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GENERATIONAL ENDGAME 2.0 (HEBAT): EMPOWERING YOUTH TO END THE TOBACCO EPIDEMIC

“Among youth aged 15-24, the prevalence of e-cigarette use has surged dramatically, increasing from 1.1% in 2011 to 8.6% in 2023, marking a 600% rise over 12 years.”

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Foreword from the Deputy Dean of Research

Dear readers,

Welcome to the second issue of Pulse Magazine for 2025!

I'm truly delighted to share this edition with you, which brings together a rich mix of articles that underscore our shared responsibility in promoting inclusive, innovative, and forward-thinking healthcare under the theme "International Health Day".

Echoing the call of World Disability Day to strengthen support systems for individuals living with disabilities, we include a write-up which speaks of peer support group for individuals with spinal cord injury. Recognising the unique value of lived experience, the initiative featured is a powerful story of how emotional strength, practical guidance, and inspiration from peers who had successfully navigated life with disability can help others rebuild confidence, independence, and a renewed sense of purpose beyond traditional care.

From there, we turn to disease prevention and behavioural health. World No Tobacco Day article renews the appeal for bold effort in tobacco control with youth-led initiative of Generational Endgame, GEG 2.0 - a peer-driven educational campaign through which our very own university students are trained as tobacco cessation advocates who then spearhead interactive school-based programmes on anti-tobacco.

Next up - a sharing on innovative biological method to combat the battle against dengue, using Wolbachia-infected *Aedes aegypti* mosquitoes to commemorate World Dengue Day. This article delves into the country's experience with this promising strategy, the challenges posed by rising temperatures, and why an integrated approach remains vital for sustainable vector control.

On a global note, World Population Day invites us to probe into a write-up advocating for planetary health approach that includes displaced populations in climate and health policies, with a focus on equity, inclusivity, and global responsibility. Similarly, Rare Disease Day highlights the efforts of UMMC's Genetic Medicine unit in diagnosis, research, public awareness - supporting national and global initiatives aimed at making rare diseases a healthcare priority in Malaysia and beyond.

Finally, an article in conjunction with the World Anaesthesia Day outlines the development of a basic life support training module successfully implemented among secondary school students, proven to improve their CPR knowledge, skills, and confidence. This write-up highlights the potential for wider adoption of the training module to build a culture of first responders among the younger generation and improve out-of-hospital cardiac arrest outcomes nationwide.

We are also delighted to bring you The Special Highlight section which includes two articles on sustainability in healthcare. The sharing on Greening@UMHealth Training Series not only outlines the aims of the introductory module, but also features insights from key contributors involved in its development. The second article in this section discusses on elimination of routine postoperative CXRs in clinically stable cardiac surgery patients in favour of a targeted, indication-based approach - saving resources and enhancing patient safety.

Finally, do not miss out on our Special Event section, featuring the 15th National Biomedical Science Symposium, hosted by Universiti Malaya from 31st May to 1st June 2025 which brought together over 250 participants from 11 institutions to celebrate student research and interdisciplinary collaboration!

Indeed, this is yet another issue that honours the tireless efforts of Faculty of Medicine's researchers in seeking impactful solutions to pressing health concerns. May it inspire renewed collaboration and compassionate action across all domains of research!

Happy reading!

PROFESSOR DR. NORAN NAQIAH HAIRI
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From Bedside to Community: Integrating Peer Support into Spinal Cord Injury Rehabilitation



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While medical professionals play a vital role in diagnosing, treating, and educating persons with disabilities about managing their health, there are aspects of recovery and reintegration that extend far beyond the scope of clinical care. As a rehabilitation physician taking care of people with spinal cord injury (SCI), I could treat their bladder issues, teach pressure sore prevention, and counsel families – but I could not teach them how to live with SCI. Navigating the complex realities of daily living, social stigma, and identity in the community requires a different kind of support – one that can only come from someone who has lived through the same experience. This is where peer support groups become indispensable.

Peer support groups, led by individuals who themselves live with disabilities, offer a unique and irreplaceable form of guidance. These are people who have “walked the path” and understand – not just intellectually but also experientially – the emotional, physical, and societal challenges of living with a disability.

They can provide practical advice, encouragement, and role modelling that professionals often cannot. Through shared stories, strategies, and mutual empathy, peer supporters help others regain confidence, reclaim independence, and discover new ways of participating meaningfully in society. This realisation led me to initiate a peer support group for people with spinal cord injury.

The initiative was supported by the UMCares grant, where fourteen former patients who had successfully reintegrated into society received training about peer support from an established peer support leader from India and a psychologist from the United States. This initiative eventually led to the establishment of a society named Malaysia Spinal Cord Injury Advocacy Association (MASAA), which was officially registered under Registration of Society in 2018. It has since played a pivotal role in supporting people with SCI across the country. MASAA provides vital peer support to individuals and their families as they transition back into the community. Information on MASAA's initiatives and impact, is available on their Facebook (<https://www.facebook.com/mymasaa/>) and official website (<https://masaa.org.my/v1/>).

