UNIVERSITI SAINS ISLAM MALAYSIA
جَامِعَة العُلوم الإسْلامِيَة المَالِيزِيَة
ISLAMIC SCIENCE UNIVERSITY OF MALAYSIA

7th USIM INTERNATIONAL HEALTH CONFERENCE

Transforming Health Through INNOVATION

7–8 Oct 2026

Faculty of Medicine and Health Sciences,
Universiti Sains Islam Malaysia (USIM)

7th USIM INTERNATIONAL HEALTH CONFERENCE

TRANSFORMING HEALTH THROUGH INNOVATION

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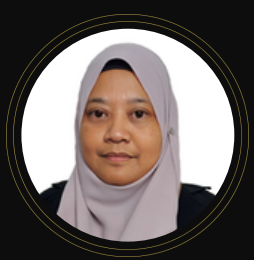

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7th USIM INTERNATIONAL HEALTH CONFERENCE

TRANSFORMING HEALTH THROUGH INNOVATION

WELCOME MESSAGE

Professor Dato' Ts. Dr. Sharifudin Md Shaarani
Vice Chancellor
Universiti Sains Islam Malaysia (USIM)

Bismillahirrahmanirrahim.
Assalamu'alaikum Warahmatullahi Wabarakatuh,
Salam Sejahtera, Salam Malaysia Madani and Salam Integrasi Ilmu Naqli & Aqli

Alhamdulillah, all praise be to Allah SWT, for by His grace and blessings, after much dedication and planning, we are able to gather for the 7th USIM International Health Conference (IHEC) 2026.

On behalf of Universiti Sains Islam Malaysia (USIM), it is my utmost pleasure to welcome all distinguished guests, esteemed speakers, researchers, healthcare professionals, and delegates to this event.

This conference serves as a vital platform for interdisciplinary collaboration, bringing together diverse perspectives to address current challenges and emerging paradigms in global healthcare. At USIM, we remain steadfast in our commitment to advancing scientific knowledge while harmonising it with ethical, spiritual, and Naqli (revealed knowledge) values. We believe that true breakthroughs in healthcare must not only push the frontiers of modern science, but also safeguard human dignity, compassion, and well-being.

The 7th USIM IHEC standardises a high benchmark for scholarly discourse. As healthcare rapidly evolves through technological advancements, data integration, and global health challenges, the need for sustainable, inclusive, and ethically grounded solutions has never been more pressing.

This year's theme, "Transforming Health Through Innovation," captures the core mission of modern healthcare. As global health demands evolve, advancing clinical practice, digital health, and medical research is no longer optional, it is essential. I am confident that the ideas shared, research presented, and networks built throughout this conference will yield impactful outcomes and drive meaningful change in society.

I would like to express my heartiest congratulations and gratitude to the Faculty of Medicine and Health Sciences, the organising committee, strategic partners, and sponsors for their dedication in making this prestigious event a reality. My deep appreciation also goes to our keynote speakers and presenters for sharing their expertise and driving the discourse forward.

To all our delegates, I wish you a highly inspiring, insightful, and productive conference. May your engagements here spark new collaborations that transcend boundaries and elevate the quality of life for global communities.

Thank you.

Wabillahi Taufiq Wal-Hidayah Wassalamu'alaikum Warahmatullahi Wabarakatuh.

PROFESSOR DATO' TS. DR. SHARIFUDIN MD SHAARANI
Vice-Chancellor
Universiti Sains Islam Malaysia

7th USIM INTERNATIONAL HEALTH CONFERENCE

TRANSFORMING HEALTH THROUGH INNOVATION

WELCOME MESSAGE

Assoc. Prof. Razrim Rahim
Dean
Faculty of Medicine and Health Sciences,
Universiti Sains Islam Malaysia

Bismillahirrahmanirrahim.
Assalamu'alaikum Warahmatullahi Wabarakatuh,
Salam Sejahtera, Salam Malaysia Madani and Salam Integrasi Ilmu Naqli & Aqli

On behalf of the Faculty of Medicine and Health Sciences, it is my distinct honour to welcome our keynote speakers, researchers, clinical practitioners, industry partners, and delegates to the 7th USIM International Health Conference (IHEC 2026).

This year's theme, "Transforming Health Through Innovation," directly aligns with our faculty's mission to bridge scientific inquiry and practical healthcare delivery. Healthcare is undergoing a paradigm shift driven by artificial intelligence, digital diagnostics, advanced biomedical research, and interdisciplinary clinical practices. At the faculty level, our goal is to translate these rapid technological advancements into clinical application, medical education, and community-centred care, ensuring that innovation translates into accessible and sustainable health outcomes.

IHEC 2026 has been curated to foster hands-on exchange across multiple domains, including laboratory sciences, digital health, and translational medicine. Through our symposia, forums, and scientific presentations, we encourage rigorous debate, the sharing of novel empirical findings, and the creation of actionable research networks.

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I extend my deep gratitude to the organizing committee, our co-hosts, international partners, and sponsors whose meticulous planning brought this conference together. Most importantly, I thank our presenters and participants for bringing their expertise to this academic forum.

I urge everyone to immerse themselves in the sessions, challenge existing boundaries, and establish lasting academic and professional partnerships. May this conference serve as an enriching catalyst for your professional practice and scientific endeavours.

I am grateful for those taking part in IHEC 2026. I wish everyone a productive, enriching, and inspiring conference.

Thank you.

ASSOCIATE PROFESSOR DR. RAZRIM RAHIM
Dean
Faculty of Medicine and Health Sciences,
Universiti Sains Islam Malaysia

7th USIM INTERNATIONAL HEALTH CONFERENCE

TRANSFORMING HEALTH THROUGH INNOVATION

WELCOME MESSAGE

Assoc. Prof. Dr Khairullah Anuar
Director
7th USIM International Health Conference

Bismillahirrahmanirrahim.
Assalamu'alaikum Warahmatullahi Wabarakatuh,
Salam Sejahtera, Salam Malaysia Madani and Salam Integrasi Ilmu Naqli & Aqli

It is my privilege to welcome you to the 7th USIM International Health Conference (IHEC 2026).

When we first began conceptualising this edition under the theme "Transforming Health Through Innovation," our goal was not simply to host another academic gathering, but to create an active engine for collaboration. Innovation only succeeds when diverse minds meet—connecting the bench scientist, the frontline clinician, the tech innovator, and the policy developer under one roof.

Months of meticulous planning have gone into assembling a dynamic, multi-track scientific program featuring keynote lectures, panel debates, and interactive poster sessions designed to spark real-world solutions. Whether you are here to showcase ground-breaking research, learn about emerging health technologies, or find collaborators for your next project, this conference is structured to turn ideas into action.

Executing an event of this scale requires immense teamwork. I extend my sincere gratitude to every member of the organizing committee for their tireless commitment. I also thank our distinguished speakers, co-hosts, sponsors, and partners for their unwavering support.

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To our delegates: this platform belongs to you. I encourage you to actively join discussions, challenge perspectives, and build networks that extend far beyond this venue.

Thank you for being part of IHEC 2026. I wish you an engaging, inspiring, and memorable conference experience.

Regards,

ASSOCIATE PROFESSOR DR. KHAIRULLAH BIN ANUAR
Director, 7th International Health Conference (IHEC 2026)
Universiti Sains Islam Malaysia

7th USIM INTERNATIONAL HEALTH CONFERENCE

TRANSFORMING HEALTH THROUGH INNOVATION

PROGRAM

7th USIM International Health Conference (IHEC) 2026
Date: 7 Oktober 2025
VENUE: Faculty of Medicine and Health Sciences, Universiti Sains Islam Malaysia, Nilai, Negeri Sembilan.
THEME : Transforming Health Through Innovation

8.00–8.30 am	**Registration**	**Lobby, Ground Floor**
PLENARY 1 & 2		**Auditorium, Level 2**
8.30–9.15 am	**Plenary 1: Translational Research – Making Innovation Clinically Relevant** Prof. Dr. Azizi Ayob Deputy Vice-Chancellor (Research & Development), University MAIWP International (UNIMAIWP)	
9.15–10.00 am	**Plenary 2: The Future of Pathology in the Age of Artificial Intelligence** Prof. Ir. Dr. Mohammad Faizal Ahmad Fauzi Dean, School of Digital Health, KPJ Healthcare University Chairperson: Assoc. Prof. Dr. Nuruliza Roslan	
10.00–10.30 am	**Tea Break & Poster Viewing**	
OPENING CEREMONY & KEYNOTE SESSION		**Auditorium, Level 2**
10.30–10.40 am	**Opening Remarks** Assoc. Prof. Dr. Khairullah Anuar Organizing Chairperson for IHEC 2026	
10.40–11.00 am	**Officiation of IHEC 2026** Prof. Dato' Ts. Dr. Sharifudin Md Shaarani Vice-Chancellor, USIM	
11.00 am–12.00 pm	**Keynote 1: Bridging Health Through Innovation – Lessons from Real-World Healthcare** Tan Sri Dato' Seri Dr. Noor Hisham Abdullah Chairman of UCSI Healthcare Group Chairperson: Assoc. Prof. Dr. Amirah Azzeri	
1.00–2.00 pm	**LUNCH BREAK**	

SYMPOSIUM 1

Symposium 1A: Clinical Innovation	Symposium 1B: Preclinical & Laboratory Innovation
Chairperson: Assoc. Prof. Dr. Azlina Mokhtar Dewan Kuliah Al Razi, Level 3	Chairperson: Assoc. Prof. Dr. Nadia Mohd Effendy Dewan Kuliah Ibnu Hayan, Level 3
2.00–2.20 pm Reimagining Clinical Teaching for Future Healthcare Professionals: The Indonesian Experience Dr. dr. H Nasruddin Andi Mappaware, Universitas Muslim Indonesia	**2.00–2.20 pm** Application for Point-of-Care AMR (APPA): A Tabular Deep Learning Mobile Prediction in Resource-Limited Settings Assoc. Prof. Dr. Liyana Azmi, USIM
2.20–2.40 pm AI-Assisted Diabetic Retinopathy Screening in Clinical Practice Dr. Kev Lim Shiau Chong, CEO Qmed Asia	**2.20–2.40 pm** What You're Missing Matters: Delivering the Microbial Genomics with Oxford Nanopore Mr. Tung Chee Hong, Next Gene Scientific
2.40–3.00 pm Redefining ENT Surgery Through Innovation and Technology Assoc. Prof. Dr. Khairullah Anuar, USIM	**2.40–3.00 pm** Beyond the Microscope: AI for Smarter Diagnosis & Prognostication of Leptospirosis Dr. Murnihayati Hassan, National Institute of Health, MOH
3.00–3.20 pm Elevate to Heal: The Elev8thor Story Dr. Ashaari Bain, USIM	**3.00–3.20 pm** Tissue Engineering and Biomaterials Innovation: From Preclinical Models to Regenerative Medicine Prof. Dr. Mohd Fauzi MH Busra, UKM
3.20–3.40 pm Innovations in Medicine: Current Challenges and Future Perspectives Assoc. Prof. Dr. Azmani Sahar, USIM	**3.20–3.40 pm** Developing Antiparasitic Medicine from Ethno-Religious Knowledge – An Exploration Worthwhile Assoc. Prof. Dr. Fadlul Azim Fauzi Mansur, USIM
3.40–4.00 pm AI in Clinical Epidemiology: Turning Real-Time Health Data into Action Dr. Indumathi Venkatachalam, Singapore General Hospital	**3.40–4.00 pm** Innovation in Pharmaceutical Development: Opportunities and Challenges from Formulation to Translation Prof. Dr. Noordin Othman, University of Taibah, Madina, Saudi Arabia
4.00–4.30 pm Q&A	**4.00–4.30 pm** Q&A
4.30–5.00 pm Tea Break & Poster Viewing	**4.30–5.00 pm**

