



Planetary Health Report Card (Medicine): *Father Muller Medical College, Mangalore*



2023-2024 Contributing Team:

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Summary of Findings

Overall	D
<u>Curriculum</u>	D
<ul style="list-style-type: none"> At Father Muller Medical College (FMMC), the majority of the topics on Planetary Health are extensively discussed in the core curriculum of Community Medicine for third-year medical students. A few topics were touched upon in the preclinical years as well but overall there is a lack of integration longitudinally. Recommendations: We recommend offering Planetary Health and Healthcare Sustainability as elective courses for final-year medical students, in alignment with the National Medical Commission's new curriculum structure. Additionally, integrating topics like carbon footprint, sustainable diets, and gender impacts of climate change into the curriculum is recommended. 	
<u>Interdisciplinary Research</u>	F
<ul style="list-style-type: none"> FMMC conducts research on Planetary Health topics within its Community Medicine department. However, Father Muller Charitable Institutions currently does not have a centralised database or body that promotes interdisciplinary research on Planetary Health. Recommendations: Recommendations include organising talks and workshops on Planetary Health, joining relevant global platforms like the Health and Environment Leadership Platform and the Global Consortium on Climate and Health Education, fostering multi-disciplinary research collaborations on the impacts of climate change and environmental degradation on health with universities, and encouraging student-led research initiatives with access to institutional and external research grants. 	
<u>Community Outreach and Advocacy</u>	D -
<ul style="list-style-type: none"> FMMC in collaboration with its National Services Scheme (NSS) unit have conducted various events to promote Planetary Health within the community. FMMC and FMMCH currently do not have an accessible educational database for their students, clinicians or patients. Recommendations: Recommendations include: Developing a planetary health database accessible via the institution's official website, for Mangalore's community, serving students, clinicians, and patients; Organising health education sessions in local schools and colleges to enhance awareness about environment and health; Displaying Information, Education, and Communication (IEC) materials on notice boards in both the college and hospital premises to further disseminate essential information. 	
<u>Support for Student-Led Initiatives</u>	C -
<ul style="list-style-type: none"> While FMMC offers research opportunities in Planetary Health to medical students, it's not obligatory. Additionally, there's currently no student organization dedicated to advocating for Planetary Health. Recommendations: The current members of FMMC can consider setting up a student organisation to discuss and advocate for Planetary Health and Sustainability with the help of the Student Development Committee. Conducting campus activities (like recycling campaigns) should be considered. 	
<u>Campus Sustainability</u>	D+
<ul style="list-style-type: none"> FMMC is on the path of becoming a more sustainable campus along with other colleges in the institution by adopting a sustainable waste management system as well as a transportation system within the campus. Recommendations: Consider setting an official plan and time within which the institution can reduce its carbon footprint and achieve carbon neutrality in the near future and improve/introduce sustainable guidelines for events and procurement. 	

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 medical school’s institutional priorities do not reflect the urgency of this danger to human health.

As future health professionals, we must be prepared to address the impacts of human-caused environmental changes on our patients’ health. This preparation is in the hands of the institutions providing our medical training. It is imperative that we hold our institutions accountable for educating medical students about the health impacts of climate change and other anthropogenic environmental changes, generating research to better understand health impacts and solutions, supporting related student initiatives, embracing sustainable practices as much as possible, and engaging with surrounding communities that are most affected by environmental threats. Because climate change and environmental threats disproportionately affect vulnerable populations (for example, communities of colour, older adults sensitive to health threats, and individuals in low-resource settings), these issues are inherently ones of equity and justice.

With the purpose of increasing planetary health awareness and accountability among medical schools, we have created a Planetary Health Report Card that medical students internationally can use to grade and compare their home institutions on an annual basis. This medical-student-driven initiative aims to compare medical schools 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 5) medical school campus sustainability.

Definitions & Other Considerations

Definitions:

