Planetary Health Report Card (Medicine):

Queen's University Belfast

2024-2025 Contributing Team:

- Students: Mhairi Cowan, Riley Westwood, Samuel Scholes, Nirupama Thomson, Inez Murray, Adia Folsom, James McNeill, James McAleese, Anusha Baliga, Veda Maha Kyla Murugaperumal, Ellen Mcdonald
- Faculty Mentors: Professor Neil Kennedy, Dr Vivienne Crawford
- Primary Contact: Mhairi Cowan mcowan08@qub.ac.uk

Land acknowledgment:

Summary of Findings

Overall Grade	B+

Curriculum	A-

- Queen's University Belfast has sustainable healthcare well integrated longitudinally throughout the five year course with the "Global and Population Health," GCAT theme. As we witness the complete rollout of the new C25 curriculum and the implementation of the final year "SusQI" project, the university has cemented planetary health as a key concept throughout the course's core lectures, tutorials and case-based learning modules.
- **Recommendations:** The medical school has the opportunity integrate many sustainable healthcare learning outcomes into pre-existing content, for example the sustainability co-benefits to practices such as demedicalisation and plant-based diets.. The current sustainable healthcare topics are well taught although more work can be done to further longitudinal integration. Additionally, more "G-Theme," learning outcomes from CBL cases should be emphasised as desirable as opposed to special interest.

Interdisciplinary Research	A

- There are a number of researchers at QUB who produce research on planetary health and the Centre for Sustainability, Equality and Climate Action (SECA) encourages interdisciplinary research in areas related to planetary health. The SECA website is accessible and provides information on publications relevant to planetary health.
- **Recommendations:** QUB should encourage and facilitate research in healthcare sustainability, alongside supporting research in planetary health. Suggestions made during workshops hosted by SECA, such as some implying communities affected by climate change could have input on the research agenda, should be made into action plans on SECA's website to show the progress being made. Furthermore, the medical school should host or take part in organising talks and conferences around the topic of planetary health. The medical school should also increase awareness of the availability of recorded previous events to spread awareness and a greater insight into how Queen's is promoting planetary health and overall sustainability within the institution.

Community Outreach and Advocacy	B

- Queen's University Belfast continues to make efforts to collaborate with community organisations. This is evidenced through the multiple events run by the university's Estates team such as, REACH 24, and events in the NI Science Fest such as "Climate Emergency Department" and "Queen's Biology Showcase"
- Recommendation: The medical school should continue to collaborate with the local community through their SSCs. More work should be done to create transdisciplinary events faced to the public. The creation of educational resources for patients on planetary health should be a long term goal.

Support for Student-Led Initiatives	A

- In terms of Planetary Health Queen's University Belfast has been an advocate for Supporting Student-Led initiatives and has actively been trying to bridge the gap between staff and student involvement. There are many working groups, made up of both staff and students, that are at the centre front of sustainability initiatives and net zero targets. The university annually provides a various array of events (from volunteering outdoor activities to panel discussions) surrounding sustainability providing its students with many chances to engage with and join planetary health initiatives.
- **Recommendations:** The university should make efforts to ensure that annually there are a number of events in various formats around sustainability and that certain types of events/ student opportunities are not a one

off occurrence. It would be good to build and have a series of revisited annual sustainability opportunities for students whether that be research, volunteering or creative arts.

Campus Sustainability	**B**

- Queen's University Belfast has made significant efforts to incorporate sustainable practices into the campus through building, lab spaces, transport, recycling programs, and an ambitious plan to achieve net neutrality by 2040.
- **Recommendations**: To comply with the goal of Net Neutrality by 2040 further action needs to be taken such as completely divesting from fossil fuel investments, appointing a designated staff member for the hospital sustainability, and sourcing more energy from renewable sources.

Statement of Purpose

Planetary health is human health.

The Planetary Health Alliance describes planetary health as "a solutions-oriented, transdisciplinary field and social movement focused on 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 health professional school'ss 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 health professional's trainning. It is imperative that we hold our institutions accountable for educating health professional 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 health professional schools, we have created a Planetary Health Report Card that students internationally can use to grade and compare their institutions on an annual basis. This student-driven initiative aims to compare health professional schools nationally and internationally on the basis of discrete metrics in five main category areas: 1) planetary health curriculum, 2) interdisciplinary research in health and environment, 3) university support for student planetary health initiatives, and 4) community outreach centred on environmental health impacts and 5) school campus sustainability.

Definitions & Other Considerations

Definitions:

- **Planetary Health:** is described by the Planetary Health Alliance as "the health of human civilisation and the state of the natural systems on which it depends." For example, topics such as climate change, declining biodiversity, shortages of arable land and freshwater, and pollution would all fall under the realm of planetary health. Both planetary health and traditional 'environmental health' examine the relationship between human health and the external environment, including extreme temperatures, chemicals, vector-borne diseases, etc. Planetary health explicitly concerns itself with the potential health harms associated with human-caused perturbations of natural systems. Therefore, the human health focus of planetary health makes the field well-adapted for the context of health professional's education. Throughout this report card, we use the term planetary health to refer to this broad swath of topics, but resources do not need to explicitly include the term "planetary health" to satisfy the metric.

- **Sustainable Healthcare:** As defined by the Academy of Royal Colleges, sustainable healthcare involves ensuring the ability to provide good quality care for future generations by balancing the economic, environmental, and social constraints and demands within health care settings. A sustainable healthcare system maintains population health, reduces disease burden and minimises use of healthcare services.

- **Education for Sustainable Healthcare (ESH):** is defined as the process of equipping current and future health professionals with the knowledge, attitudes, skills and capacity to provide environmentally sustainable services through health professional education, thus working to decrease the enormous environmental impact of the healthcare industry. Planetary Health Education is an integral part of this education rather than an end in itself. This is because knowledge on Planetary Health is required to be able to fully understand the necessity of sustainable healthcare as well as being part of the broader knowledge needed to fully protect and promote health. In summary, ESH is covered by the three Priority Learning Outcomes of the Centre of Sustainable Healthcare below, and Planetary Health Education is embraced in the first learning objective and is a fundamental requirement to achieve learning outcomes 2 and 3:

    1. Describe how the environment and human health interact at different levels.
    2. Demonstrate the knowledge and skills needed to improve the environmental sustainability of health systems.
    3. Discuss how the duty of a doctor to protect and promote health is shaped by the dependence of human health on the local and global environment.

- **Medical School/Department vs. Institution:** When "Medical school" is specified in the report card, this only refers to curriculum and resources offered by the School/department of Medicine and does not include offerings from other parts of the university (e.g. undergraduate departments (USA), other related departments (e.g. Public Health, Population Health departments). In contrast, when "institution" is specified in the report card, we are referring to the university more broadly including all of its campuses. 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 students 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 mould 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. Please be as specific as possible when providing evidence for this metric.

- **Elective:** The word "elective" refers to an optional course or lecture series that a 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.

- **Core Curriculum:** This refers to taught material that is delivered to the entire cohort of students in one year.

- **Clerkship / Outreach:** This is a term used in the USA to refer to placements that medical students go on e.g. Pediatrics, General medicine, Psychiatry. In the UK these are referred to as rotations, outreach or placements. This is a relatively short (approximately 4-8 weeks) period of study and patient-centred clinical experience that takes place as part of the undergraduate programme.

- **Clinical rotation:** This is a term used to refer to placements that students go on (e.g., ophthalmology, surgery, cardiology).

- **Physiotherapy vs Physical Therapy:** For the purposes of this report card these terms are considered interchangeable. However, physiotherapy will be used primarily.

- **Community organisations:** For most institutions, there are existing groups that are not directly affiliated with the university and exist as a product of what the community the institution exists in cares about or needs. These specific community organisations relevant to this report include those that are focused around some aspect of climate and health preservation. These community organisations can include but are not limited to local mutual aid initiatives, underserved-resource distribution groups, clean-up and nature conservation groups, community gardeners, and other environmental-related organisations. If your institution does not have access to local volunteerships with community groups, please report any community organisations your institution or school has collaborated with.

- **Climate justice:** The idea that certain population groups and geographical locations which are disproportionately more impacted by climate change are already economically and socially disadvantaged. This double vulnerability sits alongside pre-existing social justice concerns and should therefore shift policy and practice to mitigate the inequitable effects of the climate crisis.

- **Extractivisim:** The removal of natural resources typically in large quantities. Within anthropology this term is often used in the context of colonialism to refer to

the historic seizing of natural resources, a practice which has developed business models tied to ecological degradation and loss of biodiversity.

- **Global South:** Nations that often have less economic and industrial development and are typically in the southern hemisphere. These nations have been found to be disproportionately impacted by the climate crisis.

- **Low socioeconomic status (SES):** An individual or geographical area that across a variety of socioeconomic factors (e.g., income, education, race/ethnicity) is considered vulnerable. This vulnerability has been correlated to more adverse health outcomes often as a consequence of encountering more barriers in accessing and receiving healthcare.

- **Low and Middle-Income Countries (LMIC):** Countries that have lower degrees of economic affluence.

- **Anthropogenic:** Created through human activity

- **Marginalized communities:** Groups excluded from mainstream economic, educational, social, and/or cultural experiences due to race, gender identity, sexual orientation, age, physical ability, language, and/or immigration status (Sevelius et al., 2020).

Other considerations:

- If there are more than one "tracks" at your institution with two different curricula (for example, Harvard Medical School has a Pathways and HST curriculum track), you can choose to fill out a report card for each track, or fill out just one report card and average the scores received by each track in cases where the scores are different (see the 2021 Harvard or Oxford report cards as examples). Where possible please indicate the proportion of students that are on each track.

Completed in 2022 a Literature Review by Metric is available for the 2022 medicine report card metrics. We are in the process of updating this review and making it more applicable to all the disciplines. However the review serves as a rough collection of references for further learning and a resource for those advocating for increased planetary health engagement at their institutions.

Planetary Health Curriculum

Section Overview: ***This section evaluates the integration of relevant planetary health topics into the medical school curriculum.*** *Today's medical students will be on the frontlines of tackling the health effects of climate and other environmental changes. Therefore, it is critical that medical students are trained to understand the health effects of these changes, as well as planetary health issues and principles more broadly. Topics like the changing geography of vector-borne diseases, the health consequences of air pollution, environmental health inequities, and disaster response principles must be part of every medical school's core curriculum.*

Curriculum: General

1.1. Did your medical school offer elective courses (student selected modules) to engage students in Education for Sustainable Healthcare or Planetary Health in the last year?	
Yes, the medical school has offered **more than one** elective whose primary focus is ESH/planetary health in the past year. (3 points)	
Yes, the medical school has offered **one** elective whose primary focus is ESH/planetary health in the past year. (2 points)	
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. (1 points)	
No, the medical school has **not** offered any electives on planetary health or electives that include ESH/planetary health topics in the past year. (0 points)	
Score Assigned:	**3**

Score explanation:

Medical students at QUB choose to study various 'Student Selected Components' (SSCs) in Years 1, 2 and 3. Of the SSCs available, there are currently a number that focus on ESH/Planetary Health. These are;

- Planetary Health - Climate Change Impacts on Health & Equity
- Global Health: Concepts, Trends & Priorities
- Environmental Hazards & Cancer

A mandatory sustainable quality improvement module, Sustainable Quality Improvement (SusQI) has been introduced to the 5th year curriculum this year. SusQI was an SSC that ran previously, with the goal to educate students on a range of factors that can affect healthcare quality and sustainability. It allows students to consider aspects locally that may need to change in order to improve quality and sustainability. During this 18-week module, students are required to work in small groups on an identified project with an NHS supervisor. The project runs alongside their core learning on placement and finishes with an assessment in the form of a poster presentation.

Recommendation:
Continue to develop and encourage students to undertake ESH/planetary health SSCs. Continue to run and develop the SusQI module.

Curriculum: Health Effects of Climate Change

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

Score explanation:

From September 2020, QUB has transitioned from the old curriculum C19 to the new model C25. The C25 curriculum is based around 4 GCAT themes which are integrated throughout the degree (Global and Population Health, Clinical Science and Practice, Achieving Good Medical Practice, and Teamwork for Safe Care). Teaching is linked together with Case-Based Learning (CBL) at its core. The past few years there has been a large change in the format of teaching due to this transition to the C25 curriculum as it is developed and implemented.

In the C25 curriculum, the lecture "Climate, Health and Sustainable Healthcare" delivered to second year students contains infographics showing the direct and indirect effects on increasing temperatures and extreme heat on the health of the population. The infographics convey that extreme heat can cause heat-related illness and death, as well as cardiovascular failure.

The Year 1 tutorial "Social Determinants of Health" describes extreme heat as a consequence of climate change and discusses its link to health issues such as heat-related deaths.

The Year 1 lecture "Introduction to Health and Social Determinants of Health" and its accompanying social determinants tutorial reference the "Dahlgren and Whitehead (1991) Social Determinants of Health Model", which shows how environmental conditions influence the health of individuals. The UN "Sustainable Development Goals" are also mentioned on a lecture slide, including goal 13: "Protect the Planet", which aims to limit global warming to 1.5℃ above pre-industrial levels.

Recommendation:
Continue to integrate the health effects of climate change longitudinally into the curriculum.

