APRIL 2024

PLANETARY HEALTH REPORT CARD

DENTISTRY

2023-2024 SUMMARY REPORT

Prepared by:

Dental students and faculty from 3 Dental schools in India and the United Kingdom

With Support from:

Josiah Macy Jr. Foundation

Global Consortium on Climate and Health Education

Planetary Health Alliance

phreportcard.org



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1. ABOUT THE INITIATIVE



Figure 1: Map of Countries Participating in the PHRC

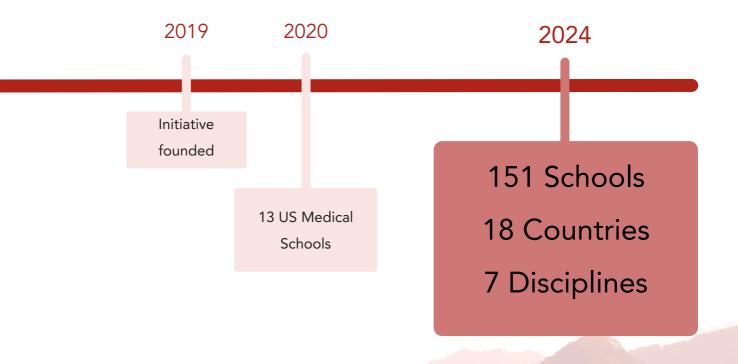
"Planetary Health is a solutions-oriented, transdisciplinary field and social movement focused on analyzing and addressing the impacts of human disruptions to Earth's natural systems on human health and all life on Earth" (Planetary Health Alliance, 2024)

As future health professionals, we must be prepared to address the impacts of human-caused environmental changes on our patients' health, and to understand and mitigate the environmental impact of clinical care. It is imperative that we hold our institutions accountable for educating health students on planetary health and education for sustainable healthcare, generating research to better understand health impacts and solutions, supporting related student initiatives, embracing sustainable practices on our campuses and in our hospitals, and engaging with surrounding communities that are most affected by environmental threats. Because climate change and environmental threats disproportionately affect marginalized populations, these issues are inherently ones of equity and justice.

With the purpose of increasing planetary health awareness and accountability among Dental schools, the Planetary Health Report Card (PHRC) was developed as an institutional advocacy tool in by a group of medical students at the University of California, San Francisco School of Medicine. **The PHRC is a student-driven metric-based tool that aims to evaluate health professional schools on discrete metrics in five main category areas:** 1) Curriculum, 2) Interdisciplinary research in health and environment, 3) Community outreach and advocacy 4) Support for student-led initiatives and 5) Campus sustainability.

Since its founding just five years ago, the PHRC community has grown to encompass 18 countries and over 140 health professional schools. As it has spread across the world, it has left many examples of institutional change in its wake. Though initially developed by medical students to evaluate medical schools, the report card has now been adapted for dentistry, nursing, occupational therapy, pharmacy, and physiotherapy training programs, catalyzing interprofessional collaboration.

The first conversations about creating a dental iteration of the PHRC was initiated in October 2022 and the currently used metrics was drafted in late 2023. For the first time, dentistry is launching it's report card in 2024 with 3 participating schools in 2 countries.



2. GOALS

- Operate as a "needs assessment" tool to identify institutions' planetary health strengths and opportunities for growth.
- Assemble synthesized, institution-specific information on planetary health resources useful for faculty and students
- Facilitate cross-institutional sharing of planetary health resources that can catalyze curricular innovation
- Establish a **global, interprofessional community** of like-minded students and faculty
- **Track progress** in implementing planetary health curriculum and resources
- Advance the planetary health movement in pursuit of a healthier and more equitable world

3. SECTIONS OF THE REPORT CARD

Planetary Health Curriculum



Today's healthcare students will be on the frontlines of tackling the impacts of environmental degradation on human health. It is critical that dental education reflects those health threats. Topics like the changing geography of vector-borne diseases, the oral health consequences of air pollution, environmental health inequities, disaster response principles, and healthcare sustainability must be part of every dental school's core curriculum.

Interdisciplinary Research in Health and Environment



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, dental schools should fund research studying environmental health, the health effects of climate change, and climate solutions.