Today, this peer support group plays a vital role in our rehabilitation programme. New patients are introduced to peer mentors early in their recovery. These mentors provide not only emotional reassurance but also realistic expectations and problem-solving tips for daily living. Meeting someone who lives

independently, works, travels, or even enjoys sports activities with SCI creates a powerful shift in perspective. Beyond one-on-one support, the group has become a key partner in advocacy and service improvement. Members help organise public awareness campaigns, advise on accessibility in hospitals and public spaces, and participate in research initiatives. Their voices have added depth and credibility to efforts promoting disability inclusion. Importantly, their involvement has also shaped how we design our services – ensuring that they are informed by lived realities, not just clinical models.

From a professional standpoint, working alongside peer mentors has enriched my own practice. It has reminded me that disability is not a clinical problem to be solved, but a social experience that requires empathy, agency, and partnership. Peer support brings a dimension of care that is relational, empowering, and enduring – qualities that traditional health services often lack. Peer support is not a “nice-to-have” extra – it is a critical pillar of lifelong rehabilitation. As clinicians, we must be willing to share the space and trust those with lived experience as equal contributors in care.

In conclusion, peer support should be recognised as an essential element of holistic rehabilitation, particularly where formal support systems are limited. My experience establishing this support group has shown that community reintegration is not something we achieve for our patients – it is something we build with them, together ■



Figure 1. Malaysia Spinal Cord Injury Advocacy Association (MASAA) members visit new patient with spinal cord injury in the ward.



Figure 2. A community activity to explore camping, co-organized by the SCI Rehabilitation unit UMMC and MASAA.

Generational Endgame 2.0 (HEBAT):

Empowering Youth to End the Tobacco Epidemic

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Despite global efforts to curb tobacco use, Malaysia continues to face a growing challenge — particularly among adolescents. Among youth aged 15-24, the prevalence of e-cigarette use has surged dramatically, increasing from 1.1% in 2011 to 8.6% in 2023, marking a 600% rise over 12 years. Vulnerable groups, such as the B40 community, often face disproportionate exposure to tobacco-related harms due to economic and social pressures. The National Health and Morbidity Survey (2022) reported a disturbing rise in e-cigarette or vape use among teenagers aged 13 to 17, from 9.8% in 2017 to 14.9% in 2022. While cigarette smoking rates declined to 6.2%, vaping has filled that gap with new and misleading narratives presenting it as a “safer” alternative.

With the recent removal of the Generational Endgame (GEG) policy from the Control of Smoking Products for Public Health Act 2024 (Act 852), public health advocates now face an even greater challenge. The rollback underscores the urgent need for grassroots-driven advocacy and youth empowerment to counter the aggressive marketing and normalization of nicotine use among adolescents.

As a continuation of an initiative that began in 2018, Universiti Malaya implemented GEG 2.0: A University-School Based Advocacy Program, supported by the UMCARES Community Engagement Grant. Led by researchers from the Faculty of Medicine, Universiti Malaya, this peer-driven campaign trains university students to act as tobacco cessation advocates, working directly with secondary school students through educational and interactive school-based programs.

At the heart of the project lies the Training of Trainers (TOT) module. More than 175 students across various faculties were trained in tobacco harm reduction, communication skills, and advocacy strategies. Armed with knowledge and passion, these student trainers then spearheaded the HEBAT outreach (Henti. Elak. Basmi. Asap. Tembakau), delivering engaging activities to over 600 school students and 200 members of the public.

Interactive sessions—including role-playing, small group discussions, and creative slogan challenges—provided relatable, impactful experiences for participants. Peer-led delivery proved especially effective, as adolescents resonated more with youth educators than with conventional top-down messaging.

Perhaps most powerfully, the project model ensured true empowerment: university students not only led the sessions but independently coordinated logistics,

evaluated feedback, and improved their outreach through reflective debriefings. This sustainable approach builds a cycle of youth leadership capable of extending beyond the project timeline. The mode of engagement was not only face to face but also included online advocacy through guided use of an Instagram account, @hebat_um.

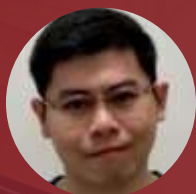
The programme's success was further strengthened by multi-stakeholder support. Collaborations with NGOs such as Ikram Health, PEMADAM Kebangsaan and Medical Mythbusters Malaysia (M3), as well as local education departments, brought credibility, expertise, and institutional alignment to each school programme. These partnerships enabled tailored messaging and a supportive ecosystem for health promotion.

While Malaysia's legislative framework has stepped back from prohibiting future generations from smoking, the fight is far from over. The GEG 2.0 initiative represents a renewed movement of youth-led advocacy, community engagement, and preventive education—anchored in the belief that change starts with empowered individuals.

As we observe World No Tobacco Day, the need to invest in youth leadership, collaborative health education, and sustained outreach is more urgent than ever. GEG 2.0 reminds us that in the absence of protective laws, people-powered movements must rise—and they will ■



Wolbachia Infection Alters the Thermotolerance of ***Aedes aegypti*** Juvenile Stages



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Wolbachia-based vector control strategies against *Aedes aegypti* (an effective vector of dengue) have gained increasing attention. *Wolbachia* is an endosymbiont bacterium found in many arthropods. However, naturally occurring *Ae. aegypti* do not harbor *Wolbachia*. The bacteria cause cytoplasmic incompatibility (CI) and maternal transmission (MT) in this mosquito species. The potential of these effects as a tool against dengue transmission has been explored.