1.3. Does your medical school curriculum address the impacts of extreme weather events on individual health and/or on healthcare systems?
This topic was explored **in depth** by the **core** curriculum. (3 points)
This topic was **briefly** covered in the **core** curriculum. (2 points)

This topic was covered in **elective** coursework. (1 point)	
This topic was **not** covered. (0 points)	
Score Assigned:	3

Score explanation:

The Year 2 lecture "Climate, Health and Sustainable Healthcare" discusses the effects of climate change on the health of the general population. The slides include infographics showing how extreme weather events such as storms, droughts and floods have a direct impact on the health of individuals. This topic was mentioned many times throughout the slides, along with other examples of climate change impacts on health, but it was not the main focus of the lecture.

The Year 2 session called "Sustainability in Healthcare" discusses the relationship between the climate crisis and the healthcare sector. This teaching was adapted for medical students from Carbon Literacy training originally developed by local organisation KeepNorthernIreland Beautiful. The session encourages students to think about sustainability related health conditions, and lists extreme weather events as contributing factors to these conditions.

The tutorial "Social Determinants of Health" introduces the idea of climate change as one social determinant of health. It discusses severe and extreme weather events as causes of increased injuries, fatalities and long-term mental health impacts.

The Year 1 SSC "Planetary Health - Climate Change Impacts on Health and Equity" discusses systemic effects such as population displacement due to climate emergencies.

Recommendation:
This topic should be integrated longitudinally into the curriculum. There is scope for this to be included into other public health lectures, CBL and tutorials.

1.4. Does your <u>medical school</u> curriculum address the impact of climate change on the changing patterns of infectious diseases?	
This topic was explored **in depth** by the **core** curriculum. (3 points)	
This topic was **briefly** covered in the **core** curriculum. (2 points)	
This topic was covered in **elective** coursework. (1 point)	
This topic was **not** covered. (0 points)	
Score Assigned:	3

Score explanation:

In the "Climate, Health and Sustainable Healthcare" lecture, change in the spread of infectious and vector-borne diseases is stated as one of the indirect effects of climate change on health. An infographic in this lecture also links changing temperature with changing vector ecology and further lists specific examples of changes in vectors.
The Year 2 session called "Sustainability in Healthcare"discusses the relationship between the climate crisis and the healthcare sector. This teaching was adapted for medical students from

Carbon Literacy training originally developed by local organisation KeepNorthernIreland Beautiful. The session encourages students to discuss sustainability related health conditions, and infectious diseases is listed as an example.

The "Social Determinants of Health" tutorial addresses the impact of climate change on infectious disease patterns, stating that rising temperatures are linked to increased replication and spread of infections and vector borne diseases, such as Salmonella and Lyme disease.

In the Year 1 Case 2 Overview lecture, the UN's Sustainable Development Goals are referenced and Goal 3: "Good Health and Well-being" is mentioned in particular. Climate change and the increased spread in infectious diseases is discussed. The lecture "Water and Sanitation" discusses this topic as well.

The Year 1 SSC "Planetary Health - climate change impacts on health and equity" discusses changing disease patterns of specific diseases, along with healthcare planning.

Recommendation:
Continue to integrate this topic longitudinally into the curriculum.

1.5. Does your <u>medical school</u> curriculum address the respiratory health effects of climate change and air pollution?

This topic was explored **in depth** by the **core** curriculum. (3 points)	
This topic was **briefly** covered in the **core** curriculum. (2 points)	
This topic was covered in **elective** coursework. (1 point)	
This topic was **not** covered. (0 points)	
Score Assigned:	3

Score explanation:

The health effects of climate change on the respiratory system are emphasised frequently throughout the C25 curriculum in a longitudinal nature: both through case-based learning and in tutorials.

In Year 1, Case 6 and Case 7 are based on respiratory issues and give students the opportunity to research how air pollution affects the risk of developing various diseases. Case 6 discusses asthma and respiratory disease, and specifically includes the learning outcome "Describe the global and local burden of respiratory diseases, and related risk factors including indoor and outdoor air pollution and smoking".

The Year 2 session called "Sustainability in Healthcare" discusses the relationship between the climate crisis and the healthcare sector. This teaching was adapted for medical students from Carbon Literacy training originally developed by local organisation KeepNorthernIreland Beautiful. The session encourages students to discuss sustainability related health conditions, and

lists respiratory conditions as an example. It also contains a slide discussing the effect of air pollution on respiratory health.

The “Climate, Health and Sustainable Healthcare” lecture discusses multiple health effects of climate change, respiratory effects included. Infographics and written slides demonstrate an increase in respiratory illness due to ground level ozone increase, pollution and pollen allergenicity. An 18-year-old with asthma and how their management could be altered to reduce carbon intensity is used as an example case.

The “Social Determinants of Health” tutorial states that depletion of air quality due to increased ground ozone levels is associated with increased morbidity and mortality due to respiratory illness. It goes on to discuss changes in pollen levels and their effects on incidence of allergen sensitivities and asthma outbreaks.

Recommendation:
Continue to integrate this topic longitudinally into the curriculum.

1.6. Does your <u>medical school</u> curriculum address the cardiovascular health effects of climate change, including increased heat	
This topic was explored **in depth** by the **core** curriculum. (3 points)	
This topic was **briefly** covered in the **core** curriculum. (2 points)	
This topic was covered in **elective** coursework. (1 point)	
This topic was **not** covered. (0 points)	
Score Assigned:	3

Score explanation:

The Year 1 lecture titled “The Social Determinants of Health” references the UN’s Sustainable Development goals, but the direct impact of climate change on cardiovascular health is not explicitly mentioned. In the accompanying tutorial, it is demonstrated that climate change and cardiovascular health are linked by heat-related deaths.

The Year 2 lecture “Climate, Health and Sustainable Healthcare” addresses various health effects of climate change, including cardiovascular effects. The lecture contains infographics linking the increase in cardiovascular health problems with climate change, through increases in extreme heat and air pollution. This lecture also discusses how efforts to reduce/prevent further climate change - such as active travel, eating less meat and improving home insulation - are also beneficial in reducing incidences of cardiovascular disease.

The Year 2 session called “Sustainability in Healthcare” discusses the relationship between the climate crisis and the healthcare sector. This teaching was adapted for medical students from Carbon Literacy training originally developed by local organisation KeepNorthernIreland Beautiful. The session encourages students to discuss sustainability related health conditions, and lists heart diseases as one of these conditions.
Recommendation:
Continue to integrate this topic longitudinally into the curriculum.

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

Score explanation:

The Year 1 lecture "Social Determinants of Health" and accompanying tutorial discuss the significance of green and blue spaces to improve physical and psychological health. The tutorial in particular highlights the link between climate change and poor mental health, but the focus of both the lecture and the tutorial is on the benefit of the environment for people's overall health, rather than the mental health and neuropsychological effects of environmental degradation. The climate crisis is discussed as a trigger for mental illnesses such as depression and anxiety, a cause of displacement, a financial stressor and a cause of increase in violence - which can all contribute to ill mental health.

The Year 2 lecture "Climate. Health and Sustainable Healthcare" discusses green prescribing and the importance and use of nature in prevention and treatment. The focus is again however on the benefit of green spaces for people's health, not how environmental degradation affects mental health.

The Year 2 session called "Sustainability in Healthcare" discusses the relationship between the climate crisis and the healthcare sector. This teaching was adapted for medical students from Carbon Literacy training originally developed by local organisation KeepNorthernIreland Beautiful. The session encourages students to discuss sustainability related health conditions, and lists mental health conditions as an example.

Recommendation:
This topic should continue to be integrated longitudinally across the curriculum, and include lectures and tutorials where the focus is on the negative mental health and neuropsychological effects of environmental degradation and climate change.

1.8. Does your medical school curriculum address the relationships between health, individual patient food and water security, ecosystem health, and climate change?
This topic was explored **in depth** by the **core** curriculum. (3 points)
This topic was **briefly** covered in the **core** curriculum. (2 points)
This topic was covered in **elective** coursework. (1 point)

This topic was **not** covered. (0 points)	
Score Assigned:	3

Score explanation:

The Year 1 lecture “Social determinants of health” highlights how humans live in a small community environment that is influenced by factors such as the local economy, the built environment, natural environments and surrounding communities. On a larger scale, however, these determinants are influenced by the global ecosystem which include climate stability and biodiversity. All these factors interplay to determine a person's overall health and wellbeing.

This year an addition was made which outlines the increasing impact of climate change as a social determinant of health with an infographic that outlines how factors such as rising temperatures, extreme weather, increased CO2 and rising sea levels have an impact on water and food supplies, vector ecology and air pollution. These in turn have an impact on human health from forced migration and mental health impacts to cardiovascular disease.

The same concept was also discussed in the Year 2 lecture “Climate Change and Sustainable Healthcare” alongside the WHO sustainable development goals. Various opportunities for learning about the balance between social foundations and necessities such as housing,water, food, energy. Discussion was made on how shortfalls in these parameters lead to social unrest, however, overuse of some of these necessities such as overconsumption of food or energy can lead to environmental damage such as chemical pollution, biodiversity loss, air pollution and land conversion.

Another slide in the lecture contains a web chart showing the interplay between climate change, ecological and biodiversity loss, loss of freshwater, etc., and the impact of these events on human health. The lecture also outlines the relationship between individual health, public health, global health, one health and planetary health. This further encourages students to evaluate their role in global health at not only a personal level, but at a population level.

The Year 2 session called “Sustainability in Healthcare” discusses the relationship between the climate crisis and the healthcare sector. This teaching was adapted for medical students from Carbon Literacy training originally developed by local organisation KeepNorthernIreland Beautiful. The session encourages students to discuss sustainability related health conditions, and lists societal stressors as a contributing factor to these issues.

Recommendations:
Continue to integrate the topic longitudinally in the curriculum.

1.9. Does your <u>medical school</u> curriculum address the outsized impact of climate change on marginalised populations such as those with low SES, women, communities of colour, Indigenous communities, children, homeless populations, and older adults?
This topic was explored **in depth** by the **core** curriculum. (3 points)
This topic was **briefly** covered in the **core** curriculum. (2 points)
This topic was covered in **elective** coursework. (1 point)
This topic was **not** covered. (0 points)

Score Assigned:	2

Score explanation:

The Year 1 Lecture "Social Determinants of Health" also contains a section on health inequities globally. The lecture highlights the presence of a social gradient in health and how the most deprived neighbourhoods suffer from lower life expectancies. The importance of early intervention is also discussed in the context of the "life course theory".

Examples of these early interventions include sustainable communities and places as well as a healthy standard of living. The lecture includes recommendations offered by the World Health Organization on how to combat health inequities and improve social determinants of health, with a flourishing living environment being a key focus.

The Year 2 lecture "Climate Change and Sustainable Healthcare" covers the concept of "who is at risk of climate change?" using various infographics. These include those in poverty, women, children, elderly, those with chronic medical conditions, outdoor workers, homeless people, those who live near water and various other populations. The goal of these infographics was not only to identify at-risk populations but also assert the fact that everyone will be affected by climate change at some point in their lives. The lecture also outlines MAPA (most affected people and areas), highlighting that the social groups that are most likely to be affected by climate change are not necessarily the same countries producing the majority of carbon emissions.

Recommendation:
Continue to integrate this topic longitudinally within the curriculum. The Year 4 lecture "Global Child Health" presents the opportunity to integrate climate change as it covers social determinants of health and the unequal distribution of resources especially in the context of women and children in countries with lower SES.

1.10. Does your <u>medical school</u> curriculum address the unequal regional health impacts of climate change globally?

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

Score Assigned:	3

Score explanation:
The Year 2 Lecture "Climate Change and Sustainable Healthcare" highlights the unequal regional impacts of climate change by using infographics to illustrate the disproportionality between the mortality related to climate change, which is largely focused on African and South Asian countries, compared to the global distribution of carbon emissions which is largely focused on the Americas and Europe. This was done to illustrate how the countries that produce the most carbon emissions are less likely to be affected by its after effects.

The same lecture discusses the MAPA (most affected people and areas) and climate justice. The concept of MAPA is the fact that countries that were once called the "global south" are the most

exploited and the least prepared to face the effects of the climate crisis. Additionally, these countries also tend to be unsafe areas to practice climate activism. Further discussion is made on how the media portrays climate activism as radicalization while downplaying the harm that countries do towards the production of fossil fuels.

The Year 1 lecture on "Social determinants of health" discusses the concept of health inequality, poverty and deprivation. The lecture includes discussion on the concept of deprivation, including environmental deprivation. This lecture further highlights how areas with disinvestment tend to be associated with health risks. The accompanying tutorial further highlights how these areas may also lack access to green and blue spaces. The effect of climate change is not explicitly mentioned but remains an overarching theme throughout the lecture as a precipitating factor for health inequality.

Recommendations:
Continue to integrate the topic longitudinally across the curriculum.

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

1.11. Does your <u>medical school</u> curriculum address the reproductive health effects of industry-related environmental toxins (e.g. air pollution, pesticides)?	
This topic was explored **in depth** by the **core** curriculum. (3 points)	
This topic was **briefly** covered in the **core** curriculum. (2 points)	
This topic was covered in **elective** coursework. (1 point)	
This topic was **not** covered. (0 points)	
Score Assigned:	3

Score explanation:

Year 4 lectures on "Preconception care" and "Antenatal care/screening/risk assessment" highlights the importance of asking about occupational exposure when history taking in women who are planning to conceive.

Year 2 Case 14 features a couple facing infertility, students are encouraged to research the role of environmental factors in the context of reproductive health as the learning outcomes for this case include "Consider the social and environmental factors which impact fertility". This is in relation to the husband's occupation in a chemical factory. This highlights the importance of discussing the reproductive health effects of environmental toxins not only in females, but also males.