Community Outreach and Advocacy



Researching and teaching planetary health is necessary but not sufficient. It is critical that institutions also directly engage with communities most affected by ecological destruction. Although climate change is a problem largely created by those with power and resources, its impacts fall disproportionately on marginalized populations. Institutions should partner with local communities affected by climate change and pollution to share information about environmental health threats and collaboratively advocate for change. Students should be given opportunities to engage in this work.

3. SECTIONS OF THE REPORT CARD

Support for Student-Led Planetary Health Initiatives



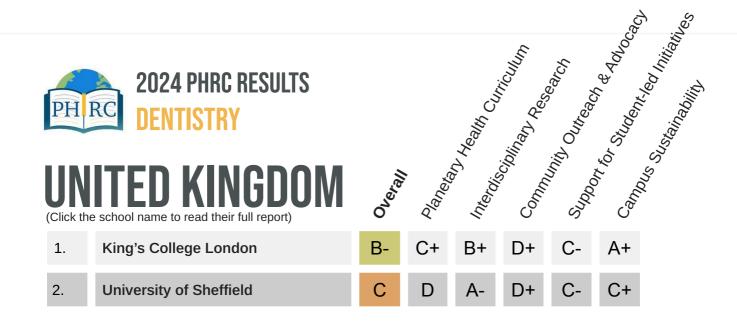
Planetary health is a young field and, as young people facing a future deeply shaped by climate change, students are often some of the first at an institution to engage with it. Institutions should provide support for students to engage in sustainability quality improvement (QI) initiatives, discover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

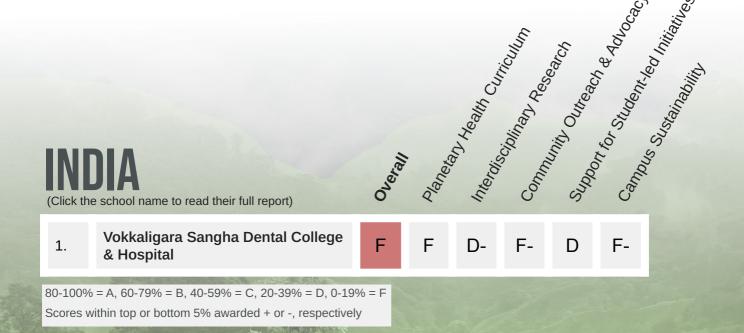
Campus Sustainability



The healthcare industry is a major contributor to greenhouse gas emissions as well as pollution that harms local, regional, and global ecosystems. While healthcare is, by nature, a resource-intensive endeavor, the healthcare sector is well poised to lead the world to a more sustainable future. This transformation can begin with our educational campuses; dental schools must sustainably source energy, food, and supplies; ensure institutional investments are free of fossil fuels; and offer incentives for greening lab spaces and events.

4. SCHOOL SPECIFIC GRADES





1. UTILIZE EXISTING RESOURCES AND COLLABORATE

Appreciate the work that has already been done in advancing planetary health across the world and draw upon resources from other institutions and organizations when developing learning objectives or new resources. Additionally, collaborate with other individuals, groups and institutions to facilitate efficient and quality advancements in planetary health and sustainable healthcare. For additional resources, please see our website.

Useful resources include:

- <u>Climate Resources for Health Education</u> an open-access repository of climate-health learning objectives, slides, and problem based learning cases for undergraduate and graduate medical education
- Medical Students for a Sustainable Future (MS4SF) Curriculum Guide
- <u>Education for Sustainable Healthcare</u> a curriculum for the UK
- Centre for Sustainable Healthcare <u>Sustainable OI project resources</u>
- <u>Climate Health in Medical Education Network</u> (CHIME) Irish Doctors for the Environment and the Royal College of Surgeons of Ireland.
- Global Consortium on Climate and Health Education (GCCHE) Resource Bank

Examples include:

• At King's College London (The Faculty of Dentistry, Oral and Craniofacial Sciences [FoDOCS]), students are also able to undertake an elective on this topic via the Centre for Sustainable Healthcare UK. The Centre for Sustainable Healthcare also offers training in sustainable healthcare and planetary health for health professionals with short courses, quality improvement education, elective placements and student selected components and E-learning materials. Students are directed to these resources by the Clinical Humanities module team.