- **Planetary Health:** is described by the Planetary Health Alliance as “the health of human civilisation and the state of the natural systems on which it depends.” For example, topics such as climate change, declining biodiversity, shortages of arable land and freshwater, and pollution would all fall under the realm of planetary health. Both planetary health and traditional ‘environmental health’ examine the relationship between human health and the external environment, including extreme temperatures, chemicals, vector-borne diseases, etc. Planetary health explicitly concerns itself with the potential health harms associated with human-caused perturbations of natural systems. Therefore, the human health focus of planetary health makes the field well-adapted for the context of medical school education. Throughout this report card, we use the term planetary health to refer to this broad swath of topics, but resources do not need to explicitly include the term “planetary health” to satisfy the metric.
- **Sustainable Healthcare:** As defined by the Academy of Royal Colleges, sustainable healthcare involves ensuring the ability to provide good quality care for future generations by balancing the economic, environmental, and social constraints and demands within health care settings. A sustainable healthcare system maintains population health, reduces disease burden and minimises use of healthcare services.
- **Education for Sustainable Healthcare (ESH):** is defined as the process of equipping current and future health professionals with the knowledge, attitudes, skills and capacity to provide environmentally sustainable services through health professional education, thus working to decrease the enormous environmental impact of the healthcare industry. Planetary Health Education is an integral part of this education rather than an end in itself. This is because knowledge on Planetary Health is required to be able to fully understand the necessity of sustainable healthcare as well as being part of the broader knowledge needed to fully protect and promote health. In summary, ESH is covered by the three Priority Learning Outcomes of the Centre of Sustainable Healthcare below, and Planetary Health Education is embraced in the first learning objective and is a fundamental requirement to achieve learning outcomes 2 and 3:
 1. Describe how the environment and human health interact at different levels.
 2. Demonstrate the knowledge and skills needed to improve the environmental sustainability of health systems.
 3. Discuss how the duty of a doctor to protect and promote health is shaped by the dependence of human health on the local and global environment.
- **Medical School vs. Institution:** When “medical school” is specified in the report card, this only refers to curriculum and resources offered by the School of Medicine and does not include offerings from other parts of the university (e.g. undergraduate departments (USA), other related departments (e.g. Public Health, Population Health departments). In contrast, when “institution” is specified in the report card, we are referring to the university more

broadly. Any resource reasonably accessible by medical students, no matter where in the institution the resource comes from or if it is specifically targeted for medical students, can meet this metric.

- **Environmental history (Metric #19 in Curriculum Section):** This is a series of questions providers are taught to ask during medical encounters that elicits patients' exposures and environmental risk factors. Historically, this has included consideration of exposures like pesticides, asbestos, and lead, though in the modern era shaped by climate change, it can be expanded to include things like wildfire smoke exposure, air pollution and 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.
- **Elective:** The word "elective" refers to an optional course or lecture series that a medical student can opt to take part in but is not a requirement in the core curriculum. Generally, these elective courses take place in the preclinical curriculum but vary by school.
- **Clerkship:** This is a term used in the USA to refer to placements that medical students go on e.g. Pediatrics, General medicine, Psychiatry. In the UK these are referred to as rotations or placements.

Other considerations:

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

Added to our resources in 2022, the Planetary Health Report Card [Literature Review by Metric](#) collates the evidence behind each of the metrics in the Planetary Health Report Card. It serves as a collection of references for further learning and a resource for those advocating for increased planetary health engagement at their institutions.

Planetary Health Curriculum

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

Curriculum: General

1.1. Did your <u>medical school</u> offer elective courses (student selected modules) to engage students in Education for Sustainable Healthcare or Planetary Health in the last year?	
3	Yes, the medical school has offered more than one elective whose primary focus is ESH/planetary health in the past year.
2	Yes, the medical school has offered one elective whose primary focus is ESH/planetary health in the past year.
1	The medical school does not have any electives whose primary focus is ESH/planetary health, but there are one or more electives that include a lecture on planetary health.
0	No, the medical school has not offered any electives on planetary health or electives that include ESH/planetary health topics in the past year.
Score explanation: Father Muller Medical College has not offered any electives on planetary health or electives that include planetary health in the past year.	

Curriculum: Health Effects of Climate Change

1.2. Does your <u>medical school</u> curriculum address the relationship between extreme heat, health risks, and climate change?	
3	This topic was explored in depth by the core curriculum.
2	This topic was briefly covered in the core curriculum.
1	This topic was covered in elective coursework.
0	This topic was not covered.
Score explanation: Effects of heat stroke, syncope, hyperpyrexia, heat exhaustion and thermal indices of health are covered in the second and third year of MBBS by the Community Medicine department as part of the curriculum.	

1.3. Does your medical school curriculum address the impacts of extreme weather events on individual health and/or on healthcare systems?

3 This topic was explored **in depth** by the **core** curriculum.

2 This topic was **briefly** covered in the **core** curriculum.

1 This topic was covered in **elective** coursework.

0 This topic was **not** covered.

Score explanation: Simulation exercises where effects of natural disasters and health care and how triage is performed in these situations, were done in the third year of MBBS, during our community medicine postings. This helped us understand the direct health impact of disasters that took place as a result of climate change, like floods, heat stroke, and landslides, and how we would assess the victims and provide effective treatment.

1.4. Does your medical school curriculum address the impact of climate change on the changing patterns of infectious diseases?

3 This topic was explored **in depth** by the **core** curriculum.

2 This topic was **briefly** covered in the **core** curriculum.

1 This topic was covered in **elective** coursework.

0 This topic was **not** covered.

Score explanation:

- 1) *In the second year, the microbiology department covers the changing trends of various infectious diseases with changes in the environment.*
- 2) *In the third year, the community medicine department covers this via the chapter on communicable diseases and 'Environment and Health'.*
- 3) *In the fourth year, Internal Medicine has a separate chapter dedicated to climate change and infectious diseases.*

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

3 This topic was explored **in depth** by the **core** curriculum.

2 This topic was **briefly** covered in the **core** curriculum.

1 This topic was covered in **elective** coursework.

0 This topic was **not** covered.

Score explanation:

- 1) *In the second year the Department of Pathology covers this in great detail in the Respiratory Diseases unit*

- 2) *In the third year the Department of Community Medicine's curriculum explains the ill effects of air pollution, like its association with various respiratory and cardiovascular diseases, in the Environment and Health unit.*

1.6. Does your medical school curriculum address the cardiovascular health effects of climate change, including increased heat?

