><i>As the medical school itself hasn't conceptualised or completed their own well-defined goal, this was given a 2.</i></p>	

<b>3. Do buildings/infrastructure used by the medical school for teaching (not including the hospital) utilise renewable energy?</b>	
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.
<p><i>The medical school buildings used for teaching do not as of yet utilise renewable energy.</i></p>	

<b>4. Are sustainable building practices utilised for new and old buildings on the medical school campus, with design and construction of new buildings and remodelling of old buildings conforming to a published rating system or sustainable building code/guideline?</b>	
3	Yes, sustainable building practices are utilised 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 utilised 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.
<p><i>The newer buildings that have been built were built using sustainable building practices, with efforts to retrofit older buildings. An example of a newer building is <a href="#">Cedar House</a>, with its <a href="#">refurbishment</a>.</i></p>	

*The wider campus has many features of sustainability, with BREEAM Excellent new buildings, e.g. Management School, Central Teaching Hub, Vine Court. Furthermore, there are “Green and brown roofs, providing environmentally friendly habitats for local flora and fauna” and roof gardens, or “Solar heat and power generation in the Foundation building, Electrical Engineering, Management School, Dover Court and Vine Court”*

*In renovation updates mention of sustainability: [Our sustainable University - Sustainability - University of Liverpool](#) And [City campus - Sustainability - University of Liverpool](#), mention many items such as ongoing ultra-low energy LED lighting replacements schemes at Biosciences, Sydney Jones Library and the Sports Centre with plans for many more across the university. The energy is connected to the combined energy plant next door.*

*The buildings have been retrofitted as far as they can be, with LED lighting, connection to the Energy Centre on campus (combined heat and power system, alongside sequencing controls). All of the changes have been made according to building planning permissions, and are also limited due to these permissions (e.g. they cannot double glaze). They have attained a score of 3 as they have retrofitted as far as possible.*

*[The Masterplan Estate Strategy 2026+](#) describes plans for redevelopment of buildings for 2026, which has sustainability as a major focus. As plans have not yet been retrofitted, this has gained a 2, however it is acknowledged that there are plans for this.*

**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-utilised 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.

*Bike racks and carpooling is used but not promoted widely, there are plans in place to begin promoting this but nothing yet. There is no centralised platform to support carpooling other than social media and word of mouth.*

**6. Does your medical school have an organics recycling program (compost) and a conventional recycling program (aluminium/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.
<i>Recycling programme within the main medical school building, and composting in each kitchen, alongside the wider institution.</i>	

<b>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)?</b>	
3	Yes, the medical school has adequate sustainability requirements for food and beverages 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.
<i>Medical school doesn't directly have catering facilities but broadly on campus there are different methods of sustainable food e.g. grow food initiative from Liverpool guild. But apart from the Grow Food initiative there are no policies on food or beverages sold on campus, and no initiative to tell you about what is most sustainable to choose, the statement provided appears optional. Thus this scored a 2. <a href="https://www.liverpool.ac.uk/food-and-drink/policies/sustainability/">https://www.liverpool.ac.uk/food-and-drink/policies/sustainability/</a></i>	

<b>8. Does the medical school or associated institution apply sustainability criteria when making decisions about supply procurement?</b>	
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 medical school does not have a procurement staff member that is focussing on sustainability. The University has <a href="#">a policy</a> on this as a whole but this appears to be optional rather than mandatory.</i>	

<b>9. Are there sustainability requirements or guidelines for events hosted at the medical school?</b>	
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.
<p><i>There are events regarding sustainability (working group) but no incentives or recommendations to attend. Other events held in the medical school are not required/incentivised to be sustainable in any way and there are no guidelines.</i></p> <p><i>Discussions to incentivise events at the medical school and possibly develop these are in place for future academic years, such as through awards and prizes.</i></p>	

<b>10. Does your medical school have programs and initiatives to assist with making lab spaces more environmentally sustainable?</b>	
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>The medical school does not have its own set of guidelines as it is part of the wider institution of the UoL, however there are no guidelines for the staff to follow for the anatomy lab (HARC) and clinical skills facilities and no current programs or initiatives in the making for this.</i></p>	

<b>11. Does your institution's endowment portfolio investments include fossil-fuel companies?</b>	
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 organised advocacy for divestment.
0	Yes, the institution has investments with fossil-fuel companies and there have been no efforts to change that.
<p><i>The institution is committed to reinvest divested funds into renewable energy sources. This information can be found on the website <a href="https://divestmentdatabase.org/">https://divestmentdatabase.org/</a> <a href="https://news.liverpool.ac.uk/2018/11/21/university-to-introduce-ethical-investment-policy-2/">https://news.liverpool.ac.uk/2018/11/21/university-to-introduce-ethical-investment-policy-2/</a></i></p>	

*Liverpool introduction to ethical investment:*

*The list of exclusions includes:*

- Companies that manufacture tobacco products*
- Companies that derive more than 10% of their revenue from thermal coal or tar sands*
- Companies that derive more than 10% of their revenue from the manufacture or sale of armaments*
- Companies engaged in testing of cosmetic and non-pharmaceutical products on animals except where it is mandatory*
- Companies that derive more than 10% of their revenue from the sale of tobacco products*

**Section Total (18 out of 29)**

**18**

# 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 an average of the section grades. 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 University of Liverpool School of Medicine

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

Section	Raw Score	Letter Grade
<b>Planetary Health Curriculum (30%)</b>	$(46 / 69) \times 100 = 66.67\%$	B
<b>Interdisciplinary Research (17.5%)</b>	$(8 / 17) \times 100 = 47.06\%$	C
<b>Community Outreach and Advocacy (17.5%)</b>	$(7 / 14) \times 100 = 50.00\%$	C
<b>Support for Student-led Planetary Health Initiatives (17.5%)</b>	$(6 / 15) \times 100 = 40.00\%$	C-
<b>Campus Sustainability (17.5%)</b>	$(18 / 31) \times 100 = 58.06\%$	C+
<b>Institutional Grade</b>	<b>54.15%</b>	<b>C</b>