

## COMMENTARY

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# Future-Proofing Malaysian Doctors: Integrating the United Nations Sustainable Development Goals and Planetary Health in Undergraduate Medical Education

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## ABSTRACT

The United Nations Sustainable Development Goals (SDGs) encompass 17 interconnected objectives aiming to eliminate hunger and terminate poverty by 2023, while planetary health examines the interplay between human-caused disruptions to the environment and their impact on human health. Doctors, at the forefront of healthcare, play a crucial role in promoting well-being and advocating sustainable health. It is therefore crucial to ensure the next generation of doctors are taught about SDGs and planetary health. However, research has shown a gap in the incorporation of these vital concepts into Malaysian undergraduate medical curricula due to various challenges faced by medical schools. We propose a multifaceted approach to address these issues. Through implementation of these recommendations, medical schools will be equipped to bridge the knowledge gap and prepare future-proof doctors for a healthier and more sustainable world.

**Keywords:** Sustainable Development Goals, planetary health, medical education, Malaysia, curriculum integration

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## INTRODUCTION

The Sustainable Development Goals (SDGs) (also called the Global Goals) represent a global call to action initiated by the United Nations (UN) to safeguard the planet and eradicate poverty. The primary goal of the SDGs is to ensure a future in which every individual enjoys prosperity and peace by 2030. The SDGs started in 2015 as 17 interconnected objectives, and they have been adopted by all United Nations Member States. These objectives serve as a blueprint for the achievement of a more equitable and sustainable future by 2030 (1). Figure 1 shows the 17 Sustainable Development Goals, which address global challenges such as health, education, and environmental sustainability. For medical education, the goals identify the roles of healthcare professionals in promoting health equity, reducing inequality, addressing climate change-related health problems, and providing interdisciplinary responses to global health challenges.



**Figure 1** The 17 United Nations Sustainable Development Goals. These goals are highly relevant to medical education as they emphasize doctors' roles in health equity, climate action, and global health collaboration.

On the other hand, planetary health, a concept launched by the Rockefeller Foundation-Lancet Commission in 2015, can be defined as "the health of human civilization and the state of the natural systems on which it depends"(2). Essentially, planetary health looks into the interplay between activities that cause harm to the environment and their impact on human health. Urbanization, deforestation, industrialization and overuse of antibiotics are some examples of these activities, which can result in detrimental consequences such as climate change, a loss of biodiversity, as well as environmental pollution, all of which exert a negative impact on human health.

Today, humanity faces many critical problems related to SDGs and planetary health. Doctors can play a key role in addressing these issues, as they are uniquely positioned to bridge the gap between the general public and scientific community. Doctors can be advocates for SDGs and planetary health by raising awareness and educating the community regarding the importance of these issues and their impact on one's health. In one Malaysian study, exposure to common air pollutants was significantly linked to increased hospital admissions related to respiratory and cardiovascular diseases, even when the levels of the air pollutants were within current acceptable standards (3). Findings from this study

reflects the importance of incorporating planetary health into medical education, as medical students must be trained to recognize and address health issues related to environmental factors. Such training empowers them to safeguard public health and adopt sustainable practices effectively.

In the context of SDGs and planetary health, “future-proofing” doctors refers to equipping them with certain skills and competencies, such as the ability to: (i) recognize and address health issues related to environmental change; (ii) advocate for policies that promote environmental sustainability; (iii) apply planetary health principles in their clinical practice; and (iv) educate their patients and the community regarding the link between environment and health. This commentary aims to provide an overview of the current status of, and challenges faced by, Malaysian medical schools concerning the integration of SDGs and planetary health in undergraduate medical education. We also propose a framework and some recommendations for the introduction of these topics into the medical curricula in the Malaysian context.