7th USIM INTERNATIONAL HEALTH CONFERENCE

TRANSFORMING HEALTH THROUGH INNOVATION

PROGRAM

7th USIM International Health Conference (IHEC) 2026
Date: 8 Oktober 2025
VENUE: Faculty of Medicine and Health Sciences, Universiti Sains Islam Malaysia, Nilai, Negeri Sembilan.
THEME : Transforming Health Through Innovation

8.00–8.30 am	**Registration**
INNOVATION FORUM Auditorium, Level 2	
8.30–9.30 am	**Taking Innovation Further: Grants and Support for Scaling Ideas into Impact Panellists:** Dr. Mohamad Hazwan Mohd Daut, Head of Life Sciences, MRANTI Dr. Nur Zaireena Zainal, USIM Mr. Mohamad Fauzi Mohd Idris, ARG International Certification **Moderator:** Prof. Dr. Norsham Juliana Nordin
9.30–10.00 am	**Tea Break & Poster Viewing**
ORAL PRESENTATIONS (10.00 - 11.30 am)	
Session 2A Moderator: Gs. Dr. Nur Adibah Mohidem Judges: Assoc. Prof. Dr. Mohd Hafiz Jaafar & Assoc. Prof. Dr. Natasya Abdullah Dewan Kuliah Al Razi, Level 3	**Session 2B** Moderator: Assoc. Prof Dr Liyana Azmi Judges: Assoc. Prof. Dr. Siva Gowri Patmanathan & Assoc. Prof. Dr. Azmani Sahar Dewan Kuliah Ibnu Hayan, Level 3
Session 2C Moderator: Dr. Lau Chiew Yee Judges: Assoc. Prof. Dr. Amirah Azzeri & Assoc. Prof. Dr. Hamidin Awang Dewan Kuliah Ibnu Sina, Level 4	**Session 2D** Moderator: Dr Nor Safiqah Sharil Judges: Assoc. Prof. Dr. Wan Shahida Wan Sulaiman & Assoc. Prof. Dr. Noraziah Nordin Dewan Kuliah Ibnu Khaldun, Level 4
Session 2E Moderator: Dr. Mohamad Hilmi Nazarallah Judges: Assoc. Prof. Dr. Azlina Mokhtar & Prof. Dr. Nurul Azmawati Mohamed Bilik Seminar 1, Level 1	**Session 2F** Moderator: Dr. Saarah Huurieyah Wan Rosli Judges: Assoc. Prof. Dr. Nur Syahrina Rahim & Assoc. Prof. Dr. Maizatul Azma Masri Bilik Seminar 2, Level 1
Session 2G Moderator: Dr. Ummu Aiman Faisal Judges: Assoc. Prof. Dr. Nadia Mohd Effendi & Assoc. Prof. Dr. Fadlul Azim Auditorium	

SYMPOSIUM 2

Symposium 2A: Innovation in Teaching & Learning	Symposium 2B: Industry–Academia & Commercialisation
Chairperson: Assoc. Prof. Dr. Suhaila Sanip Dewan Kuliah Al Razi, Level 3	Chairperson: Assoc. Prof. Dr. Fathima Begum Syed Mohideen Dewan Kuliah Ibnu Hayan, Level 3
11.40–12.00 pm System under pressure. Transformative Innovation in Malaysian Healthcare Education Dr. Manraj Singh Cheema, UPM	**11.40–12.00 pm** From Natural Bioactive Discovery to Skincare Innovation: Translating Phaleria macrocarpa Beyond the Laboratory Dr. Mariani Abdul Hamid, Universiti Teknologi Malaysia & Dermags Skincare
12.00–12.20 pm Beyond Knowledge: Designing Learning Experiences to Build Clinical Reasoning Dr. Aliyyah Mohammad Khuzaini, USIM	**12.00–12.20 pm** Clinicians as Entrepreneurs: Translating Healthcare Innovation into Scalable Business Dr. Faridah Sulong, Klinik Anda
12.20–12.40 pm Practical Points in Implementing Innovations in Health Science Education Dr. Cherdsak Iramaneerat, Mahidol University	**12.20–12.40 pm** Green by Design: Sustainable Innovation Using Biokenaf Ts. Dr. Maryana Mohd Nor, Universiti Malaysia Kelantan
12.40–1.00 pm Addressing the Root Problem: A Journey of Innovation in Anatomy Education Dr. Noor Azzizah Omar, USIM	**12.40–1.00 pm** From Research to Market: Translating Tropical Fruit Research into a Commercial Functional Beverage Dr. Norayati Majid, HanaMEdic
1.00–1.10 pm Q&A	**1.00–1.10 pm** Q&A
1.10–2.00 pm	**LUNCH BREAK / LUNCH TALK**

PLENARY 3 & 4 I CLOSING CEREMONY Auditorium, Level 2	
2.00–2.45 pm	**Plenary 3: Human-Centred Robotics in Healthcare: From Therapeutic Innovation to Real-World Care** Prof. Dr. Takonari Shibata National Institute of Advanced Industrial Science and Technology (AIST), Japan
2.45–3.30 pm	**Plenary 4: Beyond Proof-of-Concept: Commercialisation Challenges in Diagnostic Innovation** Academician Prof. Emerita Datuk Dr. Asma Ismail Vice Chancellor & CEO, International Medical University (IMU)
3.30–4.00 pm	**Open Dialogue with Academician Prof. Emerita Datuk Dr. Asma Ismail Chairperson: Assoc. Prof. Dr. Nazefah Abdul Hamid**
4.00–4.30 pm	**CLOSING CEREMONY** Assoc. Prof. Dr. Razrim Rahim Dean, Faculty of Medicine and Health Sciences
4.30–5.00 pm	**Tea Break & Disperse**

KEYNOTE SPEAKER

TAN SRI DATO' SERI DR HAJI NOOR HISHAM ABDULLAH

Chairman of UCSI Healthgroup
UCSI Healthgroup

" Bridging Health Through Innovation – Lessons from Real-World Healthcare "

Tan Sri Dato' Seri Dr. Haji Noor Hisham Abdullah is a distinguished breast and endocrine surgeon with over 30 years of medical experience. Former Director-General of Health Malaysia, he is internationally recognized for his leadership in healthcare, endocrine surgery and global health policy. He currently chairs the WHO Standing Committee on Health Emergency Prevention, Preparedness and Response.

ABSTRACT
Innovation is not simply about adopting new technology. For leaders, it is a mindset: being curious, adaptable, and willing to take calculated risks, learn from failure, and empower others to improve how things are done. When resources are limited, demand is rising, or systems are under strain, innovative leaders do not see only obstacles. They see opportunities to redesign services, improve efficiency, and create better value.
In healthcare, this leadership trait is especially important. Systems everywhere face rising costs, ageing populations, chronic disease, workforce shortages, health inequalities, and growing patient expectations. These pressures make the old ways of working unsustainable. More innovation is therefore needed to rethink care pathways, use data and digital tools, strengthen prevention, and involve patients and staff in designing services.
Ultimately, innovation in healthcare must be more than technology for its own sake. It requires a culture of continuous improvement, strong leadership, staff training, patient involvement, good governance, and careful evaluation. When leaders embrace innovation in this way, they can turn the biggest challenges facing an organisation into its best opportunities—and move closer to an affordable, high-quality, patient-centred health system.

PLENARY 1

PROFESSOR DR AZIZI AYOB
Senior Professor of Pharmacology
University MAIWP International (UNIMAIWP)

" Translational Research – Making Innovation Clinically Relevant"

Professor Dr. Azizi Ayob is Senior Professor of Pharmacology at MAIWP International University (UniMAIWP) with over 30 years of experience in medicine, pharmacology, biotechnology and healthcare leadership. Renowned for his pioneering contributions to stem cell research and regenerative medicine, he has received numerous national and international accolades for excellence in research, innovation and biotechnology, while actively mentoring future healthcare professionals and scientists.

ABSTRACT
Translational research serves as the critical bridge between scientific discovery and meaningful clinical impact. This presentation draws on Professor Dr. Azizi's extensive experience as a researcher, clinician, and innovator in biomedical and biopharmaceutical research, highlighting the journey of transforming scientific discoveries into clinically relevant innovations. Through real-world experiences in developing novel biopharmaceutical technologies, the presentation explores the challenges of translating an innovation from the laboratory bench through proof-of-concept studies, preclinical and clinical evaluation, regulatory pathways, and ultimately towards clinical application and commercialization.
The presentation emphasises that successful translational research requires more than scientific novelty. It demands a clear understanding of unmet clinical needs, multidisciplinary collaboration with industry and clinical partners, regulatory readiness, intellectual property protection, and a well-defined pathway from research to implementation.

Professor Azizi's research and innovation journey recognised through National Champion of INNOVATHON Season II 2025, Gold Award at the Anugerah Harta Intelek Negara 2026, and the Tokoh Maal Hijrah Special Award 2026 provides practical insights into transforming research excellence into impactful innovation. Ultimately, the presentation advocates a paradigm shift from "publishable research" to "impactful research", where scientific discoveries not only advance knowledge but also translate into better patient care, healthcare solutions, and tangible societal value.

PLENARY 2

PROF. IR. DR MOHAMMAD FAIZAL AHMAD FAUZI
Dean, School of Digital Health, KPJ Healthcare University
Director, Centre for Digital Health, KPJ Healthcare

" The Future of Pathology in the Age of Artificial Intelligence"

Professor Ir. Dr. Mohammad Faizal Ahmad Fauzi is the Dean of the School of Digital Health at KPJ Healthcare University and Director of the Center for Digital Health, KPJ Healthcare. An expert in artificial intelligence, digital pathology and biomedical informatics, he is internationally recognised for pioneering AI-driven healthcare innovations and has received numerous prestigious research and professional awards.