The Year 2 lecture "Reproductive and Maternal Health" discusses the many factors that contribute to fertility and optimum pre-conception health. It includes employment and environment in one of the lists of factors affecting pre-conception health, but does not specifically discuss workplace or industry related environmental toxins.

The Year 4 Lecture "Causes, investigations and treatment of the infertile male" introduces the concept of environmental substances that mimic female estrogens alongside the marked increase of these substances such as xenoestrogens and phytoestrogens in our day to day environment. Examples of these alongside other environmental toxins include: cosmetics, lipophilic chemicals such as dichloro-diphenyl-trichloroethane (DDT), Polychlorinated biphenyls (PCBs) etc., Heavy

Metals, Pesticides, Plastics and Polycyclic aromatic hydrocarbons (PAHs). The lecture discusses the potential link between these chemicals and male/female infertility. This lecture is on the Queen's Medical Portal as a learning resource.

Although students are encouraged to enquire about environmental exposure during history taking with regards to infertility- however, as the more detailed lecture on this topic is a resource on the MedPortal and not delivered directly students actionable knowledge about the topic is limited.

Recommendations:
Continue to integrate this topic longitudinally across the curriculum. The school would benefit from a stand alone lecture or tutorial on the reproductive effects of environmental toxins in the Year 4 reproductive health unit. The school can also consider an OSCE style role play where students can council prospective parents on their exposure to environmental toxins and its potential risks to infertility.

1.12. Does your <u>medical school</u> curriculum address important human-caused environmental threats that are relevant to the university's surrounding community?	
This topic was explored **in depth** by the **core** curriculum. (3 points)	
This topic was **briefly** covered in the **core** curriculum. (2 points)	
This topic was covered in **elective** coursework. (1 point)	
This topic was **not** covered. (0 points)	
Score Assigned:	3

Score explanation:

The Year 1 Lecture on the "Social Determinants of Health" discusses upstream and downstream factors that influence one's health alongside the relationship between people and the natural environment. Upstream factors such as improved community health is important to alleviate some of the pressure put on the healthcare system from individual health concerns.

The Year 2 Lecture "Climate Change and Sustainable Healthcare" offers real life examples of climate events specific to Northern Ireland such as increasing summer heat waves leading to record water usage. Record water usage was associated with diminishing supply, leading to water companies requesting locals to reduce water consumption as much as possible. The lecture also compares the temperature in the UK and Ireland over the years to highlight the increase in temperature over the past 2 decades. Another climate event presented during the lecture includes increased and unprecedented tropical storm force winds in Northern Ireland this past year. The same lecture also addresses main climate risks for Northern Ireland from the UK climate change risk assessment (CCRA3) and the Northern Ireland Climate Change Adaptation Programme (NICCAP2). These risks include high temperatures, flooding, water quality, food safety, and extreme weather events.

The Year 2 Lecture "Water, Sanitation, and Hygiene" further outlines the increase in Northern Ireland's demand for water in recent years due to increasing global temperatures, felt especially in the summer months. The same lecture emphasizes the One Health model of health which emphasizes the relationship between the ecosystem, animals, and humans; the slides include an

onion diagram that outlines how the individual is affected by their surroundings including climate change, land, air, water and the natural environment. The lecture also discusses increasing cases of pathogens such as E.coli, discussion around the increase of cases in the UK includes conversations around contamination of the environment, food, and water.

There is a Year 2 session called "Sustainability in Healthcare" which discusses human environmental impact and the effects of climate change specific to Northern Ireland. This teaching was adapted from Carbon Literacy training originally developed by local organisation KeepNorthernIreland Beautiful. It has been adapted for medical students by members of the Estates team and Dr Vivienne Crawford. Feedback from this session has significantly improved since the modifications were made to make the teaching more relevant to those studying a healthcare degree. The last session ran during the Year 2 Transition to Practice week in May 2024.

Recommendations:
Continue to integrate this topic longitudinally across the curriculum.

1.13. To what extent does your <u>medical school</u> emphasise the importance of Indigenous knowledge and value systems as essential components of planetary health solutions?	
This topic was explored **in depth** by the **core** curriculum. (3 points)	
This topic was **briefly** covered in the **core** curriculum. (2 points)	
This topic was covered in **elective** coursework. (1 point)	
This topic was **not** covered. (0 points)	
Score Assigned:	0

Score explanation:

Queen's University Belfast medical curriculum does not cover the role of indigenous knowledge and value systems and their role in planetary health solutions. There is work being done to include teaching on the Irish Travelling Community.

Recommendations:
Although the medical curriculum does not cover this parameter, Queen's Canadian Anthropocene Research looks into the importance of listening to indigenous voices in restorative ecology. Queen's medical curriculum has the opportunity to highlight this research among others in the university in lectures related to planetary health and sustainability.

1.14. Does your <u>medical school</u> 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?
This topic was explored **in depth** by the **core** curriculum. (3 points)

This topic was **briefly** covered in the **core** curriculum. (2 points)	
This topic was covered in **elective** coursework. (1 point)	
This topic was **not** covered. (0 points)	
Score Assigned:	2

Score explanation:

The Year 1 Case 7 introduces the students to a retired factory worker with a long standing cough and haemoptysis. As the case progresses students find out that her husband was a retired shipyard worker, prompting discussions on asbestos exposure. Desirable learning outcomes in this case include being able to describe the course of occupational lung diseases with a focus on asbestos as well as occupations that might lead a person to be exposed to asbestos whether in the past or the present.

The Year 2 Lecture on "Climate Change and Sustainable Healthcare" discusses who is at risk when climate change threatens one's health. This is supported by a discussion on MAPA (most affected people and areas) which are defined as areas that were colonized and historically marginalized. The lecture discusses air pollution and contaminated drinking and recreational waters which threaten the health of everyone regardless of age and socioeconomic status. The discussion however does emphasize that some populations are more vulnerable to climate change and its effects than others. These populations include:

- Those in poverty
- Women and children
- Elderly
- Chronically ill
- Those with weak healthcare systems

Recommendations:
Continue to integrate this topic longitudinally across the curriculum. More effort should be made into defining and providing examples of anthropogenic toxins and integrating these into the Year 2 lecture "Climate Change and Sustainable Healthcare"

Curriculum: Sustainability

1.15. Does your <u>medical school</u> curriculum address the environmental and health co-benefits of a plant-based diet?	
This topic was explored **in depth** by the **core** curriculum. (3 points)	
This topic was **briefly** covered in the **core** curriculum. (2 points)	
This topic was covered in **elective** coursework. (1 point)	
This topic was **not** covered. (0 points)	
Score Assigned:	2

Score explanation:

The Year 1 Case 3 introduces the students to a woman with symptoms of anaemia who also follows a vegan diet. An essential learning outcome for this case that students are expected to have discussed amongst their peers include an understanding of the nutritional and health concerns of an unbalanced vegan diet. In the same case, a desirable learning outcome from these sessions asks students to "consider factors influencing dietary choice including availability, sustainability and cultural aspects". Students are encouraged to research the global impact and carbon emissions associated with animal husbandry and factory farming.

The Year 1 Lecture on Nutrition discusses the "Eatwell Guide" , an endeavour by the UK government to promote grain and vegetable consumption alongside the avoidance of unhealthy foods. The discussion focuses on how this guide is not only beneficial from an individual health perspective, but also reduces the emissions of greenhouse gases, especially when adhered to. The lecture highlights vegan diets in the context of dietary planning for nutritional deficiencies and associated health conditions, however, misses the opportunity to explore the various reasons a healthcare professional might encounter someone who has chosen to follow a plant based diet. One of such reasons being the environmental impact of the meat processing industry.

The Year 2 lecture on "Climate Change and Sustainable Healthcare" discusses health and climate co-benefits to interventions in the context of mitigating actions to combat climate change. One such example includes including "less food from animal sources" as an intervention that benefits both health (i.e. improving mental health, less cardiovascular disease, lower rates of obesity etc.) while reducing climate change.

Recommendation:
Continue to integrate this topic longitudinally across the curriculum. The school should consider including some more information about plant based diets and its benefits in the Year 1 lecture "Nutrition".

1.16. Does your <u>medical school</u> curriculum address the carbon footprint of healthcare systems?	
This topic was explored **in depth** by the **core** curriculum. (3 points)	
This topic was **briefly** covered in the **core** curriculum. (2 points)	
This topic was covered in **elective** coursework. (1 point)	
This topic was **not** covered. (0 points)	
Score Assigned:	3

Score explanation:

The Year 2 lecture "Climate, Health and Sustainable Healthcare" addresses the bi-directional relationship between the healthcare sector and climate change. Exploring the concepts of "Planetary Health" and how it interlinks with Public Health. Revealing the impact of the UK healthcare sector, responsible for 25% of public sector GHG emissions, including approximately 25 million tonnes of CO_2 annually. It contains several relevant vignettes including diabetic and asthma patients, and how lower carbon intensive treatments and management and prevention methods bring both global and individual benefits. The first CBL case of Year 3 also has a desirable learning

outcome to consider the carbon footprint of the healthcare sector, looking at alternative gases and waste.

Additionally the accompanying Year 2 tutorial "Sustainable Quality Improvement" builds on the impact of the healthcare sector on the nation's carbon footprint by comparing and contrasting the carbon footprints of various treatments/operations. It has helped students to realise the chain effect of the healthcare sector's carbon footprint - with the transport, production, sourcing of materials etc that all contribute to the total. Furthermore it introduces students to the PDSA cycle for quality improvement - allowing them to apply and consider the approach regarding the carbon footprint of the healthcare sector.

The Year 2 session called "Sustainability in Healthcare" discusses the relationship between the climate crisis and the healthcare sector. This teaching was adapted for medical students from Carbon Literacy training originally developed by local organisation KeepNorthernIreland Beautiful. The session encourages students to discuss whether sustainability is relevant in healthcare, and the greenhouse gas emissions produced by the healthcare industry. The session also references the NHS Net Zero plan and includes case examples of sustainable quality improvement projects.

The new Year 5 "SusQI" project involves students working in groups with a project supervisor alongside their clinical placement. This challenges students to create innovative solutions to address sustainability and the NHS's carbon footprint - building on the PDSA cycle taught in Year 2.

Recommendations:
To continue to improve the longitudinal integration of the topic by maintaining the current openness and enthusiasm for new projects that tackle the healthcare sector's carbon footprint.

1.17. Does your <u>medical school</u> curriculum cover these components of sustainable clinical practice in the <u>core</u> curriculum? (points for each)	**Score**
The health **and** environmental **co-benefits** of **avoiding** over-medicalisation, over-investigation and/or over-treatment (2 points)	0
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. (2 points).	2
The health **and** environmental **co-benefits** of **non-pharmaceutical management** of conditions where appropriate such as exercise or yoga classes for type 2 diabetes; social group activities such as gardening for mental health conditions; active transport such as bicycle schemes. This is commonly known as social prescribing in the UK. (1 point)	1
Environmental impact of **surgical** healthcare on planetary health and the climate crisis, and how can it be mitigated. (1 point)	0
The impact of **anaesthetic** gases on the healthcare carbon footprint and ways to reduce anaestheisa's environmental impacts, such as total intravenous anaesthesia or choosing less environmentally harmful anaesthetic gas options with reduced greenhouse gas emissions. (1 point)	1

The impact of **inhalers** on the healthcare carbon footprint and the environmental benefit of dry powdered inhalers over metered dose inhalers. (1 point)	1
Waste production within healthcare **clinics** and strategies for reducing waste in clinical activities (e.g. single use items in the inpatient or outpatient setting) (1 point)	1

Score explanation:

There has not been a large update from the last review, social prescribing and demedicalistation are both now taught throughout the course - particularly in the first year "Social Determinants of Health," lecture introducing students to iatrogenic damage at the start of their medical journey. However there is little to no mention of the environmental co-benefits to demedicalisation, which would work well alongside. Likewise there are mild allusions to the impact of surgical waste as part of the broader carbon footprint of the NHS - which is well analysed - in the "Climate, Health and Sustainable Healthcare," lecture but insufficiently focused on surgery to fulfil the metric.

There is a theme based learning session in Year 5 on over-medicalisation. This allows students to discuss over medicalisation in GP, and the health benefits of avoiding this. There is no direct discussion of the environmental benefits

The Year 1, "Social Determinants of Health," lecture and, "Climate, Health and Sustainable Healthcare," and "Water, Sanitation and Hygiene," that second year students receive continue to cover most of these components of sustainable practice. The "SusQI," and "Social determinants of health," tutorials also assess the carbon footprint of the healthcare system and the role of demedicalisation in treatment plans. Students may come across these themes in their "SusQI" project in Year 5 however they are not all in the core curriculum with different challenges worked upon by different groups.