## **THE CURRENT LANDSCAPE OF SDGS AND PLANETARY HEALTH IN UNDERGRADUATE MEDICAL EDUCATION IN MALAYSIA**

Published literature indicates significant room for improvement in the current Malaysian integration of SDGs and planetary health in medical education. Evaluating this landscape provides a baseline to develop effective strategies for identified gaps and challenges. One instrument used to evaluate this integration is the Planetary Health Report Card (PHCR), which is a student-led initiative assessing medical schools on planetary health integration.

Hampshire et al. (4) used the Planetary Health Report Card (PHCR) to assess the status of planetary health and sustainable healthcare integration in 62 medical schools across 5 countries including Malaysia. Findings showed that there was room for improvement in several areas such as 1) curriculum, 2) research, 3) community outreach and advocacy, 4) support for student-led initiatives and 5) campus sustainability. Pooled results showed that Malaysia scored grades C, D-, C, B- and C in the five areas respectively, with an overall grade of C (Hampshire et al., 2022), whereas the results from one specific Malaysian medical school showed grades B, C+, F, D and D respectively, with an overall grade of D+ (5). The PHCR results indicate moderate integration of planetary health in Malaysian medical education, with an overall grade of C. Student-led activities are well supported (B-), but the remaining areas (ranging from C to D-) need improvement. In particular, one medical school performed better in curriculum (B) but lagged in the remaining areas (with grades ranging from C+ to F), highlighting the need for targeted enhancements.

Currently, there is a lack of studies on the integration of planetary health and SDGs in Malaysian undergraduate medical education; findings from the limited studies in the published literature indicate a significant gap in the incorporation of planetary health and SDGs into the Malaysian medical school curricula (4, 5). This raises concerns about the preparedness of future doctors to address the complex health challenges associated with social, environmental, and economic factors which in turn influence myriad facets of healthcare outcomes.

## CHALLENGES IN INTEGRATING SDGS AND PLANETARY HEALTH IN UNDERGRADUATE MEDICAL EDUCATION

One major challenge is the need to find space to incorporate this important topic into an already crowded medical curriculum. The Malaysian curriculum of undergraduate medical education is regulated by the “Standards for Undergraduate Medical Education” set by the Malaysian Medical Council (MMC) (6). These standards, which must be adhered to in order to gain program accreditation, include a comprehensive list of core competencies that must be delivered within the curriculum. Medical schools are under enormous pressure to impart a vast amount of medical knowledge and core competencies in a limited time. Therefore, it is challenging to introduce new content in addition to the pre-existing crucial medical topics, without placing an overwhelming cognitive load on the medical students as well as the staff.