ABSTRACT
Digital pathology refers to the management, analysis, and interpretation of pathology information within a digital environment, enabling more efficient, timely, and potentially cost-effective approaches to the diagnosis, prognostication, and prediction of cancer and other clinically significant diseases. The advent of whole-slide imaging (WSI) has transformed the landscape of diagnostic pathology, accelerating the adoption of digital pathology and establishing it as one of the most promising areas of modern clinical practice. More importantly, digital pathology provides a foundation for integrating artificial intelligence (AI) and machine learning (ML) into pathology, transforming the discipline into an increasingly data-driven, quantitative, and precision-focused specialty.
This talk will provide an overview of digital pathology and the key technologies underpinning the application of AI and ML to digital pathology images. It will examine current and emerging applications of AI in digital pathology, while also addressing the challenges associated with translating AI technologies into routine clinical practice.

The talk will also highlight our latest work in the development of an AI-based computer-aided diagnosis system for automated scoring of tumor biomarkers in digital pathology slides to support breast cancer treatment recommendations. Collectively, these advances illustrate how the convergence of digital pathology and AI can support more accurate, efficient, and data-driven cancer care while maintaining the essential role of pathologists in clinical decision-making.

PLENARY 3

PROFESSOR DR TAKANORI SHIBATA
Professor / Robotics Researcher
National Institute of Advanced Industrial Science and Technology (AIST), Japan

" Human-Centred Robotics in Healthcare: From Therapeutic Innovation to Real-World Care"

Professor Dr. Takanori Shibata is a Professor at the University of Tsukuba and a globally renowned robotics researcher. With previous appointments at AIST, MIT, Tokyo Institute of Technology, and the Japanese Cabinet Office, his work focuses on artificial intelligence, robotics, and human–robot interaction, advancing innovation in intelligent technologies.

ABSTRACT
Rapid advances in robotics and artificial intelligence are creating new opportunities to support healthcare beyond conventional diagnostic and procedural applications. Human-centred robotics places people at the core of technological development, focusing not only on technical performance but also on emotional, psychological, social, and practical needs. One example is PARO, a therapeutic seal robot developed to provide interactive, non-pharmacological support in healthcare and care environments. Research and clinical use have explored its potential to reduce stress and anxiety, encourage social interaction, and support the care of older adults, including people living with dementia.
The development of PARO illustrates the pathway from engineering innovation to real-world healthcare implementation. Its design integrates sensing, responsive behaviour, artificial intelligence, and a carefully considered physical form to facilitate natural human–robot interaction. Importantly, therapeutic robotics is not intended to replace healthcare professionals or human relationships, but to complement existing care by providing additional opportunities for engagement, comfort, and psychosocial support.

Translation into real-world practice requires more than technological sophistication. Clinical evidence, safety, usability, acceptance by patients and caregivers, integration into care workflows, and appropriate regulatory and organisational frameworks are equally important. Recent clinical research continues to evaluate PARO in dementia care, including its potential effects on caregiver burden and everyday care environments.

This presentation traces the journey of human-centred therapeutic robotics from concept and development to clinical evaluation and implementation. The PARO experience demonstrates how robotics can move beyond automation to address distinctly human dimensions of healthcare. As healthcare systems face ageing populations, workforce pressures, and increasingly complex care needs, human-centred robotics offers a model for developing technology that enhances, not replaces the human experience of care.

PLENARY 4

PROFESSOR EMERITA DATUK DR ASMA ISMAIL
Vice-Chancellor & Chief Executive Officer
International Medical University (IMU)

" Beyond Proof-of-Concept: Commercialisation Challenges in Diagnostic Innovation"

Professor Emerita Datuk Dr. Asma Ismail, FASc is Vice-Chancellor and Chief Executive Officer of IMU University and a distinguished Malaysian scientist. Renowned for pioneering rapid diagnostic technologies and higher education leadership, she has held numerous national and international leadership roles, significantly advancing Malaysia's science, innovation and higher education landscape.

ABSTRACT
Diagnostic innovation is essential for early disease detection, targeted treatment, surveillance, and improved health outcomes. Yet despite significant investment in research and a growing pipeline of promising technologies, relatively few diagnostic innovations progress successfully from proof of concept to commercially viable products with real-world impact. The challenge is therefore not simply whether we can innovate, but whether we can translate innovation into solutions that are accessible, affordable, scalable, and adopted by healthcare systems. This presentation examines the critical "valley of death" between scientific discovery and commercialization. Diagnostic innovators face interconnected barriers including limited translational funding, regulatory complexity, intellectual property management, clinical validation, manufacturing scale-up, quality assurance, reimbursement, market access, procurement, and competition with established technologies. Importantly, scientific excellence and technical performance alone do not guarantee commercial success.

Innovation must address a genuine unmet clinical need while demonstrating usability, affordability, value, and compatibility with healthcare systems. Moving beyond proof of concept therefore requires a shift from a predominantly technology-push approach towards a needs-driven, market-informed and impact-oriented innovation ecosystem. Universities must look beyond publications, patents, and prototypes and strengthen early partnerships among researchers, clinicians, industry, regulators, investors, policymakers, healthcare providers, and communities. Translational funding, entrepreneurial capability, regulatory preparedness, and implementation pathways must be considered from the outset. The development of TYPHIDOT™, a rapid diagnostic test for typhoid will be presented to illustrate the translational journey. Ultimately, successful diagnostic innovation requires researchers to think beyond the prototype—from discovery to validation, commercialization, adoption, scaleand impact. The real proof of innovation is not that it works, but that it reaches those who need it and makes a difference.

SYMPOSIUM 1A

DR MOHD ASHA'ARI BAIN
Orthopaedic Surgeon & Academic
Universiti Sains Islam Malaysia

" Elevate to Heal: The Elev8thor Story"

Dr. Mohd Ashaari Bain is an orthopaedic surgeon and academic at the Faculty of Medicine and Health Sciences, Universiti Sains Islam Malaysia (USIM). His work spans orthopaedic clinical practice, teaching, research and healthcare innovation. He has contributed to research in orthopaedics and related areas, including studies on the representation of women in orthopaedic surgery and sports performance following COVID-19.

He is also known for developing Elev8thor, a modular leg-support device designed to make wound care and orthopaedic procedures easier and safer for both patients and healthcare personnel. The innovation was inspired by practical challenges encountered during the treatment of patients with lower-limb injuries and was developed to reduce the manpower and difficulty involved in wound management. Elev8thor later gained wider public attention through Malaysia's INNOVATHON programme, highlighting Dr Ashaari's interest in translating clinical problems into practical healthcare solutions.

ABSTRACT

Clinical innovation often begins with a simple observation of an everyday problem. Elev8thor was developed in response to the challenges faced by healthcare personnel when managing patients with severe lower-limb injuries and wounds. Conventional handling may require several healthcare workers to support and reposition the affected limb during wound inspection, dressing, casting, and other procedures.

Elev8thor is a portable modular lower-limb elevation system designed to support and elevate an injured limb using an off-loading approach. Its movable modular blocks allow healthcare personnel to position and access the affected area more easily while reducing pressure on the limb. The system is lightweight, compact, and foldable, and can facilitate wound care as well as selected orthopaedic procedures, including traction, radiographic procedures, casting, and management of tibial injuries.

Beyond improving access to the injured limb, the innovation was designed to reduce manpower requirements and improve efficiency during patient care. Its development demonstrates how observation at the bedside can be translated into a practical, user-centred healthcare solution.

The Elev8thor story illustrates that meaningful healthcare innovation does not always require complex technology. By identifying a genuine clinical problem and developing a simple and practical solution, innovation can improve workflow, support healthcare providers, and ultimately enhance patient care.

SYMPOSIUM 1A

DR KEV LIM SHIAU CHONG
Founder & Chief Executive Officer
CEO QMed Asia

" AI-Assisted Diabetic Retinopathy Screening in Clinical Practice"

Dr. Kev Lim Shiau Chong is a medical doctor, healthtech entrepreneur and Founder & CEO of Qmed Asia, a leading digital health company serving healthcare providers across Southeast Asia. With expertise in healthcare AI, digital transformation and clinical innovation, he is widely recognised for advancing technology-driven healthcare solutions and has been featured in Tatler Asia's Asia's Most Influential and Gen.T lists.

ABSTRACT
Diabetic retinopathy remains an important cause of preventable visual impairment, yet effective screening is often limited by access to trained personnel, increasing patient volumes, and delays in image interpretation and referral. Artificial intelligence offers an opportunity to redesign this screening pathway by enabling rapid and consistent assessment of retinal images at the point of care. This presentation will explore the practical implementation of AI-assisted diabetic retinopathy screening in real-world clinical settings in Malaysia. It will discuss how AI can be incorporated into existing screening workflows, from retinal image acquisition and automated analysis to clinical review, referral prioritisation, and follow-up. Beyond algorithm performance, successful implementation requires consideration of image quality, workflow integration, interoperability, clinical governance, human oversight, data security, and clinician acceptance. Experiences and lessons from implementing AI-supported retinal screening across different healthcare environments will be shared. Rather than replacing clinicians, AI can serve as a clinical decision-support and workflow tool, helping healthcare systems expand screening capacity, identify high-risk patients earlier, and enable more efficient use of specialist resources.

SYMPOSIUM 1A

DR. DR. H NASRUDIN ANDI MAPPAWARE
Dean, Faculty of Medicine; Obstetrician & Gynaecologist
Universitas Muslim Indonesia

" Reimagining Clinical Teaching for Future Healthcare Professionals: The Indonesian Experience"

Dr. dr. H. Nasrudin Andi Mappaware is an obstetrician and gynecologist, academic leader and healthcare administrator in Indonesia. He serves as Dean of the Faculty of Medicine at Universitas Muslim Indonesia and has held numerous leadership roles in hospital management, accreditation and medical education while actively contributing to national professional organizations.

ABSTRACT
Medical education is undergoing major transformation due to rapid technological development, increasingly complex patient needs, changing disease patterns, and rising societal expectations. Clinical education must therefore move beyond knowledge transmission and procedural competence towards developing critical thinking, decision-making under uncertainty, communication, collaboration, adaptability, and reflective practice. Clinical experiences should actively engage students in meaningful learning rather than passive observation or completion of required tasks.
The clinical environment itself is an important part of the curriculum. Patients, healthcare teams, institutional systems, and organizational culture all influence learning, including through the hidden curriculum. Students should progressively develop responsibility from observation to supervised performance and reflective practice, while clinical teachers act as educators, coaches, and role models.

Patient-centered care must remain central. Students should understand patients' needs, values, preferences, and social contexts while developing empathy, communication, shared decision-making, and professional accountability. Interprofessional Education (IPE) prepares students to understand other professional roles, while Interprofessional Collaboration (IPC) translates this learning into coordinated, team-based patient care.

Transformation also requires continuous faculty development, including stronger skills in feedback, workplace-based assessment, reflective practice, and flexible approaches such as blended learning. Technology should support, rather than replace, pedagogy. Simulation, digital learning, and artificial intelligence can enhance learning, but human judgment, ethical reasoning, empathy, and accountability remain essential.

Within the Diktisaintek Berdampak and Kampus Berdampak paradigms, clinical education should contribute not only to graduate competence but also to meaningful societal impact. Reimagining clinical teaching therefore means creating more meaningful, supervised, reflective, collaborative, and patient-centered learning experiences that ultimately improve professional practice, healthcare, and community outcomes.