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

Score explanation: Our curriculum does not explore the cardiovascular effects on climate change.

1.7. Does your medical school curriculum address the mental health and neuropsychological effects of environmental degradation and climate change?

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

Score explanation: Our curriculum does not address the effects of environmental degradation and climate change on mental health.

1.8. Does your medical school curriculum address the relationships between health, individual patient food and water security, ecosystem health, and climate change?

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

Score explanation: The relationships between health, individual patient food and water security, ecosystem health, and climate change have been covered extensively during the first, second and third year of MBBS via the following:

- 1) *Didactic classes on 'Determinants of Health' and 'Environment and Health'*
- 2) *In the 2nd year of medical school, under competency CM5.3 of Community Medicine core curriculum issued by NMC, the role of climate change in reducing freshwater resources and*

food production leading to impaired nutrition, health and survival were discussed along with the impact of climate change induced natural calamities on food security.

3) *On-site small group discussions and visits to the Water Treatment Plant, Sewage Treatment Plant, and Solid Waste Management Facility.*

4) *A special game called “The Monsoon Game”, played by the first-year students as part of their foundation course which puts relationships into context via simulation and theatre.*

1.9. Does your medical school curriculum address the outsized impact of climate change on marginalised populations such as those with low SES, women, communities of colour, Indigenous communities, children, homeless populations, and older adults?

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

Score explanation: Our curriculum does not address the outsized impact of climate change on the marginalised populations,

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

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

Score explanation: Our curriculum does not address the unequal regional health impacts of climate change globally.

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

1.11. Does your medical school curriculum address the reproductive health effects of industry-related environmental toxins (e.g. air pollution, pesticides)?

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

Score explanation: Our curriculum does not specifically cover the health effects of industry-related environmental toxins

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

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

Score explanation: Our curriculum explores the human-caused environmental threats relevant to the surrounding community quite extensively via the Family Adoption Programme in the first and second year, the Community Diagnosis data survey in the second year: eg. being in an area that is endemic for malaria, through this community outreach program we can provide education regarding man-made breeding areas of stagnant water collections of the mosquito larvae as well survey the adopted family, and the various theory classes, self-directed learning sessions, and small group discussions conducted by the department of Community Medicine in the third year of MBBS.

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

3	Indigenous knowledge and value systems are integrated throughout the medical school's planetary health education
2	Indigenous knowledge and value systems as essential components of planetary health solutions are included briefly in the core curriculum.
1	Indigenous knowledge and value systems as essential components of planetary health solutions are included in elective coursework.
0	This topic was not covered.

Score explanation: Our curriculum does not address the importance of indigenous knowledge on planetary health solutions.

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

3	This topic was explored in depth by the core curriculum.
2	This topic was briefly covered in the core curriculum.
1	This topic was covered in elective coursework.

0	This topic was not covered.
<i>Score explanation: Our curriculum does not address the impact of anthropogenic toxins on the marginalised populations.</i>	

Curriculum: Sustainability

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

1.16. Does your <u>medical school</u> curriculum address the carbon footprint of healthcare systems?	
3	This topic was explored in depth by the core curriculum
2	This topic was briefly covered in the core curriculum.
1	This topic was covered in elective coursework.
0	This topic was not covered.
<i>Score explanation: Our curriculum does not address the carbon footprint of the healthcare systems.</i>	

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)	
2	The health and environmental co-benefits of avoiding over-medicalisation, over-investigation and/or over-treatment
2	The environmental impact of pharmaceuticals and over-prescribing as a cause of climate health harm. Alternatively teaching on deprescribing where possible and its environmental and health co-benefits would fulfil this metric.
1	The health and environmental co-benefits of non-pharmaceutical management of conditions where appropriate such as exercise or yoga classes for type 2 diabetes; social group activities such as gardening for mental health conditions; active transport such as bicycle schemes. This is commonly known as social prescribing in the UK.
1	Environmental impact of surgical healthcare on planetary health and the climate crisis, and how can it be mitigated

1	The impact of anaesthetic gases on the healthcare carbon footprint and ways to reduce anaesthesia's environmental impacts, such as total intravenous anaesthesia or choosing less environmentally harmful anaesthetic gas options with reduced greenhouse gas emissions
1	The impact of inhalers on the healthcare carbon footprint and the environmental benefit of dry powdered inhalers over metered dose inhalers.
1	Waste production within healthcare clinics and strategies for reducing waste in clinical activities (e.g. single use items in the inpatient or outpatient setting)
	<i>Score explanation: This is included in the competencies under the Community Medicine and Internal Medicine departments in the form of Self Directed Learning sessions, bedside clinics and Small Group Discussions. During internship we are briefed about the health benefits of non-pharmaceutical management of conditions before our rural postings however, the environmental benefits are not touched upon.</i>