1. "Climate, Health and Sustainable Healthcare," contains infographics highlighting the contribution of medicines as a scope 3 indirect contributor to climate change. The breakdown of healthcare's carbon footprint attributes 12.1% to pharmaceuticals and introduces deprescribing as a way of "Lean service use," to decrease emissions and improve health in an example of a type 2 diabetic patient.
2. "Climate, Health and Sustainable Healthcare," and "Social determinants of Health," both tackle social prescribing as a way of improving health, with the social determinants of individuals' health being tied to their treatment. For example the access of people to green spaces, leisure centres, their accommodation and heating in relation to respiratory illnesses. The example of the type 2 diabetic patient is used again in regards to social prescribing, with education on weight management and the importance of an active lifestyle with a low fat/sugar diet. The Year 2 session "Sustainability in Healthcare" encourages social prescribing as a carbon saving healthcare action- this encourages students to think about how to use their role as future healthcare professionals in addressing the climate crisis.
3. "Climate, Health and Sustainable Healthcare," discusses the carbon footprint of anaesthetic drugs used in surgery such as Desflurane, one hour of usage being equivalent in CO2 emissions to 200-400 km of car travel. Furthermore it mentions how lower carbon alternatives can be used to reduce the carbon footprint and is built upon in the "SusQI," tutorial. The Year 3 case based learning desirable learning objective "Consider the carbon footprint of healthcare, particularly regarding alternative gases and waste," allows students to investigate the impacts and alternatives to currently used anaesthetic gases.
4. "Climate, Health and Sustainable Healthcare," supported by the "SusQI," tutorial evaluates the impact of ventolin evohaler (pressurised metered dose) vs accuhaler (dry powdered) with studies showing the evohaler being equivalent in carbon emissions to a car driving 175 miles to just 4 miles with an accuhaler. Including information surrounding updated NICE guidelines that recommend the use of low carbon inhalers, further discussed in an example

of how a patient with asthma can be better treated with intent to reduce carbon emissions. The "Sustainability in Healthcare" session in Year 2 uses a case example to discuss the environmental impact of prescribing different forms of inhalers.

5. The "Climate, Health and Sustainable Healthcare," lecture contains information on medical plastic waste, with 2% of global plastic waste being medical with the problem worsening with a 6.1% rise year on year. While the "Water, Sanitation and Hygiene," lecture discusses the extent of the spread of microplastics in the environment, partly as a result of healthcare.

Recommendation:
The health benefits of de-medicalisation are already well covered, it would be a simple addition to add the environmental co-benefits alongside in the "Social Determinants of Health," lecture. Furthermore the comprehensive lecture "Climate, Health and Sustainable Healthcare," can be updated to dedicate a slide to the impact of surgical waste on the healthcare sector's carbon footprint - like it does for anaesthetics.

Curriculum: Clinical Applications

1.18. In training for patient encounters, does your <u>medical school's</u> curriculum introduce strategies to have conversations with patients about the health effects of climate change?	
Yes, there are strategies introduced for having conversations with patients about climate change in the **core** curriculum. (2 points)	
Yes, there are strategies introduced for having conversations with patients about climate change in **elective** coursework. (1 points)	
No, there are **not** strategies introduced for having conversations with patients about climate change. (0 points)	
Score Assigned:	0

Score explanation:

Not currently present, the clinical communication skills section of the course seems most appropriate for the addition, however the medical school seeks to find a way it can be integrated.

Recommendation:
The medical school should continue to search for ways to integrate this into the curriculum. An example in Georgetown where they use strategies such as having a local, factual and personal message in explaining the role of climate change and the increase in prevalence/severity of certain conditions. The strategies can be part of a wider consultation testing communication skills in which the patient questions why they feel their condition worse than before or asks how they may have acquired the condition in the first place - integrating the role of the climate crisis with the increase in the prevalence and severity of certain conditions. In addition, the Year 1 SSCs "Planetary Health- Climate Change Impacts on Health & Equity" and "Environmental Hazards Effect on Cancer" would be appropriate opportunities to include discussion on the health effects of climate change with patients.

1.19. In training for patient encounters, does your <u>medical school's</u> curriculum introduce

strategies for taking an environmental history or exposure history?	
Yes, the **core** curriculum includes strategies for taking an environmental history. (2 points)	
Only **elective** coursework includes strategies for taking an environmental history. (1 point)	
No, the curriculum does **not** include strategies for taking an environmental history. (0 points)	
Score Assigned:	2
Score explanation: During Clinical Skills Experience in hospital and general practice, tutorials and communication skills sessions, students are taught a structured history taking which accounts for environmental history and exposure history - particularly covered under the Social History section of the QUB history taking template. The respiratory history taking teaching in particular accounts for environmental and exposure factors - including access to green space, exposure to pollution (road proximity), exposure to harmful substances (domestically and professionally) and exposure to animals. The theme of an environmental history and awareness of exposure is built well into the curriculum longitudinally, introduced in the first year tutorial and lecture on social determinants on health. It is also well integrated into the CBL teaching with a subsequent respiratory case in which the patient has had secondary exposure to asbestos from cleaning her husband's coat. Recommendation: *We commend the detailed approach from clinical skills in laying out a framework for an environmental and exposure history, however it could be improved for other relevant histories aside from respiratory. Furthermore the CBL case is well integrated into the social history of Belfast and asbestos exposure for dockworkers and their families - creating a memorable case. Access to green space has been included in the history taking since last year however heating sources and other factors could be included to improve the format.*	

Curriculum: Administrative Support for Planetary Health

1.20. Is your <u>medical school</u> currently in the process of implementing or improving Education for Sustainable Healthcare (ESH)/planetary health education?	
Yes, the medical school is currently in the process of making **major** improvements to ESH/planetary health education. (4 points)	
Yes, the medical school is currently in the process of making **minor** improvements to ESH/planetary health education. (2 points)	
No, there are **no** improvements to planetary health education in progress. (0 points)	
Score Assigned:	4
Score explanation: The medical school is in the process of increasing the number of the GCAT theme "Global and Population Health," learning objectives in CBL cases as each case is reviewed - the intention is to	

make more essential and desirable outcomes and increase the importance of current learning objectives, no longer being confined to the "specialist interest," category. This comes as the new C25 curriculum is expanded into final year and the implementation at last of the GCAT themes longitudinally into all years of the medical school.

This year has seen the rollout of the new Year 5 "SusQI" project, formerly an SSC now integrated into the core curriculum - building from the earlier tutorial in Year 2. The medical school has been impressed by the innovative solutions developed by students to tackle sustainability issues in their clinical placement.

Furthermore, the school has taken on suggestions from the Sustainable Healthcare Development Group (SDHG) to make a centralised point of reference page for sustainable healthcare integrated throughout the course and ongoing projects. This is a resource bank on QUB's Med Portal, for use by medical students. The webpage is currently in development and the SDHG have been contacted for collaboration and improvements.

Additionally students will soon be able to avail of an increased transparency in curriculum design. Newly planned updates to the Queen's QSIS system will allow students to look up individual courses (including those provided by the medical school) and review the integration and statistics on how sustainability is embedded in the course.

Recommendation:
We are delighted to have witnessed the complete rollout of the C25 curriculum and its emphasis on the importance of the GCAT themes, being well integrated longitudinally. Likewise the success, and learning from the challenges (sourcing mentors) for the development of the SusQI final year project has improved the teaching and understanding of ESH issues, grounding their effects in the real world. We would like to thank the medical school for its continued collaboration and support and look forward to future developments.

1.21. How well are the aforementioned planetary health/Education for Sustainable Healthcare topics integrated longitudinally into the <u>core</u> curriculum?	
Planetary health/ESH topics are **well integrated** into the core medical school curriculum. (6 points)	
Some planetary health/ESH topics are appropriately integrated into the core medical student curriculum. (4 points)	
Planetary health/ESH is not integrated and is primarily addressed in **(a) standalone lecture(s).** (2 points)	
There is **minimal/no** education for sustainable healthcare. (0 points)	
Score Assigned:	6
Score explanation: With the completion of the new C25 curriculum we are pleased to see planetary health and sustainable healthcare makes up a core part of all years' teaching. The curriculum has been developed with four core double helix "GCAT" themes, of which G stands for "Global and Population Health" - as part of the "spiral curriculum" it, alongside the other core themes, are integrated longitudinally throughout the teaching of all years, lectures, tutorials, CBL cases etc.	

There are some standalone lectures on global health, however these give more time to explore the concepts already covered in other cases and lectures in which global health topics are addressed. They are often cross-linked with ongoing tutorials such as the Year 2 lecture “Climate, Health and Sustainable Healthcare” and the tutorial “Sustainable Quality Improvement”- expanding on the topics covered in the lecture and addressing the topics through vignettes and discussion.

Every CBL case across the years has learning outcomes from each of the four GCAT themes, however the “Global and Population Health” theme is not always equally represented under the essential learning outcomes. When the curriculum enters clinical placement years the topics are still well integrated throughout the course. The new Year 3 reflective practice requires a reflection on the theme of “Sustainability in Quality Improvement.” This all lays the groundwork for the newly developed final year SusQI project (formerly an SSC, now moved to the core curriculum) in which small groups of students are given a supervisor and develop a solution to a sustainability problem, exposing them to the PDSA cycle.

Recommendation:
We hope that more clinical supervisors become available for the SusQI projects in future. A higher priority for Global and Population Health theme learning outcomes in CBL cases is needed - most come under desirable or special interest as opposed to essential. However, we commend the central focus that ESH topics hold in the core curriculum with the spiral GCAT model..

1.22. Does your <u>medical school</u> employ a member of faculty to specifically oversee and take responsibility for the incorporation of planetary health and sustainable healthcare as a theme throughout the course?	
Yes, the **medical school** has a specific faculty/staff member responsible for overseeing curricular integration of planetary health and sustainable healthcare. (1 point)	
No, the **medical school** does **not** have a specific faculty/staff member responsible for overseeing curricular integration of planetary health and sustainable healthcare. (0 points)	
Score Assigned:	1

Score explanation:
The newly rolled out C25 curriculum has a longitudinal integration of “GCAT” spiral themes, of which the “G theme - Global and Population Health” plays a key role. Responsible for the implementation of this theme into the curriculum are the roles of “G theme lead” and deputy lead. At present the role of deputy lead is filled by Dr Vivienne Crawford, the lead role remains empty as of the last report card, therefore Dr Crawford essentially acts as interim lead.. These roles have engaged with the Sustainable Healthcare Development Group with enthusiasm, taking recommendations to integrate into the curriculum and helping promote sustainable healthcare within the medical school. This “spiral curriculum” design has effectively integrated planetary and sustainable health topics into the core curriculum in a memorable and longitudinal way. The theme

itself encompasses sub-topics including, “Global health, Sustainable Healthcare and Public and Population Health.”

Recommendation:
It is our hope that a new “G theme” lead will be found promptly to fill the post and improve the championing of planetary and sustainable healthcare in the curriculum. We would also like to thank Dr Crawford for her cooperation with the Sustainable Healthcare Development Group and for her work in longitudinally integrating planetary health in the C25 curriculum. Additionally, we’d like to thank Professor Kennedy, the Deputy Head of School, for Medicine, Dentistry, and Biomedical Sciences, for regularly meeting with the Sustainable Healthcare Development Group and the support of the school for student input in developing the curriculum

Section Total (59 out of 72)	**81.94%**

Back to Summary Page here

Interdisciplinary Research

Section Overview: ***This section evaluates the quality and quantity of interdisciplinary planetary health research at the 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, institutions 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.*

2.1. Are there researchers engaged in planetary health research and healthcare sustainability research at your institution?	
Yes, there are faculty members at the **institution** who have a **primary** research focus in planetary health **or** sustainable healthcare/vetcare. (3 points)	
Yes, there are individual faculty members at the **institution** who are conducting research **related** to planetary health or healthcare sustainability, OR are part of a national/international sustainability working group, but it is not their primary research focus. (2 points)	
There are sustainability researchers at the **institution**, but not specifically associated with healthcare/vetcare. (1 point)	
No, there are **no** planetary health and/or sustainability researchers at the **institution** at this time. (0 points)	
Score Assigned:	3

Score explanation:

PURE is the portal used to access research at Queen's University Belfast. The input of 'planetary health research' on the portal identified Dr Leandro Garcia and Professor Ruth Hunter in the School of Medicine, Dentistry and Biomedical Science (MDBS), as well as Queen's Centre for Public Health (CPH). PURE was also searched to find publications related to planetary health and links to some of the most relevant articles are included. A comparable search for 'healthcare sustainability' did not lead to any directly relevant research, however Queen's research on PURE is linked to the relevant UN Sustainable Development Goals (SDGs). The SDGs: 3 'Good Health and Wellbeing', 10 'Reduced Inequality', 11 'Sustainable Cities and Communities' and 13 'Climate Action' were mentioned across these publications.

Professor Hunter was the first author on 'Advancing urban green and blue space contributions to public health', which advocates that 'The full potential of UGBS as public health, social economic and environmental assets is yet to be realised' and gives recommendations. This contributes to SDG 3.

Dr Garcia was the first author on 'Health impacts of changes in travel patterns in Greater Accra Metropolitan Area, Ghana', which researched how switching increased car use for walking and bus journeys in Accra could prevent disease due to increased exercise, air quality and road safety. This contributes towards SDGs 3 and 11.

Professor Hunter is a co-director, and Professor Garcia is a co-investigator, for the GroundsWell project. This aims to optimise health and wellbeing through urban green and blue spaces (UGBS) and is a collaboration between Queen's University Belfast, University of Edinburgh and University of Liverpool. It contributes towards SDGs 3, 10, 11 and 13 and is funded by the UK Prevention Research Partnership (UK PRP). As part of Groundswell Professor Hunter was involved in 'Exploring mechanistic pathways linking urban green and blue spaces to mental wellbeing before and after urban regeneration of a greenway: Evidence from the Connswater Community Greenway, Belfast, UK'. This aimed to discover the mechanisms for improved mental well-being after regeneration of an UGBS in Belfast. Additionally, Professor Hunter and Dr Garcia were involved in 'Examining the spatially varying and interactive effects of green and blue space on health outcomes in Northern Ireland using multiscale geographically weighted regression modelling'. This was in order to see how varying distances from, and the interactions of, UGBS affect health.