SYMPOSIUM 1A

ASSOC. PROF. DR MOHD AZMANI SAHAR
Associate Professor & Emergency Medicine Specialist
Universiti Sains Islam Malaysia

" Innovations in Medicine: Current Challenges and Future Perspectives"

Assoc. Prof. Dr. Mohd Azmani Sahar is an Associate Professor and Emergency Medicine specialist at Universiti Sains Islam Malaysia (USIM). He is actively involved in medical education, research and innovation, particularly in emergency care and CPR training. His work has earned numerous national and international awards, with extensive contributions to publications and community healthcare.

ABSTRACT
Medical device innovation has the potential to transform healthcare, yet translating an idea into a commercially viable solution remains challenging. This talk shares practical experiences from the innovation journey, from developing and protecting intellectual property (IP) to navigating prototype development, validation, regulatory considerations, industry engagement, and commercialisation. Key challenges encountered along the pathway will be discussed, including bridging the gap between academic innovation and market readiness. Drawing on real-world experience, the session highlights lessons learned and future perspectives on strengthening collaboration between clinicians, researchers, industry, and commercial partners to translate medical innovations into meaningful healthcare solutions.

SYMPOSIUM 1A

ASSOC. PROF. DR KHAIRULLAH ANUAR
Head, Otorhinolaryngology Unit & Senior Lecturer
Universiti Sains Islam Malaysia

" Redefining ENT Surgery Through Innovation and Technology"

Assoc. Prof. Dr. Khairullah Anuar is the Head of the Otorhinolaryngology Unit and Senior Lecturer at the Faculty of Medicine and Health Sciences, Universiti Sains Islam Malaysia (USIM). A practicing ENT specialist with expertise in rhinology, he is actively involved in clinical practice, medical education, research and academic leadership, with numerous publications and invited lectures at national and international levels.

ABSTRACT
The dynamic landscape of Otorhinolaryngology highlights recent advances that are redefining diagnostic, therapeutic and technological frontiers in the field. With a focus on innovation this exploration covers cutting edge developments in diagnostic imaging, including high resolution CT scan, MRI and image guided systems. Therapeutically, minimally invasive procedures such as Endoscopic Sinus Surgery, laser assisted intervention and transoral robotic surgery TORS are gaining widespread clinical adoption. Advanced surgical techniques for the head and neck such as modern tonsillectomy approaches are also examined. Overall, these innovations signify a paradigm shift towards personalized, minimally invasive and technologically advanced care in Otorhinolaryngology.

SYMPOSIUM 1A

DR INDUMATHI VENKATACHALAM
Infectious Disease Physician & Clinical Epidemiologist
Singapore General Hospital

" AI in Clinical Epidemiology: Turning Real-Time Health Data into Action"

Dr Indumathi Venkatachalam is an infectious disease physician and clinical epidemiologist with the Department of Infection Prevention and Epidemiology in Singapore General Hospital, Singapore. Her research interests are in surveillance automation and healthcare-associated infection risk prediction. She aims to develop and implement risk-prediction based infection prevention protocols that would enable individualized and targeted prevention.

ABSTRACT
Advances in medical and surgical care have improved patient outcomes but have also created new groups of vulnerable patients with increasingly complex risks for healthcare-associated infections. As healthcare delivery evolves, traditional surveillance and infection prevention approaches must also adapt to this changing risk landscape. Emerging technologies provide opportunities to move infection surveillance beyond retrospective documentation towards more proactive and responsive systems. Real-time data integration, automated alerts, electronic health records, predictive analytics and digital monitoring tools can help identify infection risks earlier and support timely intervention by infection prevention teams. This talk will explore current and emerging approaches to real-time infection surveillance, including the use of technology to detect patterns, identify high-risk patients and trigger targeted preventive actions. It will also discuss practical opportunities, implementation challenges and the importance of integrating technological solutions with clinical judgement and established infection prevention practices to create more responsive, data-driven infection control systems.

SYMPOSIUM 1B

ASSOC. PROF. DR LIYANA AZMI
Medical Microbiology Academic / Researcher
Universiti Sains Islam Malaysia

" Application for Point-of-Care AMR (APPA): A Tabular Deep Learning Mobile Prediction in Resource-Limited Settings"

Assoc. Prof. Dr. Liyana Azmi is a Lecturer in Medical Microbiology at the Faculty of Medicine and Health Sciences, Universiti Sains Islam Malaysia (USIM). Her research focuses on infection and immunology, antimicrobial resistance and structural microbiology. An award-winning researcher, she has secured prestigious national and international grants and is recognised for her contributions to research, community engagement and healthcare education.

ABSTRACT
Antimicrobial resistance is a major global health threat, particularly in resource-limited settings where multi-day delays in traditional susceptibility testing can exacerbate infections and drive inappropriate empirical treatment. To address this, we applied tabular deep learning via TabNet to perform real-time, point-of-care predictive surveillance. By analysing minimal, routinely collected clinical and demographic data—including age, gender, hospital ward, infection site, and organism identity—our deep learning model dynamically forecasts antimicrobial resistance phenotypes.
Unlike conventional machine learning algorithms that lose accuracy over time due to temporal epidemiological shifts, TabNet demonstrates stability. Trained on a retrospective 5-year dataset, it maintains high predictive reliability even when evaluated on unseen future patient cohorts. This robust capability enables the seamless integration of predictive intelligence into lightweight, mobile-deployable tools for front-line healthcare providers. By delivering instant, bedside resistance insights, the system empowers clinicians to make targeted prescribing decisions immediately. Ultimately, integrating deep learning screening shields into clinical workflows can optimise localised antimicrobial stewardship, curb unnecessary broad-spectrum antibiotic use, and strengthen rapid infection control across vulnerable healthcare environments.

SYMPOSIUM 1B

ASSOC. PROF. DR FADLUL AZIM FAUZI MANSUR
Associate Professor of Parasitology
Universiti Sains Islam Malaysia

" Developing Antiparasitic Medicine from Ethno-Religious Knowledge- An Exploration Worthwhile"

Assoc. Prof. Dr. Fadlul Azim Fauzi Mansur (MD UPM, MSc Liverpool, PhD Nottingham) is an Associate Professor of Parasitology at Universiti Sains Islam Malaysia. His research focuses on developing antiparasitic agents from natural compounds. He actively teaches, supervises postgraduate students and publishes extensively in high-impact international and local journals.

ABSTRACT
Parasitic infections remain an important global health burden. Control efforts are hampered by political and medical industry neglect. The problem is compounded by the development of resistance to conventional chemotherapies. Scientists are looking to unconventional sources of knowledge seeking novel compounds to develop useful medicines. Doctoral work at Nottingham focused on indigenous South American remedy of papaya, pineapple and figs for parasitic worm control where substantial levels of development were made into its efficacy, mechanism and formulation. Post doctoral collaboration with USM Kubang Kerian explored papaya seeds for amoebic control. Niche research grant exploring clues from Islamic sources prove that date palm and goat's milk possess anthelmintic properties. Latest project include the commercial development of antiparasitic drink based on oud which is mentioned in hadeeth with MALGA industries as well as an on-going collaboration with Indonesian doctoral candidate evaluating the anthelmintic effect of Habatussauda (black seed).

SYMPOSIUM 1B

DR MURNIHAYATI HASSAN
Consultant Medical Microbiologist
National Institutes of Health, Ministry of Health Malaysia

" Beyond the Microscope: AI for Smarter Diagnosis & Prognostication of Leptospirosis"

Dr. Murnihayati Hassan is a Consultant Medical Microbiologist at the Infectious Disease Research Centre, Institute for Medical Research (IMR), Ministry of Health Malaysia. Her expertise includes antimicrobial resistance, leptospirosis and fungal infections. She actively leads research, diagnostic innovation and national initiatives in infectious diseases, while contributing to microbiology education, policy development and laboratory excellence.

ABSTRACT
Background: Leptospirosis zoonotic infectious disease of major public health concern. Clinical diagnosis severely hindered by non-specific symptoms that mimic other acute febrile illnesses like dengue and malaria. Over the past decade, translational machine learning (ML) has matured as a promising tool to address diagnostic delays, prognostic uncertainty, and epidemiological surveillance gaps. This review synthesises a decade of global research across four primary application domains: clinical triage, laboratory automation, genomic classification, and spatial early-warning systems. Clinical classifiers have achieved high specificity (up to 99%) in differentiating leptospirosis from dengue, while prognostic tools like QuickLepto and regression models on hospitalised cohorts predict mortality with accuracies ranging from 89% to 92% based on predictors like thrombocytopenia and acute kidney injury.

Deep convolutional neural networks (DCNN) may streamline laboratory workflows in the near future using semi-automated microscopic agglutination test (MAT) image interpretation, achieving up to 0.99 sensitivity and a 08667 F1 score. At the genomic level, two-stage ML frameworks have successfully classified pathogenic Leptospira genomes into serogroups with F1 scores of 0.931, aiding outbreak investigation and vaccine design. Furthermore, spatial and temporal models using ensemble algorithms have successfully predicted regional outbreak risk with area under the curve (AUC) values up to 0.951. Despite these technical successes, widespread clinical translation is bottlenecked by data constraints. Most published studies exhibit high analysis bias, small sample sizes, lack of robust prospective or external validation, and geographic limitations. Safe, routine deployment requires larger, more diverse, prospectively validated datasets, and transparent, human-in-the-loop implementation framework.

SYMPOSIUM 1B

PROFESSOR DR MOHD FAUZI MH BUSRA
Professor of Advanced Regenerative Medicine
Universiti Kebangsaan Malaysia

" Tissue Engineering and Biomaterials Innovation: From Preclinical Models to Regenerative Medicine"

Professor Dr. Mohd Fauzi Mh Busra is Professor of Advanced Regenerative Medicine at Universiti Kebangsaan Malaysia (UKM). An internationally recognised expert in biomaterials, tissue engineering and regenerative medicine, he leads pioneering translational research, holds multiple patents and has been listed among Stanford–Elsevier's World's Top 2% Scientists for three consecutive years.

ABSTRACT
Healing complex skin defects and chronic wounds remains a tough clinical challenge. Standard treatments often fall short of fully restoring the native architecture of damaged tissue. To address this, our team developed biofunctionalized natural scaffolds engineered from biopolymer matrices—specifically cross-linked gelatin and natural cellulosic composites—designed to mimic the extracellular matrix and accelerate natural repair. We thoroughly evaluated these bioscaffolds from the benchtop to animal models. In the lab, we characterized their physical structure, mechanical strength, and degradation rates, while testing their compatibility with primary human dermal fibroblasts and epidermal keratinocytes. Next, we evaluated their performance in vivo using full-thickness wound and burn models to observe real-world tissue integration, re-epithelialization, and blood vessel formation. The engineered bioscaffolds showed ideal porosity and degradation profiles that aligned closely with native tissue remodeling. Human cells attached readily, multiplied, and migrated across the biomaterials without any toxic response.