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?	
2	Yes, there are strategies introduced for having conversations with patients about climate change in the core curriculum.
1	Yes, there are strategies introduced for having conversations with patients about climate change in elective coursework.
0	No, there are not strategies introduced for having conversations with patients about climate change
<i>Score explanation: Our curriculum does not introduce strategies to have conversations with patients about climate change,</i>	

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?	
2	Yes, the core curriculum includes strategies for taking an environmental history course.
1	Only elective coursework includes strategies for taking an environmental history.
0	No, the curriculum does not include strategies for taking an environmental history.
<i>Score explanation:</i>	
<ol style="list-style-type: none"> 1) All the clinical subjects include taking into consideration the environmental, occupational and residential conditions into account while taking case history 2) In community medicine, during the Clinico-Social Case Discussions, we are taught the importance of taking environmental history and made to understand the pre-disposing environmental factors which lead to serious conditions. 	

Curriculum: Administrative Support for Planetary Health

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

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

Score explanation: There are no improvements to planetary health education in progress in our curriculum.

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

6	Planetary health/ESH topics are well integrated into the core medical school curriculum.
4	Some planetary health/ESH topics are appropriately integrated into the core medical student curriculum.
2	Planetary health/ESH is not integrated and is primarily addressed in (a) standalone lecture(s) .
0	There is minimal/no education for sustainable healthcare.

Score explanation: Some of the aforementioned planetary health/ESH topics are longitudinally integrated into the core medical student curriculum.

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

1	Yes , the medical school has a specific faculty/staff member responsible for overseeing curricular integration of planetary health and sustainable healthcare
0	No , the medical school does not have a specific faculty/staff member responsible for overseeing curricular integration of planetary health and sustainable healthcare.

Score explanation: Currently, there is no faculty employed to specifically oversee and take responsibility for the incorporation of planetary health and sustainable healthcare throughout the course.

Section Total (21 out of 72)

29.17%

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

Interdisciplinary Research

Section Overview: *This section evaluates the quality and quantity of interdisciplinary planetary health research at the medical school and broader institution. Interactions between health and the environment are complex and multifactorial. While climate change has been extensively studied from an environmental science perspective, planetary health is an emerging field. As leading health institutions with talented researchers and research resources, medical schools should fund research studying the health effects of climate change and anthropogenic environmental toxins. This obligation is particularly strong because the public and policymakers are more attentive to climate change when its implications for human health are emphasised.*

2.1. Are there researchers engaged in planetary health research and healthcare sustainability research at your <u>medical school</u>?	
3	Yes, there are faculty members at the medical school who have a primary research focus in planetary health or healthcare sustainability.
2	Yes, there are individual faculty members at the medical school who are conducting research related to planetary health or healthcare sustainability, but it is not their primary research focus.
1	There are planetary health and/or healthcare sustainability researchers at the institution , but none associated with the medical school.
0	No, there are no planetary health and/or healthcare sustainability researchers at the institution or medical school at this time.
<p><i>Score explanation:</i> <i>The staff in the department of Community Medicine Department conduct research related to planetary health but it is not their primary research focus. We have further identified staff who are willing to mentor interested student researchers interested in pursuing research in planetary health and healthcare sustainability.</i> https://www.researchgate.net/publication/377624408_No_Child's_Play_Under-five_Child_Feces_Management_in_a_Rural_Area_of_Bengaluru_Urban_District_India</p>	

2.2. Is there a dedicated department or institute for interdisciplinary planetary health research at your <u>institution</u>?	
3	There is at least one dedicated department or institute for interdisciplinary planetary health research.
2	There is not currently a department or institute for interdisciplinary planetary health research, but there are plans to open one in the next 3 years.
1	There is an Occupational and Environmental Health department , but no interdisciplinary department or institute for planetary health research.
0	There is no dedicated department or institute.
<p><i>Score explanation:</i> <i>There is no dedicated department or institute to support this metric</i></p>	

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 medical school?

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

Score explanation: There is currently no evidence of processes or efforts for this metric

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

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

Score explanation: No website exclusively compiles resources and events related to health and the environment, however, the calls for volunteers for activities organised by the National Services Scheme (NSS) unit of Father Muller Medical College are advertised and recorded on the official Instagram page of the institution

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

4	Yes, the medical school has hosted at least one conference or symposium on topics related to planetary health in the past year.
3	Yes, the institution has hosted at least one conference or symposium on topics related to planetary health in the past year.
2	Yes, the institution has hosted a conference on topics related to planetary health in the past three years.