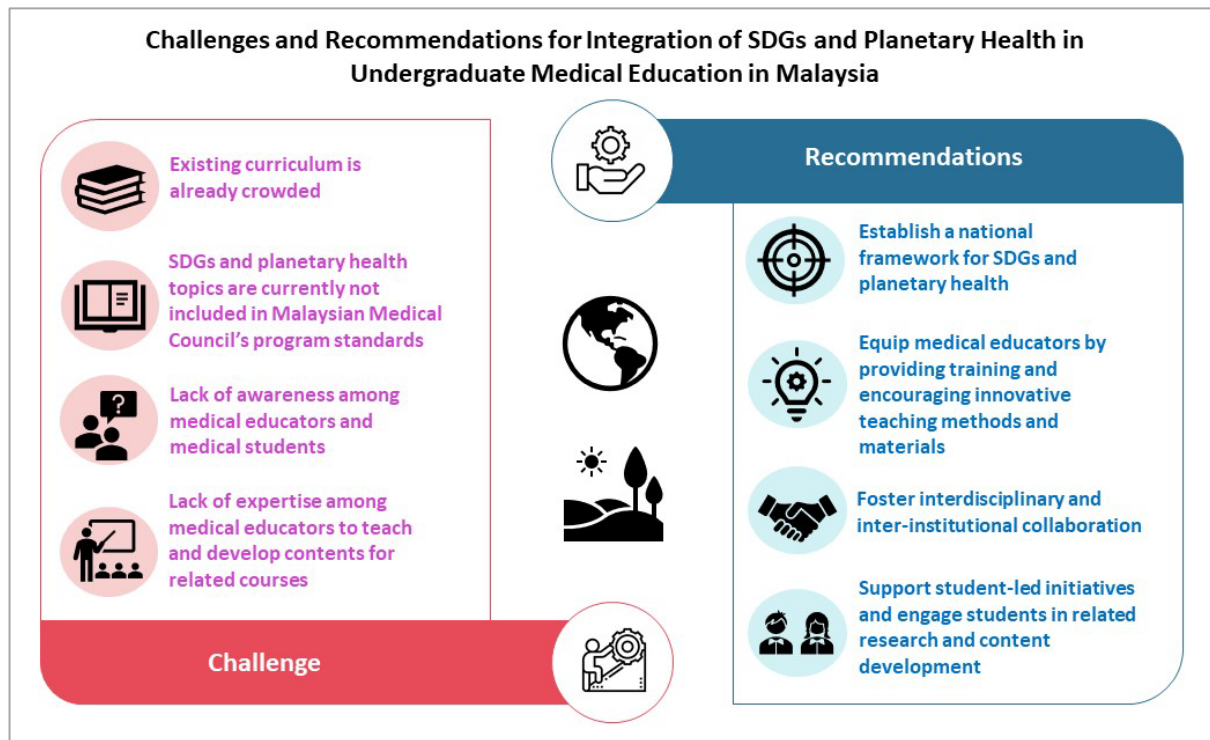
Another challenge is a lack of expertise among medical educators in the field of SDGs and planetary health. Faculty members as a whole have not had the opportunity to receive training in these areas, making them poorly equipped to teach SDG- and planetary health-related courses. These challenges are seen in medical schools worldwide. One study has shown that an Irish medical school faced similar barriers to the integration of SDGs and planetary health in the medical curriculum. These barriers include insufficient awareness among students and educators, limited curricular space and a potential knowledge gap among educators and senior management (7).

## OPPORTUNITIES AND RECOMMENDATIONS

To successfully integrate the SDGs and planetary health into undergraduate medical education in Malaysia, the following recommendations are proposed:

- **Establish a national framework:** The development of a national framework requires a multifaceted approach. The Ministry of Health (MOH), medical schools, experts of the respective fields, as well as other stakeholders need to work together to develop guidelines for integrating the SDGs and planetary health in the medical curriculum. The MMC can then incorporate the essential contents into the Standards for Undergraduate Medical Education, which currently lacks topics on SDGs and planetary health (6).
- **Equip medical educators:** This can be achieved by providing training opportunities for medical faculties in the areas of SDGs and planetary health and encouraging innovative teaching methods and materials that are aligned with the national framework. Some examples include the use of case studies and problem-based learning, allowing students to engage with the SDGs and planetary health in real-world contexts (8, 9).
- **Foster interdisciplinary and inter-institutional collaboration:** Medical schools should encourage interprofessional education and collaboration, which allows students to learn about the SDGs and planetary health from diverse perspectives. Some suggested strategies include working closely with environmental scientists, social scientists and public health experts, as well as joint efforts between medical schools for collaborative projects on SDGs and planetary health and curriculum development (10, 11).
- **Support Student Initiatives:** Medical schools should encourage their students to be advocates for SDGs and planetary health. To date, several medical student-led initiatives are already in place. One good example is the Planetary Health Report Card (PHRC), which is used to assess and improve planetary health contents in the medical curriculum (4). Another example of a student-led initiative is the Medical Students for a Sustainable Future (M4SF). This network of

medical students focusses on preventing and addressing health issues due to climate change (12). In addition, medical schools can engage their students by inviting them to take part in content development of SDGs- and planetary health-related courses, and by supporting research in these areas. Figure 2 shows some key challenges and recommendations to integrate SDGs and planetary health into Malaysia's undergraduate medical education through a multi-pronged approach. Details of this information are further explained in Table 1 with specific examples.