Professor Hunter was the principal investigator, and Dr Garcia was a co-investigator, for 'A vision of healthy urban design for NCD prevention' (2020-2024). This project collaborated with the University of Melbourne and a number of other universities and aimed to understand how the design of cities impacts non-communicable diseases to inform policy. Major funders include National Institutes of Health (NIH) and the Medical Research Council (MRC).

Professor Hunter and Professor Bernadette McGuiness (linked with MDBS and CPH) are the principal investigators of SPACE 'Supportive Environments for Physical and Social Activity, Healthy Ageing and Cognitive Health', whilst Dr Garcia and Professor Frank Kee (also linked with MDBS and CPH) are co-investigators. SPACE explores how urban design impacts brain health and dementia in older adults to inform policy and relates to SDGs 3,10,11 and 13. Funders include the NIH, the ISCF (Industrial Strategy Challenge Fund) and Innovate UK. It includes 'A systematic review of associations between the environment, DNA methylation, and cognition', which studies how environmental risk factors, such as air pollution, may increase the incidence of neurodegenerative disease through epigenetics.

Professor Hunter and Dr Garcia were the principal investigators for 'Developing system-oriented interventions to reduce car dependency for improved population health in Belfast' (2020-2022). The purpose of this project was to help create policies to reduce dependence on cars in Belfast, is related to SDGs 3,10,11 and 13 and was funded by the MRC. For example, 'Group model building for developing systems-oriented solutions to reduce car dependency in Belfast, United Kingdom' focuses on understanding the reasons for dependence of cars and Belfast and factors that may reduce this, partially in order to improve health and the environment.

MDBS researchers such as Professor Jayne Woodside were involved in research about the links between health, diet and climate change. This includes, 'The environmental impact, ingredient composition, nutritional and health impact of meat alternatives: A systematic review'. This meta-analysis looked at meat alternatives' nutritional content and impact on human and environmental health, contributing to SDG 3.

Recommendation:
The university should continue with its emphasis on planetary health research and encourage more healthcare sustainability research.

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

There is **at least one** dedicated department or institute for interdisciplinary planetary health research. (3 points)
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. (2 points)
There is an **Occupational and Environmental Health department**, but no interdisciplinary department or institute for planetary health research. (1 points)
There is **no** dedicated department or institute. (0 points)

Score Assigned:	3

Score explanation:

The Centre for Sustainability, Equality and Climate Action (SECA) was formed in 2019 and replaced the Centre for Study of Risk & Inequality. SECA encourages interdisciplinary research across the schools at QUB with regards to its pillars of sustainability, equality and climate action. Its objectives include the aim 'To establish the most effective interdisciplinary methods of working towards addressing different dimensions of the planetary crisis and "living sustainably"' and its themes mention the UN Sustainable Development Goals. SECA outputs include a report on the event 'What should Higher Education Institutions do about the Planetary Crisis?', held on the 3rd November 2023, which was discussed in last year's report. A homonymous follow- up workshop was held at QUB on the 15th March 2024 and was hosted by SECA. Issues raised include:

- The 'urgency' of action and communications around the climate crisis;
- A 'Sustainability and Climate Mandatory Module';
- 'Democratising universities', for example by involving citizens assemblies in Higher Education Institutions' (HEIs') actions to mitigate the climate crisis; and
- Creating an 'All Ireland Network' to increase collaboration and lobbying for resources for a mandatory climate module.

The workshop report mentioned the Sustainable Development Solutions Network Ireland (SDSN Ireland) as a place for senior management in HEIs across Ireland to collaborate on the issues mentioned in the report. This network of universities and institutions, coordinated by QUB and University College Cork, aims to promote collaboration with local authorities, NGOs, civil society organisations and policymakers across the island to achieve the 17 UN SDGs, including through research and community involvement.

Recommendation:
QUB should continue to support SECA to help address the interactions of inequalities and the climate crisis.

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

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. (3 points)
Yes, there is a process in which community members impacted by climate and environmental injustice **advise** the climate + environmental research agenda. (2 points)
No, but there are **current efforts** to establish a process for community members to advise or make decisions on the research agenda. (1 points)
There is **no** process, and **no** efforts to create such a process. (0 points)

Score Assigned:	1

Score explanation:

One of SECA's research themes includes 'engaged and transdisciplinary partnership-based research involving citizens' and other groups. The 2023 event 'What should Higher Education Institutions do about the Planetary Crisis?' encouraged discussion on areas such as 'Research as/for public good' and 'Community Engagement and Outreach'. This involved discussion of '"power-sharing" between the community and HEIs' and '"community ownership of research"'. However, this event was to facilitate ideas from the university and community and does not include a detailed action plan to implement these changes.

The report on the follow- up workshop in 2024, mentioned in 2.2, does not explicitly mention a goal to allow groups affected by climate change to impact the research agenda at QUB. However, the report does advocate for 'democratising universities', 'in how HEIs are run and managed', including through Citizens' Assemblies/ Juries, to ensure an effective response to climate change. It identifies 'resistance/opposition' to their goals and the need to identify power in the university to collaborate and advocate for change, however similarly does not include a detailed action plan for QUB.

As part of 'Developing system-oriented interventions to reduce car dependency for improved population health in Belfast', mentioned in 2.1, a Citizen's jury was held. This was held across a weekend in 2022 and involved residents learning about the issue, possible solutions and forming recommendations to solve the problem of car dependency.

There are existing requirements for Personal and Public Involvement (PPI) in applications for research grants. For example, the Health and Social Care (HSC) has a statutory duty to involve service users, carers and the public, including in research. PPI in research can impact which research is carried out and how it is applied, so groups impacted by climate change may be able to give input. PPI considerations are also required for grants from UKRI, however, as mentioned in last year's report, it does not guarantee input from communities affected by climate change.

Recommendation:
The medical school should prioritise creating a process by which communities disproportionately affected by climate change have input on research undertaken. SECA has helped facilitate some discussion to this end, however there is no evidence of any implementation in the medical school.

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

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. (3 points)
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. (2 points)
The **institution** has an **Office of Sustainability website** that includes **some** resources related to health and the environment. (1 point)
There is **no** website. (0 points)

Score Assigned:	3

Score explanation:

The Queen's University Belfast website has a very easily accessible sustainability section under the research banner, which advertises some of their major projects relating to research in: coast flooding, conservation of marine environments and tackling the algal blooms in Lough Neagh to name a few. The website also provides a link to the PURE research search engine at QUB which has the SDG as filters which is a helpful way to narrow down the search to relevant research papers.

This webpage also links to SECA, the research centre at QUB which encourages collaboration across schools within the university to investigate the climate crisis using the three pillars of sustainability, equality and climate action. The SECA website includes past and future events and opportunities as well as a list of faculty members which makes it possible to access the profiles of the members who are part of the school of Medicine, Dentistry and Biomedical Sciences.

Currently, QUB still doesn't have a separate dedicated website for research relating to health and environment, however the PURE research search engine can be used to find relevant research by refining the search to 'planetary health,' as mentioned in 2.1.

The 'Research Opportunities' tab has plenty of funded postgraduate research opportunities by refining the search to 'Climate.' Alternatively, you could look up the planetary health researchers at QUB (see section 2.1) and contact them to ask them about opportunities, however it is not easy to find these opportunities using the sustainability section of the QUB website.

Recommendation: SECA should have links to current, relevant research and also link to relevant funding opportunities in order to make access to planetary health research more accessible.

2.5. Has your institution recently hosted a conference or symposium on topics related to planetary health?
Yes, the **institution** has hosted at least one conference or symposium on topics related to planetary health in the past year. (4 points)
Yes, the **institution** has hosted at least one conference or symposium on topics related to sustainable healthcare/vetcare in the past year. (3 points)

Yes, the **institution** has hosted a conference on topics related to planetary health / sustainable healthcare/vetcare in the past three years. (2 points)
The **institution** has not hosted any conferences directly, but they have provided financial support for a local planetary health event. (1 point)
No, the **institution** has not hosted a conference on topics related to planetary health in the past three years. (0 points)

Score Assigned:	4

Score explanation:

SECA holds regular events:

- The Degrowth Movement's Erasure of The Working-Class Struggle (27/2/2024)
- Waste and the Circular Economy (10/4/2024)

The Sustainable Healthcare Development Group (SHDG) holds an annual interactive simulation event in the Medical Biological Centre aimed at 8-12 year olds for the NI Science Festival. This year the event will be held on 22/2/25 and will focus on the "Climate Emergency Department" where rising temperatures, algal bloom and air pollution will be some of the topics covered.

Additionally, Queen's collaborated with the UN Sustainable Development Solutions Network (SDSN) Ireland to host the first ever 'Reach '24 Festival' which seeks to explore the climate emergency and sustainable solutions through a variety of artistic mediums, including film screenings, performances, discussions and an art exhibition. Although not directly related to planetary health, this is an important development in the Sustainability movement here at Queen's.

Recommendation:
As suggested last year, we recommend the medical school hosts a conference on topics relevant to planetary health and increase awareness of and improve access to the recording of the previous Public and Planetary Health Conference to make it easily accessible for all.

2.6. Is your institution a member of a national or international planetary health or ESH/ESV organisation?
Yes, the institution is a member of a national or international planetary health **or** ESH/ESV organisation. (1 points)
No, the institution is **not** a member of such an organisation. (0 points)

Score Assigned:	1

Score explanation:
The School of Medicine, Dentistry and Biomedical Sciences is a member of the Global Consortium on Climate and Health Education after this was suggested by the 2020-2021 PHRC report.

Queen's University Belfast is a member of the Alliance for Sustainability Leadership in Education, which has been recorded in our PHRCs since the 2021-2022 report.

The School of Medicine, Dentistry and Biomedical Sciences has obtained a "Beacon Site" status within the Centre for Sustainable Healthcare. The Centre for Sustainable Healthcare is a national charity that develops knowledge and resources to support the NHS to reach net zero carbon and wider sustainability goals.

Recommendation:
We recommend the university and medical school remain a part of, and continue to be involved with international planetary health organisations.

Section Total (15 out of 17)	**88.24%**

Back to Summary Page here

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.*

3.1. Does your institution partner with community organisations to promote planetary health?	
Yes, the **institution** meaningfully partners with **multiple** community organisations to promote planetary and environmental health. (3 points)	
Yes, the **institution** meaningfully partners with **one** community organisation to promote planetary and environmental health. (2 points)	
The **institution** does not partner with community organisations, but has participating in community focused events relating to planetary health. (1 point)	
No, there is **no** such meaningful community partnership. (0 points)	
Score Assigned:	3

Score explanation:

The medical school incorporates planetary health into various students selected component (SSC) modules. There is a new SSC for Year 1 students being delivered this year, entitled "Planetary Health: Climate change impacts on health and equity." During Year 2, around one-third of medical students undertake the 'Medics in Primary Schools' module. This module involves medical students teaching local primary school pupils about health and medicine. Planetary health was added as a new optional topic to be covered by students in the 2021/22 cohort.

The Sustainability Team at QUB continue to host numerous sustainability events during the "Green Month of Community Action". They also organised the annual community litter pick, "The Big Autumn Clean Up", in November alongside Orchardville Belfast, a local charity helping individuals with learning disabilities and autism. Furthermore, QUB partnered with the RSPB to host a presentation on the importance of supporting wildlife in the environment.

The university itself held three major sustainability events in collaboration with local organisations:

QUB held its first Sustainable Construction Conference, which explored the reduction of carbon in buildings. The construction conference was organised in partnership with South West College, Belfast City Council, Feilden Clegg Bradley Studios and HOK.

The university also collaborated with Bryson Recycling and Belfast City Council to host its first Arts and Sustainability festival called "REACH '24". The exhibition explores the impacts of plastic waste on our oceans with many speakers such as representatives from the "groundswell project". The "Groundswell Project" regularly works and collaborates with the Centre for Public Health (CPH), a section of the medical school. The Groundswell Project consists of a collaborative team of researchers, local communities, implementers, and policymakers dedicated to improving public understanding and enhancing local urban green and blue spaces.

QUB, in collaboration with Belfast City Council, Translink and the Department for Infrastructure, participated in a panel event discussing active and sustainable travel in Belfast.
The event resulted in the opening of a brand-new cycle shelter which accommodates up to 54 bikes in a covered and secured environment, and, for the first time at the University, offer staff and students e-bike charging facilities for bikes with detachable batteries.

Local group Friends of the Field was invited to participate in the Student Sustainability Summit. As part of Horizon's UPSURGE project, Friends of the Field have co-designed a community garden with Belfast City Council and QUB. They have volunteer days on Saturday mornings. The goal of the community garden is to enhance the biodiversity of the space and add to the wellbeing of the local community.

Recommendations: *We commend the university's community outreach to local charities and organisations regarding sustainability, but we would recommend more involvement from the medical school. The medical school could partner with local patient advocacy groups/charities to highlight the importance of planetary health and environmental risk factors to patient health. Furthermore, the medical school could push their student-selected components (SSCs) to have a better community or hospital facing approach incorporated into its curriculum.*

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

Score explanation:

The 'Sustainable Entrepreneurship Program' has been launched by QUB to allow participants to "merge business acumen with sustainable practices", however this was aimed at student participation, and it is unclear if members of the community not enrolled at QUB could take on the course. This could be a great program to be made more community facing. However, with reference to last year's report, it is still limited to students and not the general public.