1	The institution has not hosted any conferences directly, but they have provided financial support for a local planetary health event.
0	No, the institution has not hosted a conference on topics related to planetary health in the past three years.
<i>Score explanation: There is currently no evidence for this metric</i>	

2.6. Is your <u>medical school</u> a member of a national or international planetary health or ESH organisation?	
1	Yes, the medical school is a member of a national or international planetary health or ESH organisation
0	No, the medical school is not a member of such an organisation
<i>Score explanation: The institution is not a member of a national or international planetary health or ESH organisation.</i>	

Section Total (2 out of 17)	11.76%
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Are there additional research resources offered at your medical school or institution not yet asked about that you would like to describe? If so, please do so below.

Community Outreach and Advocacy

Section Overview: *This section evaluates medical school engagement in community outreach and advocacy efforts associated with planetary health. Researching and teaching planetary health is necessary but not sufficient. It is critical that institutions also directly engage with communities most affected by environmental health harms. Although climate change is a problem largely created by those with power and resources, its impacts fall disproportionately on under-resourced populations and communities of 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 medical school partner with community organisations to promote planetary and environmental health?	
3	Yes, the medical school meaningfully partners with multiple community organisations to promote planetary and environmental health.
2	Yes, the medical school meaningfully partners with one community organisation to promote planetary and environmental health.
1	The institution partners with community organisations, but the medical school is not part of that partnership.
0	No, there is no such meaningful community partnership.
<p><i>Score explanation: The NSS unit of Father Muller Medical College took part in the ‘Mega Cleanliness Drive’ along the coastline of the city initiated by Mangalore city corporation under the team name “ Mangalore Swachhata Soldiers” at Panambur beach, in accordance with Swachh Bharat Mission launched by the Government of India .Around 124 volunteers took part in the program and worked together to clean plastic and glass waste from the beach.</i></p>	

3.2. Does your medical school offer community-facing courses or events regarding planetary health?	
3	The medical school offers community-facing courses or events at least once every year.
2	The medical school offers courses or events open to the community at least once per year, but they are not primarily created for a community audience.
1	The institution has offered community-facing courses or events, but the medical school was not involved in planning those courses or events.
0	The institution/medical school have not offered such community-facing courses or events.
<p><i>Score explanation: The institution has offered community-facing courses or events, but the Medical School was not involved in planning those courses or events</i></p> <ul style="list-style-type: none"> • <i>Reducing, reusing and recycling plastics for a better tomorrow is the need of the hour. With this motto, the Swachh Bharat Club and Institutional Values and Best Practices Committee of</i> 	

Father Muller College of Nursing (FMCON) in association with CODP (Canara Organization for development and Peace), Mangalore, initiated a project of reducing waste plastics by remodeling them into useful commodities
<https://www.instagram.com/p/C2Ox1p-MXTM/?igsh=MTNnOWw1ZHN0MmF0dg==>)

- On the occasion of Gandhi Jayanthi on Oct 2nd, 2021 student volunteers of Clean Up Drive aimed at ridding a stretch of the road outside the institution was planned by the students of the Father Muller College of Speech and Hearing in association with the Swachh Bharat NSS activity along with volunteers from Father Muller Medical College and Father Muller Medical College of Nursing
<https://www.instagram.com/p/CUoomCBiYnv/?igsh=MXI5Nm1lbzJ4ajNqbg==>

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

2	Yes, all students regularly receive communication updates dedicated to planetary health and/or sustainable healthcare.
1	Yes, planetary health and/or sustainable healthcare topics are sometimes included in communication updates.
0	Students do not receive communications about planetary health or sustainable healthcare.

Score explanation: The students do not receive communication about planetary health or sustainable healthcare

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?

2	Yes, the institution or main affiliated hospital trust offers multiple in-person or online courses relating to planetary health and/or sustainable healthcare for post-graduate providers, including at least one with a primary focus of planetary health.
1	Yes, the institution or main affiliated hospital trust offers one course relating to planetary health and/or sustainable healthcare for post-graduate providers
0	There are no such accessible courses for post-graduate providers

Score explanation: The institution does not offer courses for post-graduate providers

3.5. Does your medical school or its affiliated teaching hospitals have accessible educational materials for patients about environmental health exposures?

2	Yes, the medical school or all affiliated hospitals have accessible educational materials for patients.
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1	Some affiliated hospitals have accessible educational materials for patients.
0	No affiliated medical centres have accessible educational materials for patients.
<i>Score explanation: No affiliations or programs are providing educational material about environmental health exposures to patients.</i>	

3.6. Does your <u>medical school</u> or its <u>affiliated teaching hospitals</u> have accessible educational materials for patients about the health impacts of climate change?	
2	Yes, the medical school or all affiliated hospitals have accessible educational materials for patients.
1	Some affiliated hospitals have accessible educational materials for patients.
0	No affiliated hospitals have accessible educational materials for patients.
<i>Score explanation: The medical school or affiliated institution does not have accessible educational materials for patients regarding the health impacts of climate change</i>	

Section Total (3 out of 14)	21.43%
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Are there additional community engagement and advocacy resources offered at your medical school or institution not yet asked about that you would like to describe? If so, please do so below.