In preclinical trials, the scaffolds significantly sped up wound closure, reduced scar tissue formation, and promoted healthy new vascularization and organized collagen deposition compared to untreated controls. By bridging the gap between basic laboratory science and preclinical testing, this scalable biomaterial matrix offers a practical, cell-friendly path forward for reconstructive surgery and advanced wound care.

SYMPOSIUM 1B

MR. TUNG CHEE HONG
Field Application Manager
Next Gene Scientific

" What You're Missing Matters: Delivering the Microbial Genomics with Oxford Nanopore"

Mr. Tung Chee Hong is the Field Application Manager at Next Gene Scientific Sdn. Bhd. With over a decade of experience in molecular biology and genomics, he specializes in next-generation sequencing, Oxford Nanopore and single-cell technologies. He actively supports research implementation and delivers technical training and workshops across the region.

ABSTRACT
Oxford Nanopore's new generation of DNA/RNA sequencing technology has been serving an international community of scientific researchers since 2014, providing ultra-rich, rapid, multi-omic data for novel scientific analyses.
Increasingly, clinical and translational researchers are developing novel Oxford Nanopore-based applications that demonstrate the potential to transform health outcomes across a range of areas that include oncology, human genetic disease and infectious disease.
These novel applications lay a foundation for future healthcare practice and precision medicine, where pre-emptive understanding of disease risk together with specific understanding of a patient's disease pathology, has the potential to enable personalised approaches to healthcare and patient management.
This presentation will be looking into the use of Oxford Nanopore Technologies sequencing to study the genome of pathogenic microbes thereby identifying the genotype and providing information like strain typing, virulence genes and resistance genes. Also, sharing of ongoing project of hospital studying the potential use of metagenomic sequencing on clinical samples to generate the list of candidates microbes in turn assisting on the finding causative agent of the infection. Lastly, the applications of this sequencing technology in the area of rare disease, oncology and pharmacogenomics will be shared and discussed.

SYMPOSIUM 1B

PROFESSOR DR NOORDIN OTHMAN

Academic, Department of Pharmacy Practice
University of Taibah, Madinah

" Innovation in Pharmaceutical Development: Opportunities and Challenges from Formulation to Translation"

Professor Dr. Noordin Othman is a Malaysian academic and researcher in the Department of Pharmacy Practice, College of Pharmacy, Taibah University, Al-Madinah Al-Munawwarah, Saudi Arabia. He obtained his PhD in Pharmacy in Australia and later completed postdoctoral training in hospitals in the United Kingdom.

Since joining Taibah University in 2014, he has been actively involved in pharmacy education, research, postgraduate supervision, and initiatives aimed at improving healthcare delivery and patient outcomes. His main research interests focus on health and medication-related issues among Hajj and Umrah pilgrims. He is the founder of the Quality Use of Medicines in Umrah and Hajj Pilgrimage Research Group at Taibah University, a multinational and multidisciplinary research initiative.

Before entering academia, Professor Dr. Noordin gained experience in the pharmaceutical industry as a product specialist with multinational companies. He continues to maintain strong links with industry and is involved in the development of healthcare products and digital health applications to support better health management among pilgrims.

Beyond academia, Professor Dr. Noordin is actively involved in Malaysian community organisations in Saudi Arabia. He is the founder and former President of the Malaysian Association of Al-Madinah Al-Munawwarah and currently serves as Vice President of the Association of Malaysians in Hijaz. He also regularly contributes to educational, professional, and leadership activities.

ABSTRACT
Commercializing medical research is a major challenge for academicians. Although they often possess innovative concepts of high commercial and societal value, translating academic research into marketable products frequently seems impossible without massive budgets, corporate backing, and complex industrial infrastructures. For academicians, transforming active research into tangible products requires a shift from purely scholarly studies to a product-oriented mindset. As a start, researchers can initially bypass traditional, high-cost product development by focusing on agile, small-scale product strategies. Rather than spending years navigating rigorous trials, scientists can create fast, accessible health solutions that may directly solve real-world user needs. The key opportunity lies in developing lower-risk product categories, such as topical or natural-based health remedies. Repurposing well-known, safe active ingredients or natural compounds significantly reduces testing costs and streamlines regulatory approval. Researchers can also target specific niche markets, such as specialized topical preparations that have both cosmetic and therapeutic value, muscle-pain remedies, and hydration products for Hajj and Umrah pilgrims. Furthermore, partnering with commercial companies and certified contract development and manufacturing organizations allows researchers to produce small, high-quality batches without buying expensive factory machinery, while tapping into stable potential markets. Despite these advantages and a huge available market, product development often comes with clear challenges. Academic scientists frequently struggle with a lack of commercial expertise in branding, marketing, and direct-to-consumer sales. Managing tight budgets, ensuring a long shelf life, maintaining batch-to-batch quality, and clearing local health regulations from production to post-marketing remain critical hurdles. Without a clear strategy to navigate these non-academic obstacles, promising products risk never reaching the consumers who need them. This presentation offers a practical, experience-based roadmap for researchers with limited funds to transform research ideas into fast, compliant, and marketable health products. By embracing low-regulatory pathways, smart formulations, and strategic partnerships, scientists can achieve commercial success. Ultimately, this approach bridges the gap between academic innovation and direct public health impact.

SYMPOSIUM 2A

DR MANRAJ SINGH CHEEMA
Senior Lecturer in Molecular Toxicology & Health Sciences Education
Universiti Putra Malaysia

" System under pressure. Transformative Innovation in Malaysian Healthcare Education"

Dr. Manraj Singh Cheema is a Senior Lecturer in Molecular Toxicology and Health Sciences Education at Universiti Putra Malaysia. An Anugerah Akademik Negara 2025 recipient under the Health Sciences cluster, he is recognised for his expertise in healthcare education, curriculum innovation and educational transformation, with a focus on assessment reform, ethical AI integration and preparing future-ready healthcare professionals.

ABSTRACT
Malaysian healthcare education is being reshaped by converging pressures: rapid advances in artificial intelligence and digital health, changing population and healthcare needs, workforce constraints, evolving learner expectations, and increasing clinical and ethical complexity. These pressures create an urgent need for innovation, but they also raise a more fundamental question: are we genuinely transforming education, or simply modernising the way traditional education is delivered? This talk argues that transformative innovation must move beyond the adoption of technologies, platforms, and isolated educational interventions towards the deliberate redesign of how future healthcare professionals learn, think, decide, collaborate, and act. Five interconnected priorities are proposed: assessment-first reform, capability over content, education for interprofessional complexity, human-centred artificial intelligence, and integrity by design.

Drawing on contemporary evidence, Malaysian higher education priorities, and experience in developing and implementing innovative pedagogical approaches, the session examines how healthcare education can shift from content coverage towards the cultivation of judgment, adaptability, critical thinking, collaboration, ethical reasoning, resilience, and responsible engagement with emerging technologies. It also challenges the assumption that technology itself constitutes innovation, proposing instead that meaningful transformation occurs when innovation changes learner behaviour, educational culture, and professional capability. For Malaysia, this transformation is particularly important as healthcare professionals will increasingly practise within systems that are digitally enabled, resource-conscious, multidisciplinary, culturally diverse, and characterised by uncertainty. Preparing graduates for such environments requires more than adding new tools to existing curricula; it requires rethinking the foundations of learning, assessment, and professional formation. Ultimately, a system under pressure has a choice: to add more, or to redesign what matters. When we redesign healthcare education thoughtfully, we do not just transform learning, we transform care. Keywords: healthcare education; transformative innovation; health professions education; artificial intelligence; assessment.

SYMPOSIUM 2A

DR ALIYYAH MOHAMMAD KHUZAINI
Clinician, Researcher & Medical Educator
Universiti Sains Islam Malaysia

" Beyond Knowledge: Designing Learning Experiences to Build Clinical Reasoning"

Dr. Aliyyah Mohammad Khuzaini is a clinician, researcher and medical educator with expertise in neonatology, paediatric critical care and medical education. She is actively involved in clinical research, educational innovation and digital learning, with numerous national and international publications and award-winning projects that advance paediatric healthcare and strengthen clinical reasoning in medical training.

ABSTRACT
Generative artificial intelligence (AI) is rapidly transforming how medical knowledge is accessed, synthesised and applied. Learners can now generate differential diagnoses, explanations and management suggestions within seconds. However, AI-generated outputs may be incorrect yet appear clinically plausible, hence making it difficult for learners to recognise. Recent evidence highlights challenges in detecting AI-generated errors and the potential for misleading AI outputs to adversely affect diagnostic accuracy. This creates a fundamental challenge for health professions education: if technology can generate answers, how do we ensure that clinicians can determine whether those answers are correct? Clinical reasoning extends beyond knowledge retrieval or answer generation. It requires clinicians to identify relevant information, recognise patterns, construct and prioritise hypotheses, weigh competing explanations, integrate patient and contextual factors, manage uncertainty, and continually revise decisions as new information emerges. In an AI-enabled healthcare environment, these capabilities become even more important: clinicians must be able to question, verify, contextualise and, when necessary, reject AI-generated recommendations.

This symposium presents a clinician-educator perspective on designing learning experiences that deliberately develop these capabilities. Drawing on principles from illness script theory, dual-process models of reasoning, cognitive load theory and deliberate practice, it argues for a shift from teaching students what to know towards designing experiences that teach them how to arrive at the right answer. Using innovations developed within paediatric education as practical examples, the presentation will demonstrate how sequential case disclosure, think-aloud reasoning, gamification, simulation and digitally supported decision-making can make clinical reasoning visible and actively practised. Ultimately, innovation in the age of AI is not about teaching students to compete with machines. It is about designing learning experiences that develop clinicians capable of thinking beyond the answer, recognising when an answer is wrong, and determining what is right for the patient in front of them.

SYMPOSIUM 2A

DR NOOR AZZIZAH OMAR
Anatomist & Neuroscientist
Universiti Sains Islam Malaysia

" Addressing the Root Problem: A Journey of Innovation in Anatomy Education"

Dr. Noor Azzizah Omar is an anatomist and neuroscientist specializing in neurodegeneration, neurotrophins and zebrafish disease models. Her work focuses on integrating neuroscience research with educational innovation, utilizing tools like 3D printing, gamification and simulation to enhance anatomy teaching.

ABSTRACT
Anatomy remains a fundamental pillar of medical education, providing the structural foundation upon which clinical knowledge and practice are built. Yet, in an era of rapidly expanding knowledge, shortened learning encounters, and changing student learning behaviours, anatomy education faces a growing challenge: how do we help learners move beyond memorisation towards meaningful understanding, application, and engagement? This talk presents a journey of educational innovation that begins not with a teaching tool, but with the root problem. It explores how identifying the specific barrier to learning can guide the development of purposeful, context-appropriate solutions. The journey begins with NeuroTracts, a three-dimensional interactive spinal cord model developed to make complex neural pathways more tangible and comprehensible, particularly the organisation and decussation of ascending and descending tracts. The second project, CircuMap, extends anatomy beyond the classroom, using cardiovascular circulation as a platform for community-based learning and communication of anatomical knowledge.