The QUB Sustainable Healthcare Development Group (SHDG) team is organising their annual 'Climate Emergency Department'. This event is part of the NI Science Festival and hopes to highlight the effects of climate change on healthcare with multiple interactive role-play scenarios. It is a free event for children and young adults within the community.

The 'Queen's Biology Showcase', hosted by the School of Biological Sciences in conjunction with the NI Science Festival, is also open to the public with discussion points on sustainable nutrition and the impact of climate change on disease transmission.

QUB's Law Department hosted a talk on the Rights of Nature. Specifically, the Rights of Lough Neagh where they responded to some proposals on the democratic and legal dimensions.

The university also hosts an annual sustainability lecture that is open to the public every year. This event provides students with the opportunity to learn and get involved with the University's actionable steps towards the Net Zero plan and how sustainability is embedded through all areas of the University. The event included a panel of strategic climate influencers who answered questions from students on sustainability and tackling the climate crisis.

REACH 24 is a sustainable arts festival run by the institution. Multiple events were run over three days, aimed at students, staff and local community members.

Recommendations:
The university offers a range of sustainability events and talks across the year that are open to the local community, and the medical school also offers a number of community-facing sustainability events. We would encourage the medical school to continue offering these events; we recommend that they collaborate with other university departments to organise innovative and interdisciplinary community events. Furthermore, we would recommend that current courses (like the 'Sustainable Entrepreneurship Program') would be expanded to encourage more community involvement.

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

Yes, all students **regularly** receive communication updates dedicated to planetary health and/or sustainable healthcare. (2 points)

Yes, planetary health and/or sustainable healthcare topics are regularly included in communication updates to **some courses**. (1 point)

Students **do not** receive communications about planetary health or sustainable healthcare. (0 points)

Score Assigned:	1

Score explanation:

Students within the medical school frequently receive email correspondence from the Centre for Medical Education (CME) and the School of Medicine, Dentistry and Biomedical Science. However, these emails only sometimes include information relating to planetary health and sustainable healthcare. Communications regarding these areas are also not regular. Staff from the CME have previously stated for last year's report that they hope to email a link to a page on sustainable healthcare, this page is currently in development but not live for all students as of yet.

QUB utilises a range of communications outlets, such as their sustainability account 'Green at Queen's', to promote news about sustainability on campus. This offers students an alternative and accessible way to keep up to date with planetary health and sustainability information. GreenatQueens has accounts on Twitter, Facebook and Instagram, giving students opportunities to access their information on a range of platforms.
Furthermore, we also note the consolidated bank of information that is available via the QUB Sustainability website. This includes the 'Green at Queen's E-Zine' to provide snippets of insight into on-campus projects. This zine hasn't been updated since the last report, since they have refocused their efforts into hosting more sustainability events to increase student participation. Some of the community facing events they hosted were: The Inaugural Reach'24 Art and Sustainability Festival, Portaferry Marine Lab Open Day, Student Sustainability Summit, Queen's Annual Litter Picks and numerous Climate Conversations and Talks.

We welcome the wide and accessible range of sustainability communications and events offered by the wider university.

Recommendations:
We appreciate the already vast volume of correspondence required to be communicated by the medical school to students, and we understand that a stand-alone page requiring regular updates may be difficult to manage. However, we would encourage the continued support of a sustainable healthcare resource bank on the MedPortal. Such a page would provide a centralised sustainability resource for medical students.

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

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. (2 points)

Yes, the **institution** or **main affiliated hospital trust** offers one course relating to planetary health and/or sustainable healthcare for post-graduate provider. (1 point)

There are **no** such accessible courses for post-graduate providers. (0 points)

Score Assigned:	2

Score explanation:

QUB runs an MPH in Public Health and an MPH in Global Health, which a select number of medical students choose to intercalate in each year. These courses include an emphasis on global health and development.

Furthermore, QUB offers a range of general sustainability courses at a postgraduate level such as their MSc degrees in 'Leadership for Sustainable Development', 'Leadership for Sustainable Rural Development' and 'Climate Change'.

QUB also offers programs in conjunction with the external accreditation body SEDA (Staff and Education Development Association). The module entitled 'Education for Sustainable

Development (ESD)' is run by SEDA and provides staff with postgraduate education related to the Sustainable Development Goals.

Northern Ireland Medical and Dental Training Agency (NIMDTA)is a body in Northern Ireland with the responsibility of postgraduate medical and dental education. When the keyword "sustainability" is used to search their webpage it highlights the importance of sustainability in the curriculum and in quality improvement, signposts to NHS Sustainability in Quality Improvement page.

An event in association with NIMDTA "Sustainability in Healthcare: For Foundation Doctors" was made available on Learn HSCNI for junior doctors in Northern Ireland. The was a piece of live online learning over Zoom and covered the topics; sustainability and planetary health, the Planetary Health Report Card, the role of foundation doctors in sustainable healthcare and SusQI.

Recommendations:
We recommend that the university offers more CPD courses, over a wider range of dates and sustainability topics. This may make sustainability education more accessible for those that cannot undertake an MSc/MPH. Furthermore, the affiliated hospital trusts could become more involved in the promotion and organisation of sustainability education activities. Collaboration between the university and hospital trusts could allow trust employees to undertake CPD courses offered by the university itself.

3.5. Does your institution or its affiliated teaching hospitals have accessible educational materials for patients about environmental health exposures?	
Yes, the **medical school** or **all affiliated hospitals** have accessible educational materials for patients. (2 points)	
Some affiliated hospitals have accessible educational materials for patients. (1 point)	
No affiliated medical centres have accessible educational materials for patients. (0 points)	
Score Assigned:	1

Score explanation:
The medical school partners with all five hospital trusts across Northern Ireland, and so it is challenging to evaluate the range of resources available across hospitals and departments. Using the trust websites, we were able to find resources related to sun exposure and protection for patients in the Belfast, Southern, Northern and Western Trusts. The South-Eastern Trust instead featured a piece from a patient who had previously suffered from skin cancer, who reiterated the importance of wearing suncream.

Belfast trust has some information on staying well in winter. The page describes the health effects of living in a cold and damp home.

However, we were unable to find patient resources relating to other environmental hazards, such as pesticides and pollution.

Recommendation:
We appreciate that QUB is not directly involved in making educational materials for patients within each of the trusts. However, we would encourage the medical school to champion for improved

sustainability resources for patients as this would improve the patient experience, and empower students and staff to promote sustainable health in a changing climate.

3.6. Does your institution or its affiliated teaching hospitals have accessible educational materials for patients about the health impacts of climate change?	
Yes, the **medical school** or **all affiliated hospitals** have accessible educational materials for patients. (2 points)	
Some affiliated hospitals have accessible educational materials for patients. (1 point)	
No affiliated hospitals have accessible educational materials for patients. (0 points)	
Score Assigned:	0

Score explanation:

As mentioned regarding the previous metric, it is challenging to establish what information is available to patients given the range of departments and hospitals that QUB collaborates with. We could not find any evidence of online resources for patients related to the health impacts of climate change; this has notably not improved in the past four years. Information was available in some trusts, particularly the Southern and South-Eastern Trust, on their ongoing efforts to be more environmentally friendly but this did not include patient-facing resources on climate change itself.

The Northern Trust Corporate Plan has a section entitled *Focus on: Sustainability* where they state that *"Climate change represents a significant health challenge for the 21st century."* They do not detail the specific health effects of climate change, but comment on the healthcare systems contributing factors and their plan in the Northern Trust to combat these. This is patient facing information, however, not with the primary purpose of patient education.

Recommendation:
We acknowledge again that QUB does not have a large say in the resources available to patients. Nonetheless, we believe it is important that trusts provide accessible information on the health impacts of climate change; we suggest that trusts supplement their current resources on environmental exposure with information on how this is related to our changing climate. For example, the existing educational materials on sun exposure could be updated to include information on increasing temperatures due to climate change. We would further encourage the trusts to utilise aspects like their primary care centres to provide resources (such as brochures/leaflets/QR code links) informing patients about the impacts of climate change on their health and healthcare system.

Section Total (10 out of 14)	**71.43%**

Back to Summary Page here

Support for Student-Led Planetary Health Initiatives

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

4.1. Does your institution offer support for students interested in enacting a sustainability initiative/QI project?	
Yes, the **institution** *either* offers grants for students to enact sustainability initiatives/QI projects *or* sustainability QI projects are part of the core curriculum. (2 points)	
The **institution** 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. (1 point)	
No, **neither** the medical school or the institution offer opportunities or support for sustainability initiatives or QI projects. (0 points)	
Score Assigned:	2

Score Explanation:

Queen's Green Fund:
The QUB Green Fund is an annual scheme run by the Estates' Department, that empowers both staff and students, via funding, to create and deliver projects that benefit the environment of the surrounding Queen's Campus and local community. Financial funding will be provided for the best proposals. The total money awarded to each team will be a maximum of £2000. The project has been running since 2019 a total of 88 green fund projects have been funded. Some projects that are currently promoted on the Sustainability at Queen's home page include; Sewing Classes with SewReady & the PHRC Committee, Adopting waterless condensers, saving water in chemistry labs, Widening Participation Unit Workshops Go Green! The SHDG successfully applied for funding to repeat the Sustainable Sewing Sessions, where staff and students can learn the basics of sewing and revitalising clothes to encourage less fast fashion use.

Sustainability and Quality Improvement (SusQI):
During 2024-2025 Academic year all Year 5 medical students have undertaken the pilot scheme SusQI project, which has previously been run as an optional SSC module. The aim is that in the coming years this pilot scheme will remain as a part of the core final year content. In the pilot a small group of students would be assigned to an NHS supervisor to work on a Quality improvement project and experience a complete data collection and PDSA cycle, equipping final years with the skills to carry out QI projects when they become junior doctors whilst incorporating a sustainability aspect to their work. Due to logistical problems during the pilot year of the scheme many of the projects have been conceptual rather than an applied project.

Recommendation: We recommend that the medicine faculty continues to run the SusQI project for fifth year medical students and transform it from a pilot scheme to a mainstay in the C25 curriculum.

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

The **institution** has a **specific** research program or fellowship for students interested in doing planetary health/sustainable healthcare/vetcare research. (2 points)

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. (1 point)

There are **no opportunities** for students to engage in planetary health/sustainable healthcare research. (0 points)

Score Assigned:	1

Score Explanation:

Summer Studentships:
The Centre for Public Health ran a Summer Research Studentship Program in the summer of 2024 entitled "Sustainable diets: consumers attitudes, beliefs, and current practices". This studentship will allow students to work with a supervisory team to develop a set of research questions which will allow research to be done to compare how current national dietary patterns impact both public and planetary health. Full support will be given in terms of statistical skills and access to software. This studentship was supervised by Professor Jayne Woodside.

Intercalated degrees/ Master Programmes:
Two Master's programmes, a Master's of Public Health and a Master's of Global Health, are available to third and fourth year medical and dental students to apply for an Intercalated Masters Degree. As per the nature of these courses, students need to take a year out of medicine to complete these. Both these courses include aspects of sustainable healthcare.

There are other newer courses which have been developed at Queen's, focussing on sustainable development. MSc Leadership for Sustainable Development and MSc Leadership for Sustainable Rural Development, which are both available to students from all subject backgrounds. The course equip students with the skills to become Sustainable Development 'Champions' and become innovators of Sustainable Development across all sectors. As part of the course students will be engaging in a real-world project to promote sustainable development through experiential learning, action research and work-based placements.

Recommendation: We recommend that at least one Summer Studentship should continue to have Sustainability as one of its main themes. This could be included into whatever framework is used to set up Summer Studentships each year.

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

The institution has a webpage with specific information related to planetary health or sustainable healthcare/vetcare that includes up-to-date information on relevant initiatives and contact information of potential mentors. (2 points)
There is an institution web page that features some information on projects and mentors within planetary health and sustainable healthcare within the medical school, but it lacks key information. (1 point)
There is **no institution** specific webpage for locating planetary health and/or sustainable healthcare projects or mentors. (0 points)

Score Assigned:	2

Score Explanation:

QUB has a Sustainability Subpage on their main QUB website. This page is a hub for sharing any sustainability news across the university and includes information about the university's commitment to sustainability e.g QUB's 2030 Net Zero strategy. Within the Research subpage efforts have been made to ensure sufficient sustainability focused research sign-posting through; links to the SECA website (containing a contact list of academic members of the centre and current PhD projects) and links to Pure (the internal registry of research output's at Queen's), enabling users to search for specific researcher's and project areas and research related to certain SDG's. As each school has their individual webpage, the QUB sustainable webpage does not contain a dedicated list of current sustainability researchers and publications, because these can instead be filtered via SDG mapping using the Pure website.

The QUB medical school has just created a Planetary Health Subpage for the "MedPortal" webpage. This page will include sections on; How planetary health is incorporated into the medical course, Post-graduate/ intercalated degree which include planetary health aspects, Summer internships, links to Queen's Sustainable Healthcare Development Group, links to other sustainability based resources across Queen's and Further reading for students on planetary health. This page is complete but not yet launched to all students.

Recommendation: Get feedback from medical students on the Sustainability subpage of the Medical Portal website and consider using this as a blueprint model to use across other QUB faculties, including other healthcare courses.