Support for Student-Led Planetary Health Initiatives

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

4.1. Does your <u>medical school</u> or your <u>institution</u> offer support for medical students interested in enacting a sustainability initiative/QI project?	
2	Yes, the medical school or institution <i>either</i> offers grants for students to enact sustainability initiatives/QI projects <i>or</i> sustainability QI projects are part of the core curriculum.
1	The medical school or 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.
0	No, neither the medical school or the institution offer opportunities or support for sustainability initiatives or QI projects.

Score explanation: Father Muller Medical College does offer support and the necessary resources to students interested in enacting SusQI projects. Students can conduct Audits in various departments in the hospital, collect relevant data pertaining to the area they would like to study over a few weeks and present their findings to a panel of Doctors in the Internal Quality Assurance Cell before and after incorporating the changes to appreciate the improvement. For example, the Antimicrobial Stewardship Program and Limited cannula insertions in Intensive care units are some ongoing quality-improvement projects underway. However, it purely depends on the interest and initiative of the student to conduct such projects.

4.2. Does your <u>institution</u> offer opportunities for medical students to do research related to planetary health and/or sustainable healthcare?	
2	The institution has a specific research program or fellowship for students interested in doing planetary health/sustainable healthcare research.
1	There are research opportunities for students to perform research related to planetary health/sustainable healthcare, but these require student initiative to seek these out and carry them out in their spare time.
0	There are no opportunities for students to engage in planetary health/sustainable healthcare research.

Score explanation: At Father Muller Medical College, The Father Muller Research Centre is established to encourage students to conduct research in any speciality, provide them with a mentor to advise them throughout the process and guidance through grant applications. There are opportunities for undergraduates to submit their research for funding such as the ICMR STS program, RGUHS STS, etc. However, there is no specific research/fellowship program for students dedicated entirely to Planetary Health topics.

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

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

Score explanation: There is no specific/separate webpage on Planetary health/ sustainable healthcare projects available at the moment.

4.4. Does your medical school have registered student groups dedicated towards fostering a culture of planetary health engagement, scholarship, and advocacy on campus, supported by faculty advisors?

2	Yes, there is a student organisation with faculty support at my medical school dedicated to planetary health or sustainability in healthcare.
1	Yes, there is a student organisation at my medical school dedicated to planetary health or sustainability in healthcare but it lacks faculty support .
0	No, there is not a student organisation at my institution dedicated to planetary health or sustainability in healthcare.

Score explanation: No there isn't a student organisation dedicated to Planetary Health or Sustainability in healthcare, but the institute is open to new initiatives.

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

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

Score explanation: The Student Council has a representative, from the Student Development Committee who liaisons the interests of the general student body such as initiating new clubs, student engagement events etc, to the administrative body through monthly student council meetings attended by

administrative staff as well as student representatives from various student organisations within the institution.

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)

1	Projects where students are able to gain experience in organic agriculture and sustainable food systems, such as gardens, farms, community supported agriculture (CSA), fishery programs, or urban agriculture projects.
1	Panels, speaker series, or similar events related to planetary health that have students as an intended audience.
1	Events in which students learn directly from members of a local environmental justice community about the climate and environmental challenges they face, and how health professionals can partner with their community to address these exposures and impacts.
1	Cultural arts events, installations or performances related to planetary health that have students as an intended audience.
1	Local volunteer opportunities related to building community resilience to anthropogenic environmental impacts.
1	Wilderness or outdoors programs (e.g., that organise hiking, backpacking, kayaking, or other outings for students)
	<p><i>Score explanation:</i></p> <p>1) During the annual intercollegiate fest Adrenaline and unter-batch Cultures every year there is an event under the Arts Category called "Not-a-Waste" in which the participants have to make art pieces on a given theme using waste materials which includes scrap paper, old newspaper, scrap cloth pieces used plastics material etc</p> <p>2) Students are encouraged to volunteer in the many awareness campaigns run by the NSS unit e.g. The Clean Up Drive aimed at ridding a stretch of the road outside the institution was planned by the students of the Father Muller College of Speech and Hearing in association with the Swachh Bharat NSS activity along with volunteers from Father Muller Medical College and Father Muller Medical College of Nursing</p> <p>3) FMCC with the backing of FMCI organised a marathon called 'Kudla Runs for No Drugs' in December 2023 to raise awareness against drug abuse, promote positive effects of exercising outdoors and also to raise awareness for the need of having accessible green spaces to exercise.</p>

Section Total (6 out of 15)

40.00%

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

Campus Sustainability

Section Overview: *This section evaluates the support and engagement in sustainability initiatives by the medical school and/or institution. The healthcare industry is a major contributor to greenhouse gas emissions as well as pollution that harms local, regional, and global ecosystems. While healthcare is, by nature, a resource-intensive 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 <u>medical school</u> and/or <u>institution</u> have an Office of Sustainability?	
3	Yes, there is an Office of Sustainability with multiple full-time staff dedicated to campus sustainability. If the Office of Sustainability serves the entire campus, there is at least one designated staff member for sustainability at the hospital and/or medical school.
2	There is an Office of Sustainability with one or more full-time staff dedicated to campus sustainability, but no specific staff member in charge of medical school and/or hospital sustainability.
1	There are no salaried sustainability staff , but there is a sustainability task force or committee
0	There are no staff members or task force responsible for overseeing campus sustainability
<p><i>Score explanation: The institution has no salaried sustainability staff, but has adopted a well-defined policy at the management level to ensure a green campus and has laid down standard guidelines to make the campus eco-friendly.</i></p>	