A mosquito population can be reduced by CI following the production of non-viable progeny from the mating of mosquitoes with different *Wolbachia* infection status, as exemplified by the mating of a male *Wolbachia*-positive *Ae. aegypti* (henceforth WIA) and a female wild-type *Wolbachia*-negative *Ae. aegypti* (henceforth WUA). The

CI-based “population suppression” has been employed by countries like Singapore, Mexico, USA, and Australia. This strategy does not spread *Wolbachia* within the mosquito natural population, minimizing the risk of causing any unforeseen adverse effect to the ecosystem following the release. However, it requires frequent release of male WIA to ensure sustained vector population suppression. In contrast, *Wolbachia*-mediated MT facilitates the spread of *Wolbachia* across a mosquito population. For example, the mating of a female WIA and a wild-type male WUA that produces WIA progenies. Importantly, *Wolbachia* infection has been demonstrated to block the virus transmission by the mosquitoes. The MT-based “population replacement” has been employed by more than 14 countries, including Malaysia.

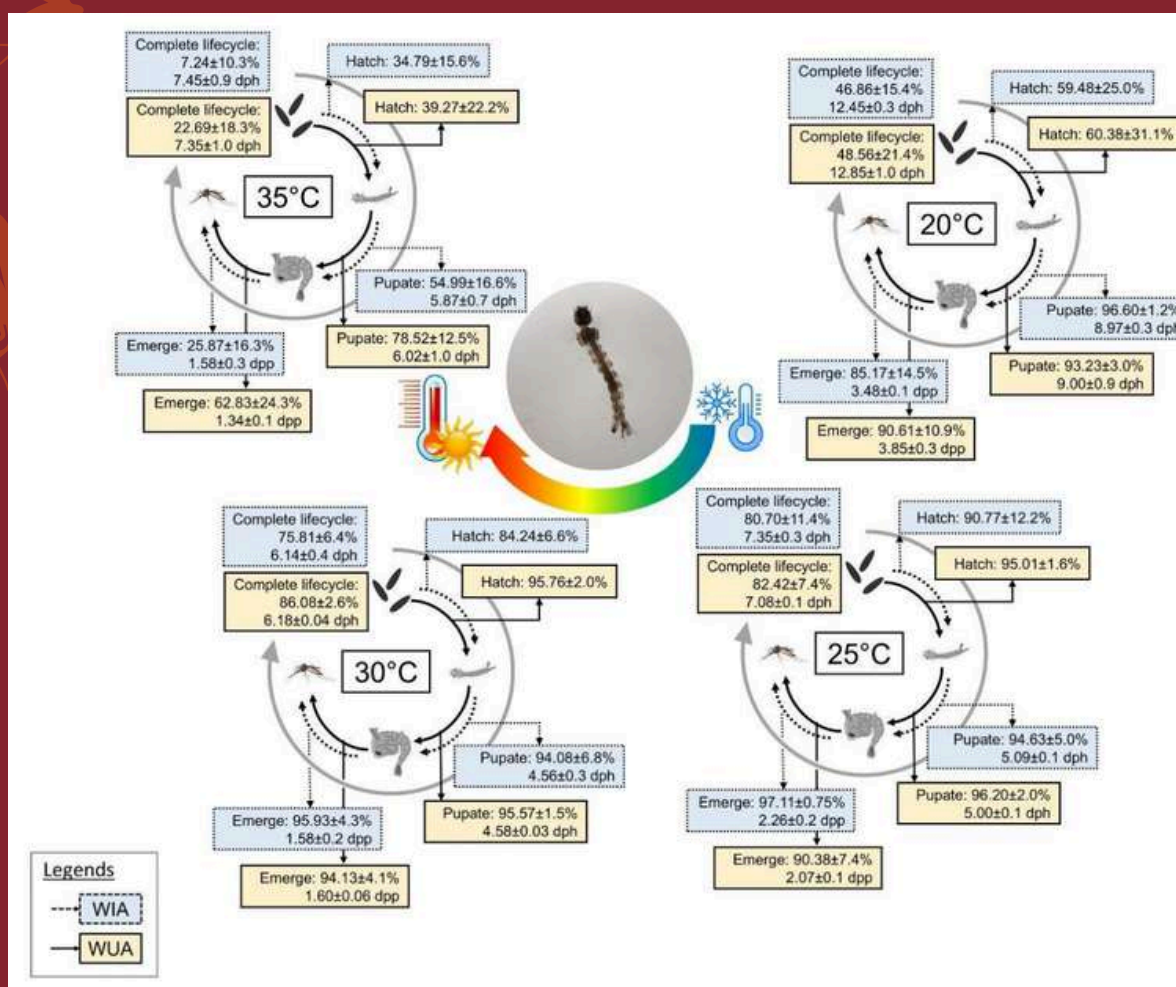


Figure 1. A schematic diagram summarizing the effect of different temperatures on the metamorphosis success of WIA and WUA. Artwork modified from the supplementary material, Zulzahrin et al., 2025.

Malaysia initiated the release of WIA in several dengue hotspots across the Klang Valley in 2017. The release was made with an anticipation that the dengue-blocking WIA would replace the WUA population. Years after the release was stopped, WIA persisted at the release sites. However, the degree of population penetration by WIA into the surrounding areas of the original release sites has yet to be determined, and dengue cases in Klang Valley have remained high. We decided to investigate this issue more deeply.