These innovations represent different responses to different learning challenges: making the invisible tangible, connecting structure to clinical application, and bringing anatomy into the community. More importantly, they illustrate a broader philosophy of educational innovation: effective solutions do not necessarily begin with technology, novelty, or complexity. They begin by asking the right question: What is the root problem we are trying to solve? Through these experiences, the talk will reflect on how anatomy educators can transform challenges into opportunities for creative, active, and meaningful learning, while preserving anatomy's essential place at the heart of medical education.

SYMPOSIUM 2A

ASSOC. PROF. DR CHERDSAK IRAMANEERAT
Director, Siriraj Health Science Education Excellence (SHEE) Center
Mahidol University

" Practical Points in Implementing Innovations in Health Science Education"

Assoc. Prof. Dr. Cherdsak Iramaneerat is Director of the Siriraj Health Science Education Excellence (SHEE) Center, Mahidol University. A colorectal surgeon and medical education expert, he leads innovation in health professions education, faculty development and educational assessment while advancing surgical research and postgraduate training at Siriraj Hospital.

ABSTRACT
Integrating innovations into health science curricula is essential for preparing future healthcare professionals, yet translating novel strategies into routine classroom practice remains a challenge. This session offers actionable, evidence-informed insights into successfully driving and sustaining educational change within health science schools, focusing on three core practical pillars.
First, the session examines common barriers to innovation adoption. By identifying factors such as faculty resistance, time constraints, and misalignment with curriculum outcomes, educators can proactively implement mitigation strategies. Second, the session introduces the PICRAT framework—a practical tool designed to evaluate and guide technology integration. Attendees will learn how to assess technology use through the dual lenses of student engagement (Passive, Interactive, Creative) and pedagogical transformation (Replace, Amplify, Transform) to ensure tech adoption meaningfully enhances learning rather than serving as a superficial add-on. Finally, the talk highlights the indispensable role of robust faculty development. Sustainable innovation requires moving beyond technological tools to empower educators with continuous pedagogical training, mentorship, and institutional support.
Designed for educators, academic leaders, and curriculum designers, this session equips participants with clear, adaptable frameworks to ensure effective implementation of innovations in health science schools.

SYMPOSIUM 2B

TS DR MARIANI ABDUL HAMID
Senior Lecturer
UTM, Dermags Skincare

" From Natural Bioactive Discovery to Skincare Innovation: Translating Phaleria macrocarpa Beyond the Laboratory"

Ts. Dr. Mariani Abdul Hamid is a Senior Lecturer at Universiti Teknologi Malaysia and an expert in biochemical engineering, natural product extraction and cosmeceuticals. She has led numerous research, commercialization and consultancy projects, earning multiple national and international innovation awards for advancing sustainable bioproducts and healthcare technologies

ABSTRACT
Hyperpigmentation remains a major concern in skincare, creating demand for safer and more effective alternatives to conventional tyrosinase inhibitors. This work demonstrates how natural product research on Phaleria macrocarpa can progress from bioactive compound discovery towards potential skincare and industrial applications. Phytochemical investigation identified phalerin as a major benzophenone-derived compound. Structural modification of phalerin generated semi-synthetic derivatives, including THM, which demonstrated stronger antioxidant and tyrosinase-inhibitory activity than the parent compounds and kojic acid in experimental models, without significant cytotoxicity in B16F1 melanoma cells. To support translation beyond laboratory-scale discovery, extraction of phalerin was further optimised using ultrasonic-assisted extraction. The optimised process improved phalerin recovery while offering a greener and potentially more cost-effective alternative to conventional maceration methods.

Artificial neural network modelling also demonstrated strong predictive capability for optimisation of the extraction process. Together, these findings illustrate an integrated innovation pathway combining natural product discovery, structural modification, biological validation, green processing and process optimisation. The work highlights the potential of P. macrocarpa-derived compounds as candidates for further development into safe and effective anti-hyperpigmentation ingredients. Moving from laboratory discovery towards scalable production, formulation, safety evaluation and industry adoption will be essential to realise their potential as commercially relevant skincare innovations.

SYMPOSIUM 2B

DR FARIDAH SULONG
Medical Doctor & Director, Klinik Anda Setiawangsa
Klinik Anda

" Clinicians as Entrepreneurs: Translating Healthcare Innovation into Scalable Business"

Dr. Faridah Sulong is a medical doctor and Director of Klinik Anda Setiawangsa with over a decade of clinical experience in primary care, emergency medicine and internal medicine. She is dedicated to delivering patient-centred healthcare and advancing clinical excellence through continuous professional development in family medicine, occupational health, nutrition and women's health.

ABSTRACT
Healthcare is undergoing a fundamental transformation. Malaysia faces increasing chronic disease, an ageing population, rising healthcare costs, workforce pressures, fragmented care and growing expectations for personalised and preventive healthcare. These challenges are not merely problems for the healthcare system to manage—they represent opportunities for clinicians to innovate and create meaningful solutions.
"Clinicians as Entrepreneurs: Translating Healthcare Innovation into Scalable Business" explores how doctors can move beyond the traditional role of diagnosing and treating disease to become innovators, problem-solvers and healthcare entrepreneurs.
Using the journey and experience of Klinik Anda as a practical case study, this presentation examines how clinicians can identify unmet healthcare needs, transform clinical insights into new services, build effective teams and develop sustainable business models without compromising clinical integrity.

The presentation will explore the journey from problem identification → innovation → solution → value creation → scalability, demonstrating how clinical expertise can become the foundation for sustainable healthcare enterprises.
Particular focus will be given to the shift from a reactive "sick-care" model towards prevention, health optimisation, personalised medicine, wellness and healthy ageing, and how these emerging needs can create new opportunities for healthcare innovation.
Ultimately, the presentation aims to inspire clinicians to view healthcare challenges differently: where there is an unmet need, there is an opportunity to innovate; where innovation creates value, there is an opportunity to build a sustainable and scalable healthcare business.

SYMPOSIUM 2B

TS DR MARYANA MOHD NOR
Senior Lecturer
UMK, Biokenaf

" Green by Design: Sustainable Innovation Using Biokenaf"

Ts. Dr. Maryana Mohd Nor is a Senior Lecturer at Universiti Malaysia Kelantan specializing in food technology, bioprocessing and food security. She leads multidisciplinary research in functional foods and sustainable agriculture, supervises postgraduate students and has received numerous national innovation awards for her research and community engagement.

ABSTRACT
Kenaf (Hibiscus cannabinus L.) is increasingly recognized as a sustainable crop with applications extending beyond its conventional use for fiber and biomass. Its leaves represent an underutilised bioresource containing various bioactive compounds with potential applications in functional foods and health-related products. This presentation explores the development of Biokenaf® as a case study of sustainable, evidence-based innovation derived from kenaf leaves. The "Green by Design" concept makes sustainability an intentional principle throughout the innovation pathway from using underused kenaf leaves and food-compatible processing to scientific validation, formulation, and value creation. Rather than treating sustainability as an end-point, this approach integrates environmental and resource considerations from the early stages of product development. The innovation pathway incorporates bioactive compound profiling, bioactivity evaluation, quality characterization, safety assessment, and preclinical evaluation, while prioritizing water-based extraction and resource-efficient processing where appropriate. Beyond product development, Biokenaf® demonstrates how scientific discoveries can be translated into practical health innovations through collaboration between academia, government agencies, and industry.

This integrated approach creates opportunities to generate higher-value applications from agricultural resources while strengthening the connection between health innovation and the circular bioeconomy. Overall, Green by Design provides a framework for developing plant-based health innovations that are scientifically validated, safe, resource-conscious, and designed for sustainable impact from laboratory discovery to real-world application. Keywords: Hibiscus cannabinus L., Biokenaf®, Green by Design, sustainable innovation, bioactive compounds.

SYMPOSIUM 2B

DR NORAYATI ABD MAJID
Founder & Managing Director
Hana Medic Sdn Bhd

" From Research to Market: Translating Tropical Fruit Research into a Commercial Functional Beverage"

Dr. Norayati Abd Majid is the Founder and Managing Director of Hana Medic Sdn. Bhd. With over 40 years of healthcare experience, she has led national infection control initiatives, established Malaysia's Ministry of Health Infection Control Unit and advanced perioperative nursing, hospital management and healthcare training through leadership, education and consultancy.

ABSTRACT
Translating laboratory research into commercially viable health products requires more than scientific discovery; it also involves product optimisation, safety assessment, stability, certification and industry engagement. JUST GREAT illustrates this pathway from natural product research to a market-ready functional beverage. JUST GREAT was developed from tropical fruits including soursop, lime and mango, combined with honey containing naturally occurring phenolic compounds. Its key innovation is the use of edible enzymes or selected microorganisms to enhance the availability of free phenolic acids, thereby increasing the antioxidant potential of the formulation. Comparative laboratory analysis showed that JUST GREAT contained higher levels of free phenolic acids than six commercial antioxidant products evaluated. Preclinical studies supported its biological activity, while a 28-day toxicity study in Sprague-Dawley rats did not identify treatment-related abnormalities under the study conditions. Beyond laboratory validation, the formulation was optimised for practical commercial use, achieving a reported shelf life of up to 18 months at room temperature and obtaining JAKIM Halal certification. The development of JUST GREAT demonstrates how academic research can progress from laboratory findings to a stable, certified and marketable product. It highlights the importance of integrating scientific validation, product development, regulatory considerations and industry collaboration to bridge the gap between research and real-world application.

FORUM PANEL

DR MOHAMAD HAZWAN MOHD DAUT

Head of Life Sciences
Head of Life Sciences, MRANTI

" Taking Innovation Further: Grants and Support for Scaling Ideas into Impact"

PANELIST BIOGRAPHY

Dr. Mohamad Hazwan Mohd Daut is Head of Life Sciences at MRANTI and holds a PhD from the University of Cambridge. He specializes in health technology, innovation ecosystems and technology commercialization, leading national initiatives that accelerate startups, foster strategic partnerships and drive the adoption of innovative healthcare solutions in Malaysia.

DR NUR ZAIREENA ZAINAL

Senior Medical Lecturer & Obstetrics and Gynaecology Specialist
Universiti Sains Islam Malaysia

" Taking Innovation Further: Grants and Support for Scaling Ideas into Impact"

PANELIST BIOGRAPHY

Dr. Nur Zaireena Zainal is a Senior Medical Lecturer and Obstetrics and Gynaecology Specialist at Universiti Sains Islam Malaysia. With subspecialty training in Maternal–Fetal Medicine, she is actively involved in clinical practice, medical education and research focusing on maternal health, pregnancy complications and women's reproductive healthcare.