5.2. How ambitious is your <u>institution/medical school</u> plan to reduce its own carbon footprint?	
5	The institution/medical school has a written and approved plan to achieve carbon neutrality by 2030
3	The institution/medical school has a written and approved plan to achieve carbon neutrality by 2040
1	The institution/medical school has a stated goal of carbon neutrality by 2040 but has not created a plan to reach that goal or the plan is inadequate
0	The institution/medical school does not meet any of the requirements listed above
<p><i>Score explanation: FMMC depends on renewable sources for its power thereby minimising energy from non-renewable sources of energy. Emissions of CO2 and other greenhouse gases are below the allowed permissible levels per the regulations laid by the Air Pollution Control Board. The institution emphasises a green campus growing around 71 species of plants, climbers, herbs and shrubs. FMMC also celebrates Vanamahotsava every year by planting new saplings as an initiative to neutralise the CO2 emissions, in addition to ensuring restricted entry of vehicles</i></p>	

	<i>within the campus thus avoiding unnecessary movement that will in turn increase CO2 emission from vehicles. However, there is no distinct objective to attain carbon neutrality</i>
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5.3. Do buildings/infrastructure used by the <u>medical school</u> for teaching (not including the hospital) utilize renewable energy?	
3	Yes medical school buildings are 100% powered by renewable energy
2	Medical school buildings source >80% of energy needs from off-site and/or on-site renewable energy.
1	Medical school buildings source >20% of energy needs from off-site and/or on-site renewable energy.
0	Medical school buildings source <20% of energy needs from off-site and/or on-site renewable energy.
<p><i>Score explanation: FMMC depends on renewable sources for its power thereby minimising energy from non-renewable sources of energy. FMMC uses hydroelectric energy for day-to-day functioning. 90% of the power supply to the medical college is met through hydroelectric energy which is procured by the institution through MESCOM, a third party that sources multiple renewable modes of energy. Around 10% of the energy requirement is met through generators run by diesel as fuel used in case of emergencies such as power cuts. Solar energy via heating panels placed on the roofs of hostels and hospitals is used to supply hot water. Emissions of CO2 and other greenhouse gases are below the allowed permissible levels per the regulations laid by the Air Pollution Control Board. The institution emphasises a green campus growing around 71 species of plants, climbers, herbs and shrubs. FMMC also celebrates Vanamahotsava every year by planting new saplings as an initiative to neutralise the CO2 emissions, in addition to ensuring restricted entry of vehicles within the campus thus avoiding unnecessary movement that will in turn increase CO2 emission from vehicles. However, there is no distinct objective to attain carbon neutrality</i></p>	

5.4. Are sustainable building practices utilised for new and old buildings on the <u>medical school</u> campus, with design and construction of new buildings and remodelling of old buildings conforming to a published sustainability rating system or building code/guideline?	
3	Yes, sustainable building practices are utilised for new buildings on the medical school campus and the majority of old buildings have been retrofitted to be more sustainable.
2	Sustainable building practices are utilised for new buildings on the medical school campus, but most old buildings have not been retrofitted .
1	Sustainable building practices are inadequately or incompletely implemented for new buildings.
0	Sustainability is not considered in the construction of new buildings.
<p><i>Score explanation: During the construction of new buildings, energy conservation is promoted by the use of alternate energy initiatives like solar water heating panels, LED lights and solar lights. Solar water heaters are installed in all the hostels, staff quarters, and hospitals. Traditional old electric bulbs are replaced by energy-conserving LED bulbs and tube lights. Alternative sources of Energy are used to conserve energy. Source:</i> https://fathermuller.edu.in/medical-college/images/FMMC-AQAR-2019-20.pdf</p>	

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

2	Yes, the medical school or 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.
1	The medical school or institution has implemented some strategies to provide environmentally-friendly transportation options, but the options are unsatisfactorily accessible or advertised.
0	The medical school or institution has not implemented strategies to encourage and provide environmentally-friendly transportation options.

Score explanation:

The institution has taken efforts to provide environmentally friendly transportation by making available a battery powered electric vehicle for the movement of staff, students and patients/patient relatives within the campus. Moreover, the location of the institution is not amenable to unsustainable forms of transport by default and encourages staff and students to commute via public transport, bicycles and car pooling. The institution refrains its students from commuting in their own vehicles to the campus. An undertaking on the same is signed by the parents and students at the time of admission. For support staff, the institution has provided college buses with a capacity of 40 persons, to assist them in their daily commute, thereby reducing individual vehicles.