4.4. Does your <u>institution</u> have registered student groups dedicated towards fostering a culture of planetary health engagement, scholarship, and advocacy on campus, supported by faculty advisors?
Yes, there is a student organisation **with faculty support** at my medical school dedicated to planetary health or sustainability in healthcare. (2 points)
Yes, there is a student organisation at my medical school dedicated to planetary health or sustainability in healthcare but it **lacks faculty support.** (1 point)
No, there is **not** a student organisation at my institution dedicated to planetary health or sustainability in healthcare. (0 points)

Score Assigned:	2

Score Explanation:

Sustainable Healthcare Development group:
The Sustainable Healthcare Development Group (SHDG) is a working group of students, academics from across SMDBS, researchers, the Estates team and the Faculty Pro-vice-Chancellor. This cohort group started out, under a different name, with the singular task of completing the PHRC, but have since expanded their field to foster and promote sustainability and climate action within healthcare- related degrees. The cohort of students is primarily medical based, but have had students from other healthcare professions join over their existing years.

Sustainability Network:
The Estates' Team have created a Sustainability Forum and Sustainability Network that is open to both staff and students of the university. The network functions as an informal forum where anyone can openly share information about research, events, projects and other opportunities relating to Sustainability. There are three formal Forum meetings each academic year. Outside of the Sustainability Network there are various boards and groups, which focus on ensuring that QUB meet their 2030 NetZero target, multiple students are part of a variety of these boards, including some students from the SHDG.

Recommendation: Continue the publication and support the presence of the work completed by the Sustainable Healthcare Development Group and continue to expand and foster inter-faculty relationships and encourage other healthcare-aligned staff and students to get involved with planetary health.

4.5. Is there a student liaison representing sustainability interests who serves on a department or institutional decision-making council to advocate for curriculum reform and/or sustainability best practices?

Yes, there is a student representative that serves on a department or institutional decision-making council/committee. (1 points)
No, there is no such student representative. (0 points)

Score Assigned:	1

Score Explanation:

Sustainability Boards & Groups
The sustainability boards & Groups at QUB are collaborative groups of both staff and students who provide oversight on the delivery of various aspects of QUB's NetZero Plans. Some students from the QUB Sustainable Healthcare Development Group are representatives on some of these boards.

Student' Union Representation
The current Student's Union President is the main university-wide student representative on Sustainability. Sustainability is one of his key manifesto points and as SU president he sits in various committees, councils and management boards, advocating for and taking sustainable action.

Environmental Action Student Association

On an institutional level, there is an Environmental Action Student Association. The network is a democratically elected group of students, dedicated to taking environmental action at the university. This is a new Association and it is hoped that as the group develops it is hoped that it can become involved with the Sustainability Branch of the University Estates. (website to be updated)

Recommendation: Continue with the development of the Environmental Action Student Association and encourage the growing inclusivity of students into the wider sustainability Network at Queen's, helping to bring student voice, opinion and concerns to the Senior Management of QUB.

4.6. In the past year, has the institution had one or more co-curricular planetary health programs or initiatives in the following categories? (1 point each)	**Score**
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.	0
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)	1

Score Explanation:

Sustainable foods and agriculture

- The Elm's BT9 Allotment is a long running green fund project which aims to get students and staff to understand where their food comes from whilst increasing biodiversity, supporting mental wellbeing and mindfulness. This project is facilitated by the residential Life team at BT9 and the Conservation Volunteers and runs weekly, allowing students to grow and harvest their own food storing it in the onsite kitchen.

- Students from the SHDG worked with the Belfast City Council to run two sustainable cooking classes in the Elms student accommodation. All students and staff were welcome with a target audience of students who live in the Elms accommodation, to teach various tips and tricks and provide sustainability education around food shopping, storing, cooking and waste.

Panels, speaker series, or similar events

- The “Transforming Travel Through Partnership” was a collaborative panel discussing active and sustainable travel in Belfast and how this can be improved via a collaborative approach through the Belfast City Council, the Department of Infrastructure, Queen’s University and Translink.

- The “Student Summit” is an annual sustainability summit run by the Queen’s University Sustainability Team. It is an opportunity for students to discuss key sustainability concerns that students have around education, travel, food and banking with Queen’s University staff and other guest speakers.

Students learn directly from members of a local environmental justice community about challenges they face, and how health professionals can partner with their community to address these exposures and impacts

- *While there is evidence of events discussing local environmental justice, none of these are specific to healthcare professionals.*

Cultural arts events, installations or performances

- The 2024 REACH festival was an art festival collaboration with the UN SDSN that aimed to merge arts and sustainability to examine and highlight the emerging climate emergency, and provide sustainable solutions via various art mediums. As well as art exhibitions and performances, talks from people who are leading the way in the path of merging art and sustainability.

- The Students from the Sustainable Healthcare Development Group have run a “Climate Emergency Department” as part of the NI Science Festival for the past 2 years and are running it again in 2025. This event is an interactive Simulation, run in multiple sessions, hosted by QUB InterSim and is designed to inspire the youth (and potentially future Healthcare workers to be) to think about the impact climate change has on our health and the healthcare system.

Local volunteer opportunities related to building community resilience to anthropogenic environmental impacts.

- In 2024 QUB had a Green Month of Community Action including events and volunteering opportunities such as; Litter Pick Along The River Lagan, Planting at the David Keir Building Quad, Community Gardening at the Elmwood Learning & Teaching Centre & Bioblitz with friends of the field. The listed events involved voluntary community action in and around the QUB campus helping to reduce plastic waste, boost biodiversity and monitor biodiversity of the local areas.

- During the European Week for Waste Reduction QUB ran nine events based around waste production (e.g carbon literacy training, cookery classes, reuse and repair classes). This provided numerous events for students, staff and the wider community to have hands-on opportunities to get involved in sustainability and help to build a sustainable community, share ideas and make meaningful actions around sustainability.

- The SU group Handy Helpers offers numerous one-off volunteering opportunities which encompass various activities including sustainability and upkeep of the local Queen’s community area

- The university is a partner in several community projects including the “One Million Tree project by Belfast City Council”, which aims to plant one million trees in Belfast by 2035. “UPSURGE” is another project of note. The UPSURGE project looks at growing food on contaminated land in an aim to look at fast forwarding nature based solutions for cities. Belfast is 1 of 5 cities in the European Upsurge project and alongside the co-designers from QUB, other local stakeholders include Belfast City Council and the locals of the area who are involved in the ecological community gardens which support soil research and urban food growing. A community group “Friends of the Field” meet weekly at this allotment.

Clubs & societies

- There are several Clubs and Societies registered with the Students’ Union which focus on wilderness and outdoor programmes. This includes the Mountaineering Club, Caving Club, Scout Network and QUB Climate Action Network & the Queens University Wilderness and Expedition Medicine Society. Further information about these Societies can be found on the QUBSU Website.

Activities that do not fit above criteria

- The Sustainable Construction Conference was a half-day event designed to deepen knowledge of reducing carbon in buildings. The conference was open to all involved in design, construction and operation of the built environment, but this event was not specifically targeted at students.

- A Bike to Work Week ran at QUB for staff members in the summer of June 2024, in which a range of opportunities were available, such as bike loop cycle clinic, to encourage staff to cycle to travel Greenly to work.
- City Conversations- Nature in the City. This is a public facing event advertised by the Estates Team to get students involved in discussions around sustainability in the local urban area.

- A Stakeholder Event to review evidence for environmental governance was held in theQUB school of law in February 2025. This event allowed for the public to submit feedback on the current state of environmental governance in NI.

Recommendation: QUB has dedicated substantial time and resources to fostering strong relationships with numerous community groups, and has provided many opportunities for students to get involved with these projects and schemes. We encourage the continued advertisement of these opportunities within the QUB and wider Northern Irish communities.

Section Total (13 out of 15)	**86.67%**

Back to Summary Page here

Campus Sustainability

Section Overview: ***This section evaluates the support and engagement in sustainability initiatives by the 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.*

5.1. Does your institution have an Office of Sustainability?	
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. (3 points)	
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 hospital sustainability. (2 points)	
There are **no salaried sustainability staff,** but there is a sustainability task force or committee. (1 point)	
There are **no** staff members **or** task force responsible for overseeing campus sustainability. (0 points)	
Score Assigned:	2
Score explanation: The university currently has a Board of Sustainability which is involved in overseeing the 2040 Net Zero plan consisting of seven academic staff nominees, nineteen professional services nominees, one trade union representative and two student representatives. The Sustainability Governance oversees the development and implementation of working groups in relation to the Net Zero Plan such as the Campus Decarbonisation Working group, the Sustainability Engagement and Communications Working Group, and the Sustainable Use of Goods and Services Working Group. The goal of having an unpaid "Sustainability Champion" remains in the early stages. Once implemented, this role is hoped to be a point of contact for staff on environmental issues, providing feedback on implementation of initiatives. There is currently no position specific to the hospital nor the School of Medicine, Dentistry and Biomedical sciences. *Remomdation: We recommended the commencement of the program for the "Sustainability champion" as well as encouraging the university to create a paid position for the Health Sciences School specifically.*	

5.2. How ambitious is your institution's plan to reduce its own carbon footprint?
The institution has a **written and approved plan** to achieve carbon neutrality by **2030** (5 points)

The institution has a **written and approved plan** to achieve carbon neutrality by **2040** (3 points)
The institution has a stated goal of carbon neutrality by **2040** but has **not created a plan** to reach that goal or the **plan is inadequate** (1 point)
The institution/medical school does **not** meet any of the requirements listed above (0 points)

Score Assigned:	3

Score explanation:
In June of 2023 Queen's University of Belfast published the Net Zero Plan with the goal of achieving zero greenhouse gas emissions by 2040 based on the 2018-2019 emissions of 105,430 tonnes of carbon dioxide equivalent. Further, the university has a goal of 45% reduction by 2030 to align with the goals of Northern Ireland. The Net Zero Plan is focused on direct emission from owned or controlled sources, indirect emissions from the generation of energy purchased, and indirect emissions from university activities. Since the Carbon Management Plan was published in 2010, the university reduced emissions by 21% and diverted 94% of waste from landfill. The Net Zero plan is more ambitious than the UK carbon target from the Climate Change act of 2008, which aims to achieve net zero by 2050. The university aims to use less energy, use clean energy efficiently, use renewable energy, and offset carbon emissions through carbon sequestration regimes.

Recommendations: The Net Zero plan does acknowledge many factors outside of the University's control such as campus infrastructure, the Northern Ireland electricity grid, energy security risks, government policy, and the fact that 80% of emissions are outside the University's control (e.g. reliance on external infrastructure and suppliers). We would recommend the university make the limitations clearer to clarify what exact factors are not within the control of the organisation as well as create plans to compensate for the factors not within the direct control of the university.

5.3. Do buildings/infrastructure used by the institution for teaching (not including the hospital) utilize renewable energy?
Yes institution buildings are **100%** powered by renewable energy. (3 points)
Institution buildings source **>80%** of energy needs from off-site and/or on-site renewable energy. (2 points)
Institution buildings source **>20%** of energy needs from off-site and/or on-site renewable energy. (1 point)
Institution buildings source **<20%** of energy needs from off-site and/or on-site renewable energy. (0 points)

Score Assigned:	1

Score explanation:

Currently all of the electricity is purchased by the university from a renewable source, through the Central Government Procurement Department contract.

This renewable energy purchased accounts for 44% of the overall energy requirements for the University, including the Health Sciences Campus, is from renewable resources. However there is no information specific to each department. The university generates heat and electricity on site and uses renewable energy for electricity procured from the NI National Grid. Their contract for metered electricity states that *"The Contractor is required to provide 100% renewable electricity. The Contractor will be required to certify the origin of the renewables offered as part of the tender response by a European Union Guarantees of Origins (GoOs) scheme or the UK equivalent Renewable Energy Guarantees of Origin (REGO)...."*

The Net Zero Plan includes a goal of installing solar panels and purchasing renewable energy; if this is implemented, it will greatly benefit the reduction of energy use and creation of clean energy. There are currently feasibility studies ongoing for the implementation of solar panels across campus. Solar panels are to be implemented on the Whitla Hall building, and Maths and Physics Teaching Centre. However, public information on the progress of the installation of solar panels is difficult to find.

Recommendation: We encourage the university to increase the accessibility of information on their procurement of electricity purchased and provide more specific public information on the goals of installation of solar panels for the university.

5.4. Are sustainable building practices utilised for new and old buildings on the institution's campus, with design and construction of new buildings and remodelling of old buildings conforming to a published sustainability rating system or building code/guideline?	
Yes, sustainable building practices are utilised for new buildings on the institution's campus and the **majority** of old buildings **have been retrofitted** to be more sustainable. (3 points)	
Sustainable building practices are utilised for new buildings on the institution's campus, but most old buildings have **not been retrofitted.** (2 points)	
Sustainable building practices are **inadequately or incompletely** implemented for new buildings. (1 point)	
Sustainability is **not considered** in the construction of new buildings. (0 points)	
Score Assigned:	3

Score explanation:
Queen's University Belfast follows BREEAM excellent standards as well as their own criteria, which is far more stringent than the BREEAM criteria. They continue their new guidelines such as Passivhaus *for new buildings over* £1 million. For projects over £1 million, Enerphit Passivhaus is used as well as a "Whole Life Carbon Assessment" to align with the target of < 500 $kgCO_2e/m2$. Retrofits and refreshments less than £1 million will continue to target the SKA Gold Rating. In April of 2024, permission for the first Passivhaus student accommodation in Northern Ireland was granted by Belfast City Council. This will feature insulation, a blue roof, mechanical ventilation, 100% renewable energy for heating and hot water, triple glazing, and airright building fabric. The new building, BRCD Institute for Research Excellence in Advanced Clinical Healthcare will be BREEAM Excellent and will employ smart meters, air source heat pumps swift boxes, and EV charging points. QUB implements retrofitting and reusing existing buildings where possible; this includes upgrading controls for temperature, lighting, and double and triple glazing of windows. For lab and research buildings constructed prior to 1990, refurbishments with mineral wool

insulation, LEDS and window glazing will be implemented as needed. In addition to the use of LED lighting, Queens continues to prioritise daylighting to reduce VOCs.