Through a series of experiments, we found that the wAlbB *Wolbachia* infection altered the thermotolerance of the mosquito juvenile stages. The hatch success of WIA eggs was lower than that of WUA at 30°C (resembling the reported water temperatures in many Malaysian lowland areas). At 35°C, the survival of WIA and WUA

was negatively affected. However, the success of pupation and adult emergence of WIA was lower than that of WUA. These findings raise a concern about the sustainability of this novel vector control strategy in areas experiencing heatwaves. Indeed, the El Niño event in 2024 has affected many countries, including Malaysia. Therefore, an integrated vector control strategy that employs multiple approaches should be implemented, instead of relying upon any single vector control approach.

This work was published in *Entomologia Generalis* (IF 5.6; ranked the 3rd in the category of entomology, JIF). This study was supported by the Fundamental Research Grant Scheme (FRGS) by the Ministry of Higher Education, Malaysia (FRGS/1/2022/SKK12/UM/02/9) ■

NO BORDER FOR CLIMATE: ADVANCING PLANETARY HEALTH EQUITY FOR MIGRANTS AND REFUGEES



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Today's world stands at a critical juncture, where the health of our planet and its people is not seen as two individual entities but as interconnected concerns [1,2]. As climate change accelerates and ecological degradation intensifies, the consequences are not felt equally across various population groups [1]. Migrant workers and refugees can be identified as two specific groups severely affected by climate change. These populations are not only disproportionately affected by environmental hazards, but also by the structural barriers that prevent them from accessing healthcare, safe drinking water, safe housing, and food security [1,2,3,4]. In the spirit of equity and justice, it is imperative that we expand our understanding of planetary health and include the rights and realities of migrants and refugees. Migrant workers and refugees—whether fleeing conflict, natural disasters, or seeking economic opportunities—are often overlooked from this vision.

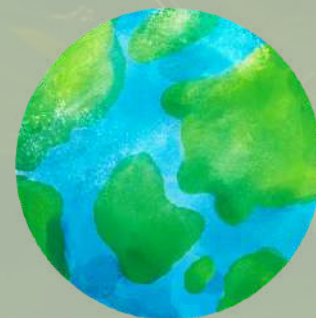
Climate change, equity, and the health of migrant workers and refugees have been considered separate public health challenges for long. However, planetary health brings these issues under the same umbrella as an integrated approach. The scope of climate change expanded from in-country phenomenon to a global phenomenon. Global climate change is increasingly recognized as a push factor for forced migration and displacement [5,6]. If we see climate as an envelope under which economic activities operate; rising sea levels, desertification, and extreme weather events are displacing millions of individuals beyond this envelope, often forcing them into informal settlements or refugee camps located in environmentally precarious areas. These conditions lead to heightened risks of health hazards—all while facing limited or no access to health care. According to the World Meteorological Organization, from 1970 and 2021, the estimated number of reported disasters due to climate conditions are 11,778 around the globe [7]. It, additionally, resulted in over 2 million deaths and an economic loss of USD 4.3 trillion approximately [7].

Although the United Nations is committed to protecting the health of migrant workers and refugees, the inequities faced by migrant workers and refugees are mostly guided by legal and policy frameworks of the host country which often restrict their access to health services [2]. Despite being among those most vulnerable to planetary health threats, many displaced populations are excluded from national climate adaptation and health plans. This exclusion not only violates the United Nations call for equal health rights for migrant workers and refugees, but also undermines global health security, as diseases and environmental hazards know no borders.

Equity is not a term, it is an action. Equity in planetary health means more than just acknowledging vulnerability—it requires action

towards the vulnerable population². Governments and International Agencies must create climate-resilient inclusive health systems with migrants and refugees. Mobile populations are not a separate group in need of entirely unique health strategies. National health strategies can cover migrants and refugees by removing legal and financial barriers to healthcare and ensuring culturally and linguistically friendly services.

Last but not the least, displaced communities must not only be protected—they must be empowered. Migrants and refugees possess valuable knowledge and adaptive strategies that can enrich planetary health responses. Their voices can bring new insights into planetary health governance. In an era of global mobility on one hand, and environmental crisis on the other, no one should be left behind because of where they come from or where they are forced to go. An inclusive and fair future calls for a planet that protects the most vulnerable among us ■



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Raising Hope for Rare Diseases:

From UMMC to the Community



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Rare diseases (RDs) are medical conditions that affect a small number of people—often fewer than one in 4,000 individuals, as defined by the Malaysian Rare Disorders Society and recognised by the Ministry of Health, Malaysia (MOH). However, with over 7,000 RDs identified, collectively they affect between 5% and 9% of the population globally. Many rare diseases are genetic (80%) and about 30% of patients with RD die before the age of five.

The Genetic Medicine Unit at Universiti Malaya Medical Centre (UMMC) is dedicated to the diagnosis, care and management of patients with rare

diseases, while also being actively involved in research, teaching of tertiary-level students, as well as public education and advocacy work in this field. We assisted patients and their at-risk family members in detecting RDs more quickly, reducing the long and stressful "diagnostic odyssey" by encouraging earlier referrals, utilising advanced diagnostic tools, and increasing access to treatment. Genetic counselling is a vital component in managing genetic conditions, enabling patients and their loved ones to make informed decisions about their reproductive health and future planning. We also collaborate with local and international researchers to contribute to global knowledge on RDs.