2. INCLUDE INTEGRATED LEARNING

Formalize curricular content on both planetary health and sustainable healthcare with students by developing testable learning objectives. The curricular content should emphasize skill-building as well as clinical knowledge. Planetary health (PH) and Education for Sustainable Healthcare (ESH) is relevant to every organ system, and spaced repetition is more effective for learning. Therefore, PH and ESH should be a cross-curricular theme included into existing lectures, small groups, and projects whenever possible, rather than a standalone lecture. Faculty members should be empowered, educated, and incentivized to integrate the topics into their existing content. Integrating concepts of sustainability, one health, establishing relations between environmental changes and human health and oral health in extension, will encourage students to change the approach towards practising dentistry & patient advocacy.

Examples include:

- At King's College London (The Faculty of Dentistry, Oral and Craniofacial Sciences [FoDOCS]), climate change was introduced to the BDS4 students this year during the Clinical Humanities module. A King's College London researcher was invited to speak on the effects of pollution and its impacts on climate change within London on physical and mental health of the population. This is an introduction to the topic of climate change but will be developed in BDS5 where a focus of the Clinical Humanities module is climate and environmental health.
- The topic of climate change is very briefly mentioned in lectures at University of Sheffield (School of Clinical Dentistry) in regard to how humans impact the environment through overuse of resources. Examples of lectures containing some information regarding climate change are the materials lectures in the 2nd BDS theme of BODC (basic oral and dental care). It is then again mentioned across the materials lectures in the 4th BDS theme of ICP (integrated clinical practice).

3. OFFER ELECTIVES AND STUDENT SELECTED COMPONENTS

In addition to the core curricular content on planetary health and environmental health required for all students, schools should provide opportunities for deeper exploration for interested students, such as electives, community engagement opportunities, and optional reading.

(Continued.)

Examples include:

• At King's College London (The Faculty of Dentistry, Oral and Craniofacial Sciences [FoDOCS]) n BDS2, the Student Selected Component II module provides students with the opportunity to conduct a 5000-word literature review on a title that they select from a list of 200+ predetermined titles. One of the titles in this list is titled 'Sustainability in Dentistry'- this title has been selected and has given a student the opportunity to investigate any primary studies and systematic reviews on this topic. This title also gives the student an insight to investigate how sustainable oral healthcare can be delivered, enabling the student to take ownership in the field of research and how it can be implemented.

4. PROVIDE CLINICAL COMMUNICATION SKILLS

Research shows that community members rely on their primary care doctor for information on climate change. However, most medical students feel unprepared to answer patient questions on climate change. Therefore, medical schools should include a clinical curriculum on taking an environmental history and communicating information on planetary health to patients.

5. RESPECT FOR INDIGENOUS KNOWLEDGE & CENTER EQUITY

In teaching about planetary health and climate change, the curriculum should acknowledge how Indigenous communities, who have long lived in harmony with the planet, have knowledge and value systems that are an essential part of the solution. This topic should be covered across all health professional education internationally regardless of whether indigenous populations are locally present. Also ensuring that planetary health and environmental health curricular content and auxiliary opportunities center the disproportionate impact of all health effects on vulnerable populations, such as communities of color, low-income communities, Indigenous populations, and older adults.

(Continued.)

Examples include:

• At King's College London (The Faculty of Dentistry, Oral and Craniofacial Sciences [FoDOCS]), the Clinical Humanities module brought on a speaker that discussed in depth the impact of toxins and pollutants, and the consequences this may have on climate change. There was an emphasis with regards to the various vulnerable populations and the impacts that they face, with references to evidence-based data. When considering the vast detail that can be potentially covered, the dental curriculum touches the surface level of content.

6. DELIVER SOLUTION-ORIENTATED SUSTAINABLE HEALTHCARE TEACHING ALONGSIDE PROGRESSIVE AFFILIATED HOSPITALS

Students must understand that healthcare provision significantly contributes to environmental degradation and therefore patient morbidity. They must learn ways to mitigate this impact, including carrying out Sustainability Quality Improvement projects. For this learning to be effective, associated hospitals should be promoting sustainable practices and educating staff and patients.

7. PROVIDE MENTORSHIP INCLUDING A DEDICATED FACULTY POST

Facilitate accessible mentorship of students with an interest in planetary health. Create a dedicated paid faculty position to oversee planetary health curricular integration, student mentorship, and other planetary health initiatives.