FORUM PANEL

MOHAMAD FAUZI MOHD IDRIS

General Manager, Certification for Medical Device Certification for Medical Device, ARG International Certification Sdn Bhd

" Taking Innovation Further: Grants and Support for Scaling Ideas into Impact"

PANELIST BIOGRAPHY

Mohamad Fauzi Mohd Idris is a medical device regulatory specialist, accredited trainer and lead auditor with over a decade of experience in regulatory compliance, ISO certification and conformity assessment. He has held leadership roles in certification bodies and government, specializing in medical device standards, quality management systems and regulatory affairs.

7th USIM INTERNATIONAL HEALTH CONFERENCE

TRANSFORMING HEALTH THROUGH INNOVATION

ORAL SESSION 2A

Moderator: Dr Nur Adibah Mohidem

Venue: Dewan Kuliah Al Razi, Level 3

Time: 10.00 - 11.30 AM

Abstract Ref	Title	Presenting Author
A0041	Clinical Trajectories and Outcomes of Generalized Tetanus: A Case Series	Ayudya Intan Robbiatul Addawiyah
A0150	Harnessing Near-Peer Education for Adolescent Smoking and Vaping Prevention: A University Student-Led School-Based Intervention	Nizam Baharom
A0103	Vape Experimentation and Associated Factors Among Selected Tertiary Education Students in the Klang Valley, Malaysia: A Pilot Cross-Sectional Study	Mohd Dzulkhairi Mohd Rani
A0083	Knowledge, Attitude and Perception of Practice on Basic Life Support among Urban versus Rural Secondary School Students in South Sulawesi, Indonesia	Nur Faraheen Binti Abdul Rahman
A0049	Knowledge of Dementia Among Healthcare Staff Working in Government Health Clinic in Northern Seberang Perai District	Dr.Azimah Binti Allah Husin
A0019	Passive Infectious Disease Surveillance and Gaps in Community-Level Case Detection in Iran: A Qualitative Study	Marziyeh Najafi
A0018	Strengthening Tuberculosis Prevention Through Community-Centred Implementation in East Nusa Tenggara, Indonesia: A Qualitative Study	Marziyeh Najafi

7th USIM INTERNATIONAL HEALTH CONFERENCE

TRANSFORMING HEALTH THROUGH INNOVATION

ORAL SESSION 2B

Moderator: AP Prof Liyana Azmi

Venue: Dewan Kuliah Ibnu Hayan, Level 3

Time: 10.00 - 11.30 AM

Abstract Ref	Title	Presenting Author
A0047	Nutritional Status and Opportunistic Infection Burden as Combined Predictors of Mortality in HIV/AIDS Patients: A Retrospective Cohort Study	Novita Nurhidayati Mahmuda
A0123	Beyond Anaphylaxis: Kounis Syndrome in a Low-Risk Young Man	Izza Arsyika Abdul Rahim
A0110	Effectiveness of Balloon Tuboplasty in Eustachian Tube Dysfunction: A Narrative Review	Nur Haziqah Amani binti Ismail
A0093	A Comparative Study of Whey and Plant-Based Protein Supplementation on Muscle Recovery in Amateur Bodybuilders	DANISH HAIQAL BIN FAIZUL HASLIZI
A0058	Diabetic Foot Ulcer in Malaysia: A Literature Review of Epidemiology, Healthcare and Economic Burden, and Prevention Strategies	MUHAMMAD ALI AN NAQI BN MOHD SHARIF
A0143	Imaging features of brain frailty in acute ischaemic stroke and their prognostic significance: a narrative review	Siti Soraya Ab Rahman
A0165	Supplementary Feeding Program (Pmt) For Undernourished Toddlers At The Community Health Center	Rachmat Faisal Syamsu

7th USIM INTERNATIONAL HEALTH CONFERENCE

TRANSFORMING HEALTH THROUGH INNOVATION

ORAL SESSION 2C

Moderator: Dr Lau Chiew Yee

Venue: Dewan Kuliah Ibnu Sina, Level 4

Time: 10.00 - 11.30 AM

Abstract Ref	Title	Presenting Author
A0164	Patterns of Generative Artificial Intelligence Utilization and Related Factors Among Medical Students at the Faculty of Medicine, Universitas Muslim Indonesia: A Cross-Sectional Study	Shulhana Mokhtar
A0127	Artificial Intelligence Modalities For Clinical Decision Support And Diagnostic Applications: A Systematic Review	Fathurrahman Bin Radzuwan
A0096	Coping Strategies Among Couples Undergoing Infertility Treatment at LPPKN Centres in Malaysia: Findings from a Mixed-Methods Study	Mohd Radzniwan Bin A.Rashid
A0095	Effect Of Sad Music On Mental Health: A Systematic Review	Ahmad Alif Bin Roselan
A0137	Porphyromonas gingivalis Lipopolysaccharide Alters Primary Cilia Morphology and Upregulates Cilia-Associated and Inflammatory Gene Expression in Human Periodontal Ligament Fibroblasts	WAN NUR ALWANI BINTI WAN ABDUL AZIZ
A0025	Can Neurologists Trust Artificial Intelligence? Explainable AI as the Missing Link Between Algorithmic Accuracy and Clinical Decision-Making.	Dr Olivia Dutta

7th USIM INTERNATIONAL HEALTH CONFERENCE

TRANSFORMING HEALTH THROUGH INNOVATION

ORAL SESSION 2D

Moderator: Dr Nor Safiqah Sharil

Venue: Dewan Kuliah Ibnu Khaldun, Level 4

Time: 10.00 - 11.30 AM

Abstract Ref	Title	Presenting Author
A0162	Sociodemographic And Clinical Profile Of Dengue Inpatients In A Malaysian Tertiary Hospital: A Retrospective Case-Mix Analysis	Qurat-Ul-Ain Soomro
A0082	Cost-Effectiveness Of Artificial Intelligence–Assisted Precision Medicine In Oncology: A Systematic Review	Nurul Ain Mohd Tahir
A0100	Maternal–Infant Research In A Conflict-Affected Setting: Methodological Challenges And Lessons From A Prospective Cohort Study In Hebron, Palestine	Asmahan Allan
A0042	Delayed Diagnosis Of Bacteremia In Cancer Patients In Palestine	Mahmoud Ahmad Mohammad Ramlawi
A0034	Integrated Behavioural, Molecular And Histopathological Assessment Of Pet Microplastic-Induced Neurotoxicity In Adult Zebrafish	Henkie Isahwan Ahmad Mulyadi Lai
A0062	The Impact Of Microplastics Exposure On Bone Metabolism	Muhammad Fathulhazim Bin Suhailee

7th USIM INTERNATIONAL HEALTH CONFERENCE

TRANSFORMING HEALTH THROUGH INNOVATION

ORAL SESSION 2D

Moderator: Dr Mohamad Hilmi Nazarallah

Venue: Bilik Seminar 1, Level 1

Time: 10.00 - 11.30 AM

Abstract Ref	Title	Presenting Author
A0152	Development Of Toothplay: A 3-In-1 Dental Board Game For Oral Health Education Among Primary School Children	Farah Izzati Binti Mohd Rodzlan
A0151	Expanding Access To Professionally Applied Topical Fluoride Among Preschool Children Through Community-Based Oral Health Outreach	Syathirah Hanim Azhar Hilmy
A0070	Pixels Over Pills For Orthodontic Pain Management	Puteri Nur Hazwani Binti Mohd Kopli
A0056	Outcome Of Three-Dimensional Printed Denture In Community Service Of Geriatric Patient: Case Series	Nurul Aliya Khairul Hasni
A0036	Network Pharmacology Analysis Of Xue Fu Zhu Yu (Xfzy) For Potential Therapeutic Impact On Tension-Type Headache (Tth)	Supriyati Binti Zainuddin
A0072	Frequency-Based Bioelectronic Module For Upper Limb Exoskeleton	Nur Amira Mohd Riza

7th USIM INTERNATIONAL HEALTH CONFERENCE

TRANSFORMING HEALTH THROUGH INNOVATION

ORAL SESSION 2E

Moderator: Dr Saarah Huurieyah Wan Rosli

Venue: Bilik Seminar 2, Level 1

Time: 10.00 - 11.30 AM

Abstract Ref	Title	Presenting Author
A0163	A Scoping Review Of Maternal Clinical Outcome Indicators For Intrapartum Monitoring In Low- And Middle-Income Countries	Atiyyah Hishamuddin
A0051	Modulatory Role Of Blastocystis-Derived Solubilized Antigens In Colorectal Carcinogenesis: A Systematic Review	Nur Amani Syakirin Noor Razali
A0066	Short-Term Outcomes Of Reinforced Breast Self-Examination Education Among Female Secondary School Students In Selangor, Malaysia	Zuraida Jorkasi
A0004	Prevalence Of Secondary Polycythemia In Obstructive Sleep Apnoea And The Impact Of Cpap Treatment On Hemoglobin Level: A Retrospective Study In A Single Tertiary Care Centre In Malaysia.	Norsyarifah Binti Hashim
A0015	Toward A Shariah-Compliance Framework For Medical Adhesives: Evidence Of Porcine Contamination And Implications For Muslim Patient Care	Al Uyuna Mohd Amin
A0013	Implementation Factors For Successful Flipped Classroom In Clinical Teaching: Thematic Analysis Of Open-Ended Questionnaire Responses	Zhen-Hua Chin

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TRANSFORMING HEALTH THROUGH INNOVATION

ORAL SESSION 2F

Moderator: Dr Ummu Aiman Faisal

Venue: Auditorium

Time: 10.00 - 11.30 AM

Abstract Ref	Title	Presenting Author
A0172	Integration Of Religious Faith Spiritual (Rfs) Values In Public Health Policy Through The Biopsychosocial-Spiritual-Religious (Bpssr) Framework: A Literature Review Of Pre-Exposure Prophylaxis (Prep) Policy For Populations At High Risk Of Hiv Acquisition	Zizi Azlinda Mohd Yusof
A0076	Pre-Exposure Prophylaxis (Prep) For Homosexual Use: Analysing The Principle And Application Of I'tibar Ma'alat In The Selected Fatwas Issued By Fatwa State Councils And The Malaysian National Council For Islamic Religious Affairs (Mki)	Zizi Azlinda Mohd Yusof
A0104	Affordable But Inconvenient, Convenient But Expensive: Population Perceptions Of Malaysia's Dual Healthcare System	Jabrullah Ab Hamid
A0005	Radiation Safety Governance And Workforce Competency In Maldivian Medical Imaging: A Mixed-Methods National Assessment	Ikram Hameed
A0011	Nationwide Analysis Of Regional Disparities In Dried Blood Spot Specimen Transit Time And Quality In Malaysia's Newborn Screening Program	Muhd Irfan Bukhari Ahmad Nazri
A0020	Undernutrition Among Adults With Tb Under India's National Tuberculosis Elimination Programme: A District-Level Analysis	Tejas Wakde
A0090	Strengthening Tuberculosis Continuity Of Care Through Digital Follow-Up In Kota Kupang, Indonesia: A Programmatic Implementation Assessment	Tejas Wakde

7th USIM INTERNATIONAL HEALTH CONFERENCE

TRANSFORMING HEALTH THROUGH INNOVATION

ABSTRACT: ORAL PRESENTATION

ABSTRACT ID: A0004

Prevalence of Secondary Polycythemia in Obstructive Sleep Apnoea and the Impact of CPAP Treatment on Hemoglobin level: A Retrospective Study in a Single Tertiary Care Centre in Malaysia.