Figure 1 and 2. Public event to celebrate Rare Disease Day 2025 at Sunway Velocity Mall on 22 February 2025. The event was attended by patients, families, doctors, and researchers.

RDs are often overlooked due to a lack of awareness among both the members of the public and healthcare workers. This year's Rare Disease Day was held in a public space, allowing more people to acquaint themselves with the realities of living with an RD. The theme "More Than You Can Imagine" aimed to raise public awareness about RDs and brought together patients, families, health care professionals, and patient advocacy groups to share their stories to highlight the challenges and triumphs of living with an RD.

The event also provided a great opportunity to educate the public on the importance of genetic testing, early diagnosis, and to discuss emerging treatment options, including gene therapy and personalised medicine. The event also emphasised the need for stronger

advocacy, policy support, and improved funding access, as many RDs patients struggle with high medical costs. The Unit collaborated with IDEAS to produce a White Paper on "Rare Diseases in Malaysia" (2019) (<https://www.ideas.org.my/publications-item/whitepaper-rare-diseases-in-malaysia/>). Through such initiatives and fundraising efforts, we strive for equitable healthcare for RDs patients, ensuring that no one is left behind. On 28 February 2025, our Unit was featured Bernama TV's 'The Nation' to discuss the theme "Rare Diseases: Tackling Inequities, Building an Ecosystem".

The Unit collaborated with MOH to establish the National Rare Disease Committee (2009), the National Framework for Rare Disease in Malaysia, the Strategic Planning of Rare Disease Programme in Malaysia (2020) and the forthcoming National Policy on Rare Diseases (2025). Internationally, the United Nations released "A Blueprint for Leaving No One Behind" on the 23 September 2023, focusing on Universal Health Coverage for people living with RDs. In February 25, the World Health Assembly (WHA) Resolution on Rare Diseases was officially recommended for adoption at the 78th WHA by the 156th World Health Organization (WHO) Executive Board, with Malaysia as one of its sponsors.

Moving forward, the Genetic Medicine Unit at UMMC aims to expand genetic testing, making advanced diagnostics more accessible to all Malaysians, enhance patient support networks by connecting families with counselling and resources and encourage newborn screening as early detection saves lives and improves outcomes. RDs are one step closer to being seen (and acknowledged) as a global health priority ■



Empowering Youths to Save Lives: A School-Based CPR Training Initiative



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Out-of-hospital cardiac arrest (OHCA) remains a serious public health issue worldwide, with 50–60 cases per 100,000 people each year [1]. In Malaysia, survival rates are especially low, at just 0.5% according to a regional study conducted between 2009 and 2012, compared to 2.5 to 8.5% in other Asian countries [2]. A more recent single-centre study at a reference hospital in Klang Valley showed some improvement, with a 4.2% survival rate [3]. Most cardiac arrests in Malaysia happen at home (71.5%) and are often witnessed by bystanders (47.0% - 74.1%), especially family members [2, 3]. Yet, fewer than one in four victims receive cardiopulmonary resuscitation (CPR) from a bystander before emergency services arrive, despite strong evidence that immediate CPR and the use of an automated external defibrillator (AED) can double survival chances [2-5]. The low rate of bystander CPR in our community may be attributable to the general lack of basic skills and knowledge in performing effective CPR, as well as in using an AED [3]. With emergency services typically

arriving in about 18 minutes [2], well beyond the critical first five minutes when survival chances are highest, empowering the public, especially youths, to act swiftly is vital.

Although the Ministry of Education has included basic life support (BLS) theory in the secondary school in the science curriculum, theoretical knowledge alone is not enough. To bridge this gap, a research team from the Departments of Anaesthesiology, Emergency Medicine, and Nursing Science developed a hybrid, multimodal, bilingual BLS training module aimed at equipping secondary school students with the essential knowledge, skills, and confidence to act as the lay rescuers. This initiative was inspired by earlier community outreach programmes conducted by the Department of Anaesthesiology since 2019, which, although effective in raising BLS awareness, had limited impact on skill mastery and long-term knowledge retention.

From June 2023 to May 2024, the team conducted a quasi-experimental study involving 203 students from five secondary schools in Petaling Jaya to evaluate the effectiveness of the BLS training module. The module combined a four-hour, instructor-led, face-to-face training session focusing on hands-only CPR and AED use, with an online refresher module that included interactive e-learning and gamified content. Participants were assessed on their knowledge, attitude, and practical skills before, immediately after, and six months post-training. After completing the training, students' knowledge scores improved by 50%, and practical skills improved by 115%. They also displayed a more positive attitude toward being lay rescuers. While knowledge levels stayed fairly consistent after six months, practical skills declined significantly without continued practice. However, those who used the online refresher scored higher in the six-month follow-up, suggesting better long-term knowledge retention.

This hybrid, multimodal training approach proved effective in preparing Malaysian youths to respond to cardiac emergencies. Given these successful outcomes, the research team envisions wider implementation of the module across schools and community organisations. By fostering a culture of first responders among the younger generation, this initiative has the potential to significantly improve OHCA survival rates in Malaysia over time ■



Figure 1: Practical session in which students were taught how to perform effective CPR by certified instructors.



Figure 3: Research team members assessing students' practical performance through a simulated cardiac emergency scenario.