**Figure 2** Challenges and recommendations for integration of SDGs and planetary health in undergraduate medical education in Malaysia.

**Table 1** Challenges and proposed solutions for integrating SDGs and planetary health into medical education.

Challenge	Proposed Solution
Limited curriculum space	Integrate SDG and planetary health topics into existing subjects such as public health, epidemiology, and medical ethics rather than creating standalone courses. For example, planetary health could be included in epidemiology when discussing patterns of disease related to climate change.
Time constraints for educators	Provide ready-to-use teaching resources, such as case studies, online modules, and standardized lecture slides, to minimize preparation time.
Faculty expertise shortage	Offer short professional development workshops and courses on planetary health and SDGs. Foster collaboration with public health and environmental health experts.

Student workload concerns	Use interactive and applied learning strategies (e.g., problem-based learning, case studies) within existing coursework to engage learning without increasing workload.
Siloed learning approaches	Embed SDGs and planetary health content within interdisciplinary projects with environmental science, public health, and social science departments to facilitate diverse perspectives.
Limited institutional support	Drive policy change at the curriculum level to officially include SDGs and planetary health as part of medical education to ensure institutional commitment.

## SELECTED EXAMPLES OF SDGS AND PLANETARY HEALTH IMPLEMENTATION IN MEDICAL EDUCATION

A practical example of integrating sustainability into medical education is demonstrated in Leeds Teaching Hospital's "A Greener Hub" initiative. This initiative made medical training eco-friendlier and more cost-effective by using reusable supplies and teaching students about their impact. Consequently, the initiative led to quantifiable CO<sub>2</sub> and cost savings, demonstrating the viability and efficacy of incorporating sustainability into standard medical training. This serves as a model for other medical schools to educate eco-conscious future doctors (13).

Additionally, the successful application of a Planetary Health Assignment by an Australian university, based on the SDGs, is a useful model for Malaysian medical schools. This case study illustrates the feasibility of incorporating planetary health into current curricula through the replacement of conventional assignments with SDGs-based projects. Through the focus on real-world assessment, learner-centeredness, and creativity, it successfully prepared students with hands-on skills. Malaysian medical school can adopt this model in their context, creating a new generation of doctors who are not only clinically competent but also environmentally conscious and prepared to address the health demands of a changing world (14).

## CONCLUSION

In nurturing future-proof Malaysian doctors, it is important to include SDGs and planetary health in undergraduate medical education. However, these topics are not well-integrated into the existing curriculum as a result of various challenges. The current curriculum is already crowded, and adding new content can further increase the burden of students and educators. Malaysian undergraduate medical education currently lacks sufficient studies on integrating planetary health and SDGs. Furthermore, both students and educators exhibit insufficient awareness, and the expertise to develop and teach these courses is lacking.

We propose a multi-pronged approach to tackling these challenges. The establishment of a national framework by stakeholders is the way forward. Based on the framework, medical schools can work together with other schools and disciplines, train their faculty members and support their student-led initiatives to achieve their shared goals. Together, these measures will help medical schools to successfully incorporate SDGs and planetary health in their curriculum and produce a next generation of doctors who are well-equipped to address health problems related to economic, social and environmental factors.

Therefore, we call on medical educators and policymakers to move forward by initiating policy reforms and integrating SDGs and planetary health into the standards for undergraduate medical education. The Ministry of Health, the Malaysian Medical Council, and higher education institutions must collaborate to develop faculty development programs that equip educators with the knowledge and skills to teach these topics. To avoid overwhelming students and educators, medical schools should incorporate SDGs- and planetary health-focussed contents into existing courses, and provide funding for interdisciplinary and student-led projects to further strengthen these initiatives. Collectively, these practical measures will ensure that the future doctors of Malaysia are well-prepared to address contemporary health challenges.

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