Hashim, Norsyarifah binti[1]; Chong, Professor Bee Ping[1]; Kuan, Associate Professor Wong Chee[1].
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Background
Obstructive sleep apnoea (OSA) is caused by repetitive upper airway collapse resulting in chronic intermittent hypoxia and systemic inflammation, leading to red blood cells proliferation hence secondary polycythemia. Polycythemia increases the risks of thrombotic events. CPAP is the treatment for OSA that could reverse the intermittent hypoxia, hence polycythemia.

Objectives
This study is to investigate the prevalence of increased levels of hemoglobin, hematocrit and neutrophils to lymphocyte ratio (NLR) in OSA and to see the improvement of the biomarkers after CPAP treatment.

Methods
A retrospective study has been conducted on 600 patients with OSA from year 2019 to 2024. Inclusion criterias are patient's age more than 18 years old, diagnosed with OSA with AHI > 5 on polysomnography and/or has been on CPAP treatment for at least 6 months. We exclude patients with kidney or liver disease, severe infection, malignancy, hematological disorders, other sleep breathing disorders and COPD. Patient on steroids or opioids will also be excluded.

Results
Among 242 eligible patients, the prevalence of polycythemia in OSA patients is 14.1%. 76% of polycythemia occur in the severe OSA group, 17.6% in moderate OSA and 6.4% in mild OSA. Increased in AHI is associated with increased in hemoglobin level (Spearman's r=0.142, p=0.030), increased in hematocrit level (Spearman's r=0.184, p=0.005) and increased in NLR (Spearman's r=0.254, p=0.001). Multiple linear regression analysis involving age, gender and BMI showed that for every unit increase in BMI, hematocrit is expected to increase by 0.001, HCT = 0.4369 + BMI (0.001). There are slight increment of hemoglobin and hematocrit levels, with reduction of NLR post CPAP treatment however it is not statistically significant.

Conclusion
Polycythemia in OSA is prevalent, monitoring of the blood counts is necessary. Starting CPAP treatment and compliance are important as they can reduce the inflammatory process hence the polycythemia needing future prospective study.

Keyword: Polycythemia, Obstructive sleep apnoea, CPAP treatment

7th USIM INTERNATIONAL HEALTH CONFERENCE
TRANSFORMING HEALTH THROUGH INNOVATION

ABSTRACT ID: A0005

Radiation safety governance and workforce competency in Maldivian medical imaging: A mixed-methods national assessment

Hameed, Ikram[1]; Mohamad, Noor Shafini[2]; Rahman, Ahmad Taufek Abdul[3].

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Background
Radiation safety governance in medical imaging remains critically underdeveloped across Small Island Developing States (SIDS). The Maldives, an archipelagic SIDS with a three-tier health system, has no national radiation regulatory authority, no occupational dosimetry programme, and no systematic facility audit framework. This study provides the first comprehensive national mixed-methods evaluation of radiation safety governance and workforce competency in Maldivian medical imaging.

Objectives
To assess radiation safety governance structures, quantify workforce competency and safety practice behaviours, identify systemic barriers, and derive evidence-based policy recommendations for a national radiation safety reform agenda.

Methods
A convergent parallel mixed-methods design was employed. The quantitative strand combined a validated 28-component KAP survey administered to 91 imaging professionals across 30 institutions with a 42-item facility audit benchmarked against IAEA Basic Safety Standards. The qualitative strand comprised semi-structured interviews with five senior practitioners, analysed using reflexive thematic analysis. Integration was achieved through a joint display matrix.

Results
The mean Radiation Safety Practice Index (RSPI) was 3.31/5.00 nationally, declining from 4.25 at the tertiary hospital to 2.89 at atoll facilities. Only 18% of facilities had personal dosimeters; no facility employed a Radiation Safety Officer. CPD access (β=0.58) and educational level (β=0.52) were the strongest predictors of competency (R^2=0.493). Qualitative analysis identified five convergent themes centred on governance fragmentation and structural inequity.

Conclusion
Radiation safety deficiencies in the Maldives are systemic and governance-driven. A National Radiation Protection Authority, mandatory occupational dosimetry, designated Radiation Safety Officers, and a CPD framework linked to professional registration are urgently required. These findings provide an evidence base for national policy reform and a replicable evaluation model for SIDS health systems globally.

Keyword: Radiation safety governance, medical imaging, workforce competency, SIDS, facility audit

7th USIM INTERNATIONAL HEALTH CONFERENCE
TRANSFORMING HEALTH THROUGH INNOVATION

ABSTRACT ID: A0011

Nationwide Analysis of Regional Disparities in Dried Blood Spot Specimen Transit Time and Quality in Malaysia's Newborn Screening Program

Nazri, Muhd Irfan Bukhari Ahmad[1]; Adhari, Nurfarah Nabila Mohd[1]; Mamat, Marleena[1]; Habib, Anasufiza[2]; Yamin, Azzah Hana Abu[1].

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Background
Timely newborn screening enables early detection of inherited disorders, allowing prompt treatment and improved health outcomes. Efficient transport of dried blood spot specimens is essential to ensure equitable and timely access to newborn screening services across Malaysia. However, nationwide evidence on regional differences in specimen transport and their relationship with specimen quality remains limited.

Objectives
This study evaluated regional differences in specimen transit time and examined the association between transit time and specimen quality in Malaysia's newborn screening program.

Methods
A retrospective observational study was conducted using nationwide DBS specimen records submitted to the Biochemistry Unit, Institute for Medical Research, Malaysia, between January 2020 and December 2025. Transit time was categorised as ≤1 day, >1–3 days, >3–5 days, and >5 days. Specimen quality was classified as acceptable or poor based on routine laboratory assessment. Descriptive statistics and cross-tabulation analyses were used to compare regional transit patterns and specimen quality.

Results
A total of 31,895 specimens were analysed. Transit time differed significantly across geographic regions (p < 0.001). The Central region had the shortest transit times, with 57.2% of specimens received within one day and 89.6% within three days. In contrast, 54.5% of specimens from Sabah and 65.5% from Sarawak required more than five days to reach the national newborn screening laboratory. Overall, 20.2% of specimens were classified as poor quality. Despite marked regional differences in transit time, specimen quality was influenced more by pre-analytical collection practices than transport duration.

Conclusion
These findings highlight opportunities to strengthen Malaysia’s newborn screening program through improvements in specimen collection, transport pathways, and expanding regional screening capacity. Using available data to guide these improvements may help reduce delays and provide more timely and equitable access to newborn screening across Malaysia.

Keyword: newborn screening, dried blood spot, specimen transport, specimen quality, health equity

7th USIM INTERNATIONAL HEALTH CONFERENCE
TRANSFORMING HEALTH THROUGH INNOVATION

ABSTRACT ID: A0013

Implementation Factors for Successful Flipped Classroom in Clinical Teaching: Thematic Analysis of Open-Ended Questionnaire Response

Zhen-Hua Chin[1] ,Mohamad Nurman Yaman[2], Nurul Husna Ahmad Rahman[2]

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Background
The flipped classroom (FC) model is an innovative learning approach that helps to offload the cognitive components by shifting the content to pre-class activities. This enables teachers to utilize the classroom time to foster higher order thinking skills in clinical teaching, which helps to produce competent docotor with critical thinking abilities.

Objectives
To explore medical students' perspectives on the implementation factors for successful flipped classroom in clinical teaching.

Methods
Two open-ended questions were embedded within a questionnaire to capture students' feedback and perceptions on factors influencing the successful implementation of the FC in clinical teaching. Responses were transcribed and coded using a grounded theory–based thematic analysis. Codes were iteratively refined into subthemes and themes through constant comparison and discussion until consensus and data saturation were achieved.

Results
Analysis of 150 medical student responses generated 5 key themes underpinning successful FC implementation: developing learner readiness for self-directed learning, designing meaningful pre-class materials, sustaining learning through active teacher facilitation, creating an enabling environment and structuring classroom activities for effective clinical learning. Students also advocated a balanced approach, integrating flipped learning with traditional teaching. These themes highlight critical factors for optimizing flipped classroom approach in clinical teaching. Findings showed that FC success relies on learner readiness, with selfregulation essential as the model requires independent learning. Well-designed pre-class materials and active teacher facilitation help prevent disengagement and superficial preparation. Creating an enabling environment, supported by reliable platforms and connectivity, together with well-structured classroom activities such as small-group and case-based discussions, is vital for effective clinical teaching in the flipped classroom.

Conclusion
Medical students perceived successful FC implementation in clinical teaching as a shared responsibility involving learners, clinical teachers, curriculum design and environmental support. These findings provide practical, student- centred learning for clinical educators optimising FC implementation.

Keyword: Flipped classroom, Clinical teaching, Medical education, Students' Perception, Thematic analysis

7th USIM INTERNATIONAL HEALTH CONFERENCE
TRANSFORMING HEALTH THROUGH INNOVATION

ABSTRACT ID: A0015

Toward a Shariah-Compliance Framework for Medical Adhesives: Evidence of Porcine Contamination and Implications for Muslim Patient Care

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Background
Medical adhesives including stoma wafers, hydrocolloid dressings, and adhesive plasters are widely used in wound and ostomy care, yet their formulations are rarely screened for porcine-derived components despite frequent use of animal-derived gelatin, collagen, and hydrocolloid materials.

Objectives
This objectives of study are to report porcine DNA screening across 5 commercial adhesive products and to propose a compliance framework bridging detection, disclosure, and Muslim patients care.

Methods
This study screened five commercially available medical adhesive products using DNA extraction and TaqMan real-time PCR to detect porcine-specific DNA.

Results
Porcine DNA was detected in 5 of 5 samples, revealing unexpected contamination in products with no porcine-origin disclosure on their packaging. These findings expose a compliance gap with direct implications for Muslim patients, for whom porcine-derived materials raise religious concerns under Islamic dietary and bodily-contact principles.

Conclusion
Drawing on these results, this paper proposes a Shariah-compliance framework for medical adhesives structured around five components: standardized detection protocols, manufacturer disclosure standards, Islamic legal (fiqh) classification of detected contamination, a necessity (darurah)-based clinical decision pathway, and documented patient consent procedures. The framework aims to bridge the gap between analytical detection capability and clinical and regulatory practice, offering healthcare providers, manufacturers, and halal certification bodies a structured approach to identifying, disclosing, and managing porcine contamination risk in medical adhesives. Implications for informed consent, culturally competent wound care, and halal-certification standards for medical devices are discussed.

Keyword: medical adhesive, porcine, shariah compliance, muslim patient care, medical devices

7th USIM INTERNATIONAL HEALTH