5.6. Does your medical school have an organics recycling program (compost) and a conventional recycling program (aluminium/paper/plastic/glass)?

2	Yes, the medical school has both compost and recycling programs accessible to students and faculty.
1	The medical school has either recycling or compost programs accessible to students and faculty, but not both.
0	There is no compost or recycling program at the medical school.

The medical college and hospital buildings all have multiple waste bins located around campus for trash, recycling and composting. Waste bins are placed in all accessible locations including dining halls, corridors outside laboratories and near main entrances of buildings. Waste disposal is strictly carried out through Karnataka biomedical waste management and NABH guidelines. All the wet waste generated in the hospital, college, hostels and staff quarters is transported to the wet waste management unit/ wastewater recycling system located within the campus.

5.7. Does the medical school apply sustainability criteria when making decisions about the campus food and beverage selections (e.g. local sourcing, reduced meat, decreased plastic packaging)?

3	Yes, the medical school has adequate sustainability requirements for food and beverages, including meat-free days or no red-meat, and is engaged in efforts to increase food and beverage sustainability.
2	There are sustainability guidelines for food and beverages, but they are insufficient or optional . The medical school is engaged in efforts to increase food and beverage sustainability.
1	There are sustainability guidelines for food and beverages, but they are insufficient or optional . The medical school is not engaged in efforts to increase food and beverage sustainability.
0	There are no sustainability guidelines for food and beverages.
<i>Score explanation: There are no sustainability guidelines for food and beverages on campus</i>	

5.8. Does the <u>medical school</u> or <u>institution</u> apply sustainability criteria when making decisions about supply procurement?	
3	Yes, the medical school has adequate sustainability requirements for supply procurement and is engaged in efforts to increase sustainability of procurement.
2	There are sustainability guidelines for supply procurement, but they are insufficient or optional . The medical school is engaged in efforts to increase sustainability of procurement.
1	There are sustainability guidelines for supply procurement, but they are insufficient or optional . The medical school is not engaged in efforts to increase sustainability of procurement.
0	There are no sustainability guidelines for supply procurement.
<i>Score explanation : There are no sustainability criteria at present</i>	

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

5.10. Does your <u>medical school</u> have programs and initiatives to assist with making lab spaces more environmentally sustainable?	
2	Yes, the medical school has programs and initiatives to assist with making lab spaces more environmentally sustainable.
1	There are guidelines on how to make lab spaces more environmentally sustainable, but not programs or initiatives.

0	There are no efforts at the medical school to make lab spaces more sustainable.
<p><i>Score explanation: The laboratories in FMMC are accredited by the NATIONAL ACCREDITATION BOARD FOR TESTING AND CALIBRATION LABORATORIES with audits every 2 years.</i></p> <p><i>Environmental sustainability is a criterion for accreditation by the NABL.</i></p> <p><i>Colour-coded segregation of biomedical waste is done in the collection area of the hospital and handed over to the certified handler RAMKY(common waste management facility approved by Karnataka pollution board) with whom the institution has a memorandum of understanding</i></p>	

5.11. Does your <u>institution's</u> endowment portfolio investments include fossil-fuel companies?	
4	The institution is entirely divested from fossil fuels and has made a commitment to reinvest divested funds into renewable energy companies or renewable energy campus initiatives.
3	The institution is entirely divested from fossil fuels.
2	The institution has partially divested from fossil fuel companies or has made a commitment to fully divest , but currently still has fossil fuel investments.
1	The institution has not divested from fossil-fuel companies, but faculty and/or students are conducting organised advocacy for divestment.
0	Yes, the institution has investments with fossil-fuel companies and there have been no efforts to change that.
<p><i>Score explanation: The institution's endowment portfolio investments do not include fossil-fuel companies. However, there are some third-party companies whose energy source could not be determined.</i></p>	

Section Total (12 out of 32)	37.50%
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Are there additional sustainability resources offered at your medical school or institution not yet asked about that you would like to describe? If so, please do so below.

Grading

Section Overview

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

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

Planetary Health Grades for Father Muller Medical College, Mangalore

The following table presents the individual section grades and overall institutional grade for Father Muller Medical College, Mangalore on this medical-school-specific Planetary Health Report Card.

Section	Raw Score %	Letter Grade
Planetary Health Curriculum (30%)	$(21/72) \times 100 = 29.17\%$	D
Interdisciplinary Research (17.5%)	$(2/17) \times 100 = 11.76\%$	F
Community Outreach and Advocacy (17.5%)	$(3/14) \times 100 = 21.43\%$	D-
Support for Student-led Planetary Health Initiatives (17.5%)	$(6/15) \times 100 = 40.00\%$	C-
Campus Sustainability (17.5%)	$(12/32) \times 100 = 37.50\%$	D+
Institutional Grade	$(29.17 \times 0.3 + 11.76 \times 0.175 + 21.43 \times 0.175 + 40.00 \times 0.175 + 37.50 \times 0.175) = 28.12\%$	D