Greening Healthcare: Launching Our New Sustainability in Healthcare Education Module

On World Environment Day, 5 June 2025, the Faculty of Medicine, Universiti Malaya launched the first module of the Greening@UMHealth Training Series.

Designed for healthcare professionals who want to make a difference for the planet while caring for patients, the introductory series consists of five sessions that cover basic concepts of eco-literacy, awareness of the health impact of climate change, and practical examples of sustainable healthcare. These series concludes with a discussion the ethical basis for practising sustainability.

We spoke to key people involved in developing, delivering, and deploying this first module.



SCAN HERE
FOR REGISTRATION

What inspired the development of the Greening@UMHealth Training Series?

We think all our students and staff must be aware of this urgent issue. We are already reviewing our medical curriculum to integrate climate change content, but we needed a quicker way to get the message out across our entire healthcare community. With this series, every staff and student can easily access bite-sized of information on demand, at their own pace.



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Why is sustainability in healthcare an urgent priority, especially in the Malaysian context?

Malaysia is already experiencing the health impacts of climate change — increasing heat coupled with high humidity, poor air quality due to haze and open burning, and increasing rates of climate-related diseases like dengue. These challenges disproportionately affect our most vulnerable populations: children, the elderly, and low-income communities. We need to equip our healthcare professionals to lead change, protect health, and safeguard the future.

How was the curriculum for this training series designed?

The curriculum was designed through an intentional, collaborative process. We began by assembling a small panel of clinicians, educators, and green-health enthusiasts to gather diverse perspectives. They shared stories about real-world experiences from hospital grounds, wards, theatres, and clinics, which helped us identify key sustainability challenges. Based on these insights, we mapped the essential knowledge and skills onto a simple, five-step learner journey, starting with foundational basics, progressing to practical, real-world solutions, then exploring the broader climate and health implications, and finally addressing climate change and healthcare equity. To maximise engagement and applicability, we kept each module concise and manageable, allowing participants to immediately connect what their learning to practice.



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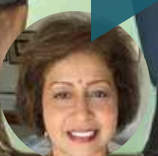


What frameworks or references were used?

This is an introductory module within a larger Planetary Health and Sustainability Curriculum. We based our design on Kern's six-step approach, which involves identifying what students need to know, setting clear goals, and selecting engaging teaching methods such as lectures, case studies, practical sessions, and community outreach to promote advocacy. After rollout, we plan to evaluate its effectiveness and adjust as needed. Kolb's experiential learning cycle to enable students to participate in activities like audits or green projects, followed by reflection on their learning. Ultimately, our goal is to empower students to become agents of change through community work and advocacy related to planetary health.

Who is the intended audience for this module, and how can they access it?

The intended audience for the Greening@UMHealth Training Series includes undergraduate and postgraduate students, healthcare practitioners, particularly those affiliated with the Faculty of Medicine at Universiti Malaya or involved in clinical, academic, or administrative roles within healthcare systems. The training aims to equip them with the knowledge and skills needed to become sustainable healthcare professionals—those who are well informed, ethically grounded, and action-ready to address the challenges posed by climate change and environmental degradation.



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Special Highlight

How do you envision this training being integrated into routine professional development or education programmes?

This training can be effectively integrated into routine professional development and medical education programmes in several ways:

Undergraduate & Postgraduate Curriculum Integration: Incorporate relevant modules into existing public health, community medicine, or ethics courses, particularly those related to planetary health and sustainability.

Continuing Professional Development (CPD) Credits: Align the sessions with CPD accreditation to incentivise participation among medical professionals.

Orientation & Induction Programmes: Include it in the onboarding of new healthcare staff and postgraduate trainees to instil sustainability values early in their careers.

Microlearning in e-Learning Platforms: Deliver the 15–20 minute content segments through institutional LMS (Learning Management Systems) or mobile learning platforms to facilitate flexible, just-in-time learning.

Interdisciplinary Workshops & Seminars: Pair the module with practical workshops on green practices in hospitals or climate-health innovation challenges to promote real-world application.

Faculty Development Initiatives: Offer it as part of teaching and learning enhancement programmes to build capacity among medical educators and academic staff.



How does the module balance scientific content with practical strategies for implementation?

This module blends evidence-based science—such as pathophysiological mechanisms and epidemiological data—with real-world, practical clinical applications. For every organ system affected, it presents the risks alongside strategies for early recognition, risk reduction, and system-level resilience. This balance ensures learners can apply what they've learned immediately in healthcare settings and policy planning.



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What kind of impact do you hope to see as a result of this module?

We hope participants walk away with a clear understanding that climate change is not just an environmental issue—it's a multisystem public health emergency. By mapping climate-related environmental changes to specific organ systems, the module equips healthcare professionals with the ability to recognise and respond to emerging disease patterns. Ultimately, we aim to build a health workforce that is both climate-informed and proactive in protecting vulnerable populations.

What technical challenges did you face in being the technical lead for this project?

The main challenge for me was ensuring seamless enrolment of the large user cohort involved – over 2900 students! We experienced some hiccups initially but managed to pull through with help from the Central IT team (JTM) and the Digital Learning Centre (PPD). Lastly, while not purely technical, we did face some hurdles in ensuring a smooth user experience (UX) in navigating the course and providing an avenue for the student to reach out to us for any assistance/troubleshooting.