Examples include:

• At University of Sheffield (School of Clinical Dentistry), Several faculty members run programmes/focus groups to get the student body and other faculty thinking about sustainability and planetary health. However, engagement is not always high. The university also has a website on sustainable dentistry that is available to everyone, and highlights the importance of 'reducing waste plastics and related CO2 emissions' in the Clinical Dentistry Sector. This website also includes the works of Sheffield's academics in relation to the Universities Grantham Centre outlining how dentistry could develop more sustainable practices.

(Continued.)

- At King's College London (The Faculty of Dentistry, Oral and Craniofacial Sciences [FoDOCS]) there are identified researchers within the faculty who are working on global oral health and education for sustainable oral healthcare.
- Vokkaligara Sangha Dental College & Hospital have individual faculty members conducting research related to planetary health that also serve as Faculty Lead and Mentors for the Planetary Health Student Club.
- There are multiple faculty members at University of Sheffield (School of Clinical Dentistry) who are active in the field of sustainable dentistry research and who are founding members of sustainability groups in global organisations, however, none of them have it as their primary field of research.

8. SUPPORT STUDENTS TO FACILITATE THEIR LEADERSHIP

Create funded opportunities for students to engage with planetary health, environmental health, and sustainability, such as sustainability grants, research fellowships, student groups, and community-based projects. Support student advocacy efforts and take action in response to student input.

Examples include:

- Furthermore, the dental school (at King's College London) has promoted the King's Innovative and Sustainable Dentistry Society- a student-led society which aims at encouraging and motivating students to critically evaluate and consider the development of the profession. The society has held extra-curricular talks on topics such as Digital Technology in Dentistry.
- Vokkaligara Sangha Dental College & Hospital has a dedicated student-led club called the Planetary Health Student Club dedicated to carrying out events and activities related to planetary health and environment. The students of the club also formulated "Sustainability Guidelines" for college events and meetings.

9. PRIORITIZE COMMUNITY ENGAGEMENT

Partner with community organizations, develop community-facing courses on planetary health, and include planetary health in patient educational materials and marketing.

10. LAUNCH AN INTERDISCIPLINARY CENTER

Institutions should create interdisciplinary centers with education, research, policy, and community engagement pillars that focus on the intersections between climate change, the environment, and health, bridging traditional divides among disciplines to ensure collective vision, problem-solving and action.

11. ADVANCE RESEARCH

There is a significant gap in research along the topics of oral health, sustainable oral health care and climate impacts on oral health. Encouraging interdisciplinary research on planetary health and environmental health topics by facilitating research networks, awarding funding, hosting conferences, and recruiting researchers actively exploring these subjects within the dental school rather than the institution will truly make a huge difference.

12. IMPLEMENT DAY TO DAY SUSTAINABLE PRACTICES ON CAMPUS

Create an environmentally sustainable learning and working environment by setting and following guidelines for supply procurement, lab spaces, events, and buildings.

Examples include:

- Dental student laboratory facilities in King's College London (The Faculty of Dentistry, Oral and Craniofacial Sciences [FoDOCS]), gypsum dental models used for teaching tooth morphology through a wax-up protocol are usually re-used for the next cohort- they are steam cleaned and safe to use again. This helps minimise plaster waste. Other dental models are recycled in a similar way whenever possible. If gypsum models cannot be reused, there is a protocol for disposal that is carefully followed. There are separate bins in the lab for domestic waste, recyclables, and plaster/gypsum waste. Students have sometimes used Agar to replicate gypsum models, and this Agar is never wasted and is usually reheated and reused. Plastic teeth used for phantom head training purposes are retained by the student for assessment and portfolio purposes, and so the disposal of this is at the student's discretion.
- Planetary Health Student Club of Vokkaligara Sangha Dental College & Hospital
 has given <u>Sustainability Guidelines</u> for college meetings and events. Though the
 dental college strongly recommends sustainability measures, but they are not still
 not mandatory.

7. LIMITATIONS

The 2024 Planetary Health Report Card is the first iteration of the initiative with the first metrics. Despite our extensive efforts to hone this initiative's metrics, process, and impact, we recognize that there are some limitations, as outlined below.

Overall Generalizability

While we do our best to keep our metrics specific and clear with guidelines for evaluation and accompanying examples, the report card does have some degree of subjectivity given that metrics are interpreted by students and staff at different medical schools. For example, teams at different schools may have differences in their interpretation of what constitutes content being covered "briefly" vs "in depth" in the curriculum. Although all report cards were read and edited by members of the leadership team to maximize consistency, this subjective element cannot be avoided completely. In the future, we hope to formally evaluate inter-rater concordance.