Recommendations: We recommend the university continues its comprehensive approach to construction and refurbishment, and commend them on their practices of Passivhaus and their upholding of BREEAM Excellent standards. We encourage the University to provide updates on the building and the greenhouse gas emissions needed to construct the Passivhaus building.

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

Yes, the institution has implemented strategies to encourage and provide **environmentally-friendly transportation options** such as safe active transport, public transport, or carpooling and these options are well-utilised by students. Alternatively, the campus location is not amenable to unsustainable forms of transportation by default. (2 points)

The institution has implemented **some** strategies to provide environmentally-friendly transportation options, but the options are **unsatisfactorily** accessible or advertised. (1 point)

The institution has **not** implemented strategies to encourage and provide environmentally-friendly transportation options. (0 points)

Score Assigned:	2

Score explanation:
The university has created a travel plan for 2023-2028 in an effort to reduce the impact of traffic from the university. The target of the travel plan is to reduce carbon emissions from commuting by 25% by 2028. This is part of the larger Net Zero Plan which hopes to create environmentally sustainable travel for students and staff via policy, lobbying, and continuous improvement. They plan on continuing surveying the QUB community to review the impact of specific measures. The university has also created the Sustainable Travel Guidance Outline for information for staff and students travelling to and from the university. They encourage use of the public transit via the Ylink travel card which allows students a discounted rate of 50% from all public travel via translink.The university has also implemented staff travel to work loan schemes where by salaried employees can get and interest free loan towards the purchase of an annual travel card.

The “Transforming Travel Through Partnership” was a collaborative panel discussing active and sustainable travel in Belfast and how this can be improved via a collaborative approach through the Belfast City Council, the Department of Infrastructure, Queen’s University and Translink.

Additionally the school has hosted a Bike Pop Up stand in the medical building, which provides free bike service and information on how to fix and repair their own bikes. The university has Sheffeild bicycle stands at the majority of buildings with shower facilities for the staff to avail of. The University has the QUB QUB Bike Hub which provides discounted refurbished bikes and servicing to students and staff. Staff can also obtain a bicycle with the cycle plus CYCLE SCHEME which allows staff to hire tax free bikes for work up to £3,000. The University also uses Liftshare, a care sharing portal to allow staff and students to find car sharing matches based on location.

The medical school has a direct shuttle bus to the Royal Victoria Hospital site from the Belfast City Hospital which allows staff and students to travel between the campuses. The Open Botanic Project was hosted in 2024 with the university involved as part of a push to have a popular street made into a pedestrian only zone, this would allow for increased bicycle and pedestrian traffic. The University also has joined Link My Ride which allows students and staff to familiarise themselves with campus and the city through community bike rides.

Recommendations: *We recommend the University to provide more information on the results from surveys that are conducted on travel as well as encouraging projects like the Open Botanic Project. We also encourage that showers be made accessible to students and not just staff for after bike transit.*

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

Score explanation:
The Net Zero Plan made by QUB aims to achieve zero greenhouse gas emissions by 2040. One of the goals is to reduce waste and increase recycling. Presently there is food recycling in the cafe area that is composted or sent for anaerobic digestion. Additionally, food waste from accommodation and catering for the university is composted. There is also recycling for chemical containers from the labs including glass, plastic and chemicals. The university currently has only a conventional recycling program at the medical school as well as for the labs.

Recommendation: As suggested previously, it is recommended that the university begins their goal of reducing its amount of landfill by providing food compost bins to staff and students throughout the campus, specifically building of the Medical School. This process has been started, but the institution should continue to make food compost and recycling available across university buildings.

5.7. Does the institution apply sustainability criteria when making decisions about the campus food and beverage selections (e.g. local sourcing, reduced meat, decreased plastic packaging)?
Yes, the institution has a**dequate s**ustainability requirements for food and beverages, including meat-free days or no red-meat, and **is engaged** in efforts to increase food and beverage sustainability. (3 points)

There are sustainability guidelines for food and beverages, but they are **insufficient or optional**. The institution **is engaged** in efforts to increase food and beverage sustainability. (2 points)
There are sustainability guidelines for food and beverages, but they are **insufficient or optional.** The institution is **not** engaged in efforts to increase food and beverage sustainability. (1 point)
There are **no** sustainability guidelines for food and beverages. (0 points)

Score Assigned:	2

Score explanation:

There are a number of campus initiatives to ensure food is sourced sustainably; These apply to both the university and private catering companies. There is a large focus on using local produce from the Island of Ireland.

In terms of reducing meat, there has been no direct implementation of meat-free days, though the campus catering outlet provides a large number of meat-free options daily, which is a step towards reducing consumption of meat produce, especially considering NI's farming culture and meat-reliant diet's.

The NetZero Plan (p46) discusses the university's plans to reduce the carbon impact of purchased goods and services (such as campus food and drink), however, the specific on campus actions are not detailed.

Recommendation: We recommend that the university continues to support local and seasonal choices, and continues their proactive implementations to reduce plastic waste. We encourage the introduction of more sustainable options and introduction of meat free days. If there is resistance to entirely meat free days we suggest that a step in the right direction would be reduced red meat days- where establishments may still serve fish or chicken for example, but no red meat.

5.8. Does the institution apply sustainability criteria when making decisions about supply procurement?
Yes, the institution has **adequate** sustainability requirements for supply procurement **and** is **engaged** in efforts to increase sustainability of procurement. (3 points)
There are sustainability guidelines for supply procurement, but they are **insufficient or optional.** The institution is **engaged** in efforts to increase sustainability of procurement. (2 points)
There are sustainability guidelines for supply procurement, but they are **insufficient or optional.** The institution is **not engaged** in efforts to increase sustainability of procurement. (1 point)
There are **no** sustainability guidelines for supply procurement. (0 points)

Score Assigned:	2

Score explanation:

The university as an institution has a "Supply Chain Code of Conduct" which has to meet the applicable Government Buying Standards and comply with the universities Environmental Policy

statement and is endorsed by the University operating board. It references the United Nations Sustainable Development Goals, within the code one section is “environmental compliance”. Within this section it states for suppliers to “avoid, if possible, causing environmental damage” and to identify opportunities to/ innovate more environmentally friendly products/ service solutions.”

The Procurement Team encourages suppliers to utilise the NETPositive tool, which is an aid for suppliers to create a more sustainable business model. All tendered procurement require supplier compliance to the Supply Chain Code of Conduct and have a sustainability criteria considered in every tender exercise

The Scope 3 in the Net Zero Plan includes actions to improve the sustainability of procurement. Some of the planned interventions include; updating procurement policy and processes, developing a methodology to account for a transition to a net zero supply and setting annual targets for the procurement action on climate literacy.

Recommendation:
The University should continue with their efforts to apply sustainability criteria to supply procurement, and these guidelines should be more strictly enforced.

5.9. Are there sustainability requirements or guidelines for events hosted at the institution?	
Every event hosted at the institution **must** abide by sustainability criteria. (2 points)	
The institution **strongly recommends or incentivizes** sustainability measures, but they are **not required.** (1 point)	
There are **no** sustainability guidelines for institution events. (0 points)	
Score Assigned:	1

Score explanation:

The University Campus Food and Drinks teams follow a sustainable food policy, any events managed by the Events team and catered for should follow this policy. The Events team currently holds a Green Meetings Gold award for their efforts in Green Tourism and sustainability.
There is information available regarding Sustainable Conferences and Events on the QUB website. This includes suggestions on travel, activities and accommodation. It highlights ways the university Events Team can support those trying to be more sustainable, however, these are recommendations only and not required or enforced.

Recommendation:
We recommend the institution to form sustainability guidelines, and make them accessible for anyone hosting an event, even at students’ informal/after hours events. This could be done by highlighting the guidelines when completing a booking request for a room for an event.

5.10. Does your institution have programs and initiatives to assist with making lab spaces more environmentally sustainable?

Yes, the institution has **programs** and **initiatives** to assist with making lab spaces more environmentally sustainable. (2 points)
There are **guidelines** on how to make lab spaces more environmentally sustainable, but not programs or initiatives. (1 point)
There are **no** efforts at the institution to make lab spaces more sustainable. (0 points)

Score Assigned:	2

Score explanation:

The LEAF programme was launched at QUB in 2021 as a criteria metric to help schools determine if they follow sustainable practices. The LEAF programme has labs peer audited to assess sustainability criteria with a focus on waste management, procurement, efficiency, and chemical management. In 2023 a new incentive, the Queen's LEAF Sustainability Champion Award was created to highlight an individual who supported the program and helped implement sustainability practices in labs.

At QUB a total of 68 labs are accredited by LEAF. This is an increase of over double from the 31 labs involved in 2023. This year 52 labs received a Bronze accreditation and 16 received silver. The clinical skills team from the Faculty of Medicine, Health and Life Sciences were awarded the Bronze award for LEAF labs in June 2024

QUB is now also a member of the Irish Green Labs Network. Alongside LEAF this allows the university to target activities where the labs have a negative impact on the environment and to embed the UN's sustainable development goals into good lab practice.

As the LEAF labs scheme only covers "wet" labs, QUB is in the process of developing the Green DiSC pilot which would assess the practice of computer labs.

Recommendations: We recommended that QUB take further steps to encourage all labs throughout the university to participate in the LEAF program, as well as continue to publicise the program to students in order to encourage involvement and awareness of the importance of sustainability practices in their labs.

5.11. Does your institution's endowment portfolio investments include fossil-fuel companies?
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. (4 points)
The institution is **entirely divested** from fossil fuels. (3 points)
The institution has **partially divested** from fossil fuel companies **or** has made a **commitment to fully divest**, but **currently** still has fossil fuel investments. (2 points)
The institution has **not divested** from fossil-fuel companies, but faculty and/or students are **conducting organised advocacy** for divestment. (1 point)

Yes, the institution has investments with fossil-fuel companies and there have been **no efforts** to change that. (0 points)	
Score Assigned:	2

Score explanation:
The university is currently making efforts to divest from fossil fuels- though are not completely divested as of yet.

By the Responsible Investment Policy (last updated March 2024) QUB commits to "exclude companies involved in the extraction and production of fossil fuels from its investments and to have no meaningful exposure to fossil fuel companies by 2025". In keeping with their overall Net Zero target of 2024 QUB seeks to achieve Net Zero across their investments by 2040.

This is an important improvement from the previous policy (2020) which only enforced divestment if it did not detrimentally impact investment returns and did not enforce complete divestment by 2025.

The University determines the type of assets it wishes to invest in, with the University's Statement of Responsible Investment being a named consideration in these decisions. The University expects its shareholders and bankers to be signatories of the United Nations Principles for Responsible Investment (UNPRI) which essentially states that they must take Environmental, Social, and Corporate Governance(ESG) issues into consideration during their decision making on behalf of the University. The policy states "*.... the University expects that its fund managers will act in a way that reduces and, ideally eliminates, corporate behaviour leading to:*

- *Environmental degradation*
- *Climate change*
- *Support for war or loss of life*
- *Human rights violations*
- *The institutionalisation of poverty through discriminatory market practices*
- *Racial or sexual discrimination*
- *Practices contributing to ill health*
- *The exploitation of workers*
- *The giving or receiving of bribes.*

Consistent with this, the University expects its fund managers to avoid investment in companies with significant revenue derived from:
- *Controversial weapons1;*
- *Tobacco production or distribution;*
- *Fossil fuel extraction or production* "

Policy Statement- Updated March 2024
https://www.qub.ac.uk/about/Leadership-and-structure/filestore/Responsible%20Investment%20Policy.pdf

Annual Report 23-24:(p28- Responsible Investment)
https://www.qub.ac.uk/home/Filestore/annual-report-23-24.pdf

Recommendation:
The university should continue to make efforts to reduce their investments in fossil fuel companies to ensure they meet their own targets of no meaningful investment in fossil fuels by 2025 and complete divestment by 2040.

Section Total (22 out of 32)	**68.75%**

Back to Summary Page here

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

Section	Raw Score %	Letter Grade
Planetary Health Curriculum (30%)	(59/72) x 100 = 81.94%	A-
Interdisciplinary Research (17.5%)	(15/17) x 100 = 88.24%	A
Community Outreach and Advocacy (17.5%)	(10/14) x 100 = 71.43%	B
Support for Student-led Planetary Health Initiatives (17.5%)	(13/15) x 100= 86.67%	A
Campus Sustainability (17.5%)	(22/32) x 100 = 68.75%	B
Institutional Grade	**(Ax0.3 + Bx0.175 + Cx0.175 + Dx0.175 + Ex0.175) = 79.72%**	**B+**

Report Card Trends

Section Overview
This graph demonstrates trends in overall and section grades for the years in which Queen's University Belfast has participated in the Planetary Health Report Card initiative.