Kuhan Krishnan
Dean's Office

Yang Faridah Abdul Aziz
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How will you evaluate the success of the training series?

For now, we focus on short-term measures to evaluate. The first is to evaluate the reach of the series (e.g., the number of students/ persons who complete the series on the platform). The second is to assess knowledge via pre-test and post-test segments, to gauge participants' take-away understanding for each session.

For the long term, we will focus our efforts on evaluating success through reflective and feedback exercises to assess understanding and real-world applications.

What does the team hope participants will take away from this module, not just in knowledge, but in mindset and action?

Our goal is for participants to internalise the principles of sustainability in their daily practice just as we train professionalism in our graduates. We hope our participants will adopt sustainability as part of their professional identity as a healthcare professional, where they will think, act, and have values of a care provider with strong sustainability practice. We hope that in the end, they will look at healthcare and their daily lives through the lens of sustainability, even when no one is watching, because it has become a part of them.



Do you plan to expand this training series or offer follow-up modules in the future?

Definitely! What we learn in theory must translate into action, and where better to do this than in our hospital setting, where we live out our principles and practice care for our patients. Our next module will focus on various key areas in the hospital where our sustainability champions will encourage us by sharing stories and strategies of how they found ways to incorporate sustainability in what they do.

We are working hard to make the series available to our entire healthcare community in UMHealth, so watch this space!

Whether you're just getting started on your green journey or already championing change in your workplace, this module offers practical insights, real-world strategies, and plenty of inspiration to help you embed sustainability into everyday healthcare practice.

ELIMINATING ROUTINE CHEST X-RAYS FOLLOWING CARDIAC SURGERY:

***IMPROVING QUALITY, SAVING
RESOURCES AND PROMOTING
SUSTAINABILITY***



Catherine Sudarshan

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Over a six-week period, I conducted an audit, as a first year trainee in cardiothoracic surgery, examining the necessity of routine chest X-rays (CXR) performed shortly after cardiac surgery. A total of 153 postoperative CXRs were reviewed in collaboration with an independent reviewer, who, at that time, was a trainee in Radiology. He was unaware of the reason for the review request. Our objective was to evaluate whether routine CXRs significantly influenced patient management or if they simply represented an unnecessary allocation of healthcare resources.

All 153 CXRs acquired after cardiac surgery were systematically and independently reviewed. Each image was scrutinized for findings that might prompt further clinical intervention. The criteria for reviewing included both obvious complications and subtle abnormalities that might otherwise go unnoticed. Every CXR was evaluated by both myself and the second reviewer to ensure that our conclusions were robust and unbiased.

Our audit revealed a striking finding: out of 153 CXRs, only two instances necessitated any form of clinical intervention. The first case involved a situation where the neck line had curled up in an abnormal configuration with no clinical impact to the patient. The second instance involved a patient with a large pneumothorax—a condition that would have been identified through clinical assessment regardless of routine imaging and required immediate intervention. In essence, the vast majority (151/2 out of 153) of the routine CXRs had no impact on patient care or management, suggesting that they provided minimal, if any, additional clinical value.

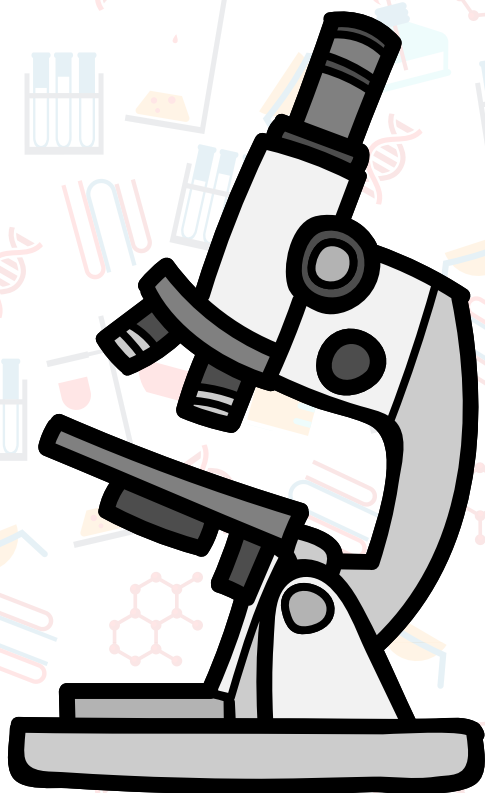
Results of this simple audit highlighted the limited utility of performing routine CXRs following cardiac surgery in the absence of any clinical indication. By demonstrating that nearly all the postoperative imaging did not

contribute to enhanced patient management, this study supported the growing body of evidence that challenges the practice of routine CXRs in the postoperative setting. The implications of these findings were twofold:

- Eliminating routine CXRs translates into significant cost savings for the hospital. By allocating resources to imaging that is clinically justified, rather than to routine testing with minimal yield, financial resources can be directed towards areas with a higher impact on patient outcomes.
- Reducing unnecessary imaging not only spares patients from unwarranted radiation exposure, but also alleviates the workload on radiographers. This efficiency can lead to improved workflow within radiology departments, allowing radiographers to focus on imaging studies that are essential for patient care.