International Bias

As the metrics were originally created in accordance with the United Kingdom and Indian educational system and adapted from the medicine template that was created with U.S medical Education in mind there might be some unintentional cultural bias. As we continue to expand globally, we will work to anticipate and respond to feedback regarding international generalizability and cultural bias.

Expanded Reach

This initiative for dentistry is in its first year and we hope expand and collaborate by forming alliances and envisioning future collaborations globally to increase our reach and impact.

Metrics

This year's metrics was the pilot and there were certain queries on the metrics from students completing the Report Card. We plan to refine the metrics based on this feedback to improve the clarity of the questions and minimize subjectivity in the responses in coming years.

8. FUTURE DIRECTIONS

The 2024 Planetary Health Report Card marks our **1st year of student advocacy** in planetary oral health education. Inspired by the desperation to see climate change taught in health professional curriculums, we hope to grow further in the coming years. We hope to see more schools participate and improve our metrics as we move forward.

Each year we strive to develop, the leadership team gets bigger, new ideas come and go, students graduate, and another cycle begins in October. So what's next, where do we go from here? Below we outline our goals for the future:

GOAL 1: ENGAGE OUR COMMUNITY BEYOND THE REPORT CARDS

The aim of the report card is to be not only a template for compiling information on institutional planetary health engagement, but also a tool for institutional advocacy. **Our goal is to improve the utilization of PHRC data, networks and community** through faculty development days, facilitating school-to-school partnerships, exploring our data through research and collaborating with partners to promote planetary health development all year round. Not just identifying a school's strengths and weaknesses but taking an active approach to support their development too. Through our partnership with Climate Resources for Health Education,we have mapped each PHRC metric to their curricula materials offering convenient and accessible solutions for institutions to improve specific metrics.

GOAL 2: INTERNATIONAL DIVERSITY AND COLLABORATION WITH MORE SCHOOLS

The PHRC will always be **a student-driven initiative** and rely on the generosity and passion of the student teams completing the report cards. We hope the initiative grows in new and exciting ways. Our goal is to collaborate with more schools and students to take this next step in our journey and ensure the longevity and value of the initiative for the future.

9. AUTHORS & LEADERSHIP

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10. FACULTY ADVISORY BOARD

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11. ACKNOWLEDGMENTS

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Thank you to White Coats 4 Black Lives and their impactful Racial Justice Report Card for inspiration.

Thank you to the Planetary Health Alliance, who gave us the opportunity to present this idea at the 2019 Planetary Health Annual Meeting.

Thank you to Medical Students for a Sustainable Future, a national group of medical students advocating for planetary health, for your wonderful, supportive community and collaboration.

Thank you to Bree Zhang (Columbia University, USA), acting student lead during the PHRC initiation in the year 2022.

We would also like to take this opportunity to thank the faculty involved - Dr. Jenny Girdler, Dr. Sushi Kadanakuppe who initiated this pilot back in 2022; Dr. Jonathan Dixon, Dr. Nicolas Martin who have worked for months to get this PHRC Dentistry template into reality in 2023. We would also like to mention the faculty - Dr. Donna M. Hackley, Dr. Elizabeth Shick who have contributed towards the template in the initial stages with their generous feedback and valuable insights.

Lastly, we would like to thank the participating schools, especially the students and faculty involved who have made this pilot happen in such a short span of time: King's College London, Vokkaligara Sangha Dental College & Hospital and University of Sheffield.



12. CONTACT US

We rely on the passion and generosity of the hundreds of students involved in the initiative. If you don't see your **country, school or discipline** represented here we would love to hear from you. If you would like to support the work we are doing please share this report and our initiative with your colleagues, faculty and friends so we can reach as many people as possible.

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13. REPORT CARD SCHOOL TEAMS

INDIA

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SECTION 1: PLANETARY HEALTH CURRICULUM

Today's dental students will be on the frontlines of tackling the health effects of climate and other environmental changes. Therefore, it is critical that dental students are trained to understand the general and oral 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 as applicable to oral health must be part of every dental school's core curriculum.

Environmental threats to Planet Earth

- **1.1.** Climate change and its impacts on humankind and biodiversity
- **1.2.** Pollution and its impacts on humankind and biodiversity
- **1.3.** The impact of climate change and pollution on human health
- **1.4.** Environmental citizenship, the impact of human choices and current and emerging environmental actions

Environmental Impacts of Healthcare

- **1.5** The environmental impact of the health sector
- **1.6** The environmental impact of oral healthcare provision
- 1.7 The environmental impact of different oral healthcare interventions
- 1.8 Measuring the impact that oral healthcare has on the environment

Sustainability in Oral Healthcare

- 1.9 The concept of environmental sustainability
- 1.10. The concept of sustainable healthcare
- **1.11.** The concept of sustainable oral healthcare

Sustainability through good oral healthcare

- **1.12.** The importance of good oral health for delivering sustainable oral healthcare
- **1.13.** The role of oral disease prevention for the delivery of sustainable oral healthcare
- **1.14.** Does your dental school curriculum address the outsized impact of anthropogenic environmental toxins on marginalised populations such as those with low SES, women, communities of colour, children, homeless populations, Indigenous populations, and older adults?
- **1.15.** The role of integrated oral care in delivering sustainable oral healthcare
- **1.16.** The role of ownership of care in delivering sustainable oral healthcare

Making Sustainability Work

- **1.17.** The role of the dental team in the provision of sustainable oral healthcare
- 1.18. Embedding environmental sustainability into patient care in clinical teaching spaces

SECTION 2: INTERDISCIPLINARY RESEARCH

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, dental schools should fund research studying the health effects of climate change and anthropogenic environmental toxins. This obligation is particularly strong because the public and policymakers are more attentive to climate change when its implications for human health are emphasised.

- **2.1.** Are there researchers engaged in Environmental Sustainability in Oral Healthcare research at your dental school?
- **2.2.** Is there a dedicated department or institute for interdisciplinary planetary health research at your institution?
- **2.3.** Environmental Sustainability of the Research Laboratories of the Dental School/College
- **2.4.** Does your institution have a planetary health website that centralises ongoing and past research related to health and the environment?
- **2.5.** Has your institution recently hosted a conference or symposium on topics related to planetary health?
- **2.6.** Is your dental school active in national or international planetary health/environmental sustainability organisations or working groups within wider organisations?

SECTION 3: COMMUNITY OUTREACH AND ADVOCACY

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

- **3.1** Public engagement and participation with the dental school/college through community outreach and advocacy programmes
- **3.2.** Dental school/college engagement and participation in the promotion of postgraduate professional development in environmentally sustainable oral healthcare
- **3.3.** Does your dental school have regular coverage of issues related to planetary health and/or sustainable healthcare in university update communications?
- **3.4.** Dental school/college provision of educational resources for patients for the promotion of environmentally sustainable oral healthcare

SECTION 4: SUPPORT FOR STUDENT-LED PLANETARY HEALTH INITIATIVES

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 dental school or your institution offer support for dental students interested in enacting a sustainability initiative/QI project?
- **4.2.** Does your institution offer opportunities for medical students to do research related to planetary health and/or environmental sustainability?
- **4.3.** Does the dental school have a webpage where medical students can find specific information related to planetary health and/or sustainable healthcare activities and mentors within the medical school? For example, projects achieved, current initiatives underway at the medical school and/or contact of information of potential mentors.
- **4.4.** Does your dental school have registered student groups dedicated towards fostering a culture of planetary health engagement, scholarship, and advocacy on campus, supported by faculty advisors?
- **4.5.** Is there a student liaison representing sustainability interests who serves on a dental school or institutional decision-making council to advocate for curriculum reform and/or sustainability best practices?

SECTION 5: CAMPUS SUSTAINABILITY

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 dental school and/or institution have an Office of Sustainability?
- **5.2.** How ambitious is your institution/medical school plan to reduce its own carbon footprint?
- **5.3.** Institutional (University/Dental School) implementation of Environmental Sustainability strategies
- **5.4.** Has the dental school or institution implemented strategies to encourage and provide environmentally-friendly transportation options for students and reduce the environmental impact of commuting?
- **5.5.** Does your dental school have an organics recycling program (compost) and a conventional recycling program (aluminium/paper/plastic/glass)?
- **5.6.** Does the dental school or institution apply sustainability criteria when making decisions about supply procurement?
- **5.7.** Are there sustainability requirements or guidelines for events hosted at the dental school?
- **5.8.** Does your dental school have programs and initiatives to assist with making lab spaces more environmentally sustainable?