These findings underscore that routine postoperative CXRs following cardiac surgery offer minimal any benefit when patients are clinically stable. Presenting this data contributed to a change in practice within our hospital more than 25 years ago, ceasing the routine use of postoperative CXRs in favour of a more tailored, clinically driven approach. This change not only conserves financial resources and reduces unnecessary radiation exposure, but also streamlines the workflow of staff. By focusing on clinically indicated imaging, our practice moved toward more efficient, patient-centred care.

This audit serves as a model for other institutions and specialties to evaluate similar practices, reminding us that continuously questioning and refining our clinical approaches can lead to significant improvements in both patient safety and resource management ■



Bright Minds, Bold Research: 15th Malaysian Symposium of Biomedical Science 2025



Nur Qhalisa Nor Izwan
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The recent National Biomedical Science Symposium, held at the Faculty of Medicine, Universiti Malaya from 31 May to 1 June 2025, attracted a diverse group of academicians, researchers, and aspiring scholars. Commemorating its 15th anniversary, the symposium stood as a milestone event, proudly hosted by Universiti Malaya Aimed at providing a dynamic platform for students to present, share, and discuss their research in the field of biomedical science, the two-day event featured a rich blend of oral and poster presentations, keynote speeches, interactive sponsor booths, visit to the medical museum, engaging forum discussions, and numerous networking opportunities.

The symposium was officiated by Professor Dato. Dr. Yang Faridah Abdul Aziz, Dean of the Faculty of Medicine, who emphasised the importance of nurturing young researchers and strengthening interdisciplinary collaboration in the field of biomedical sciences. Her address set the tone for a dynamic and intellectually stimulating two-day event.

This year's symposium attracted over 250 participants from 11 institutions across Malaysia. Among them were 75 student presenters, who delivered either oral or poster presentations across key thematic areas – including communicable and non-communicable diseases, natural products, diagnostics, and emerging biomedical technologies. These sessions served as a vibrant platform for students to showcase their research findings, engage in scientific discussion, and receive constructive feedback from peers and experts.

Three distinguished keynote speakers graced the symposium: Professor Dr. Chua Kek Heng, Associate Professor Dr. Chang Li Yen, and Madam L. Mageswary. Each brought a unique perspective to the stage, sharing insights on topics ranging from virology and infectious disease control to biomedical education and industry collaboration. Their talks inspired students and attendees to view biomedical science not only as a discipline, but as a powerful tool for societal impact.



Figure 1. Opening gimmick by Professor Dr. Chua Kek Heng and Professor Dato. Dr. Yang Faridah Abdul Aziz.



Figure 2. Oral presentation by a participant from UPM conducted at Dewan Kuliah 1, FOM.



Figure 3. Participants viewing the poster presentations that were set up at Tj. Danaraj Library, FOM



Figure 4. Forum discussion moderated by Associate Professor Dr. Azlina Ahmad Annuar.

Adding to the interactive atmosphere were sponsor booths from leading industry players –Next Gene, Biomed Global, and Science Vision—who showcased the latest laboratory technologies and diagnostic tools. These booths fostered meaningful conversations between students and industry professionals, bridging the gap between academia and the private sector.

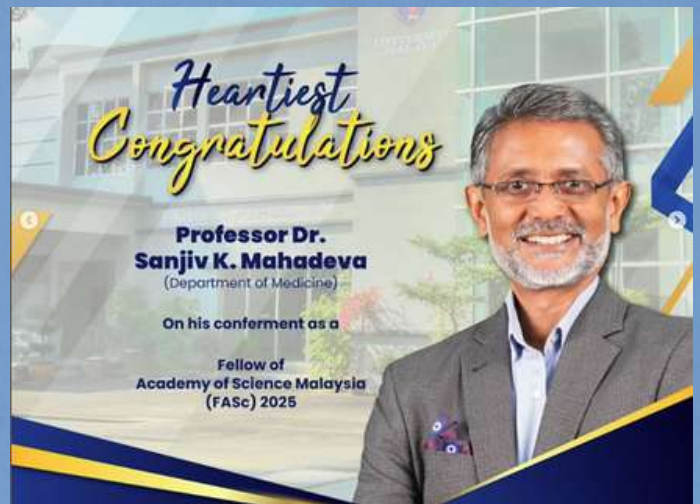
Participants also had the opportunity to explore the Tan Sri Dr. Lim Wee Chai Medical Museum at Universiti Malaya, gaining a deeper appreciation of human anatomy and the evolution of medical practices in Malaysia. This cultural and educational experience added a meaningful dimension to the event.

One of the key highlights of the symposium was a forum discussion focusing on the theme, “Turning Molecular Insights into Clinical Solutions: Challenges and Opportunities.” Panelists and participants explored how graduates can contribute to various sectors, including healthcare policy, public health, education, and the biomedical industry. The session sparked insightful dialogue about the evolving roles of biomedical scientists in a rapidly changing world.

The symposium concluded with a closing ceremony and the presentation of awards for outstanding oral and poster presentations, recognizing student excellence in research and communication. The event was a true testament to 15 years of dedication to student development, scientific exchange, and academic excellence.

As Universiti Malaya passed the torch to the next host, the 15th National Biomedical Science Symposium left a lasting impression on all who attended—highlighting the critical role of student-led research in shaping the future of biomedical science in Malaysia and beyond ■

Achievements & Awards



"Success is not found at the peak, but in the courage to keep climbing when the path gets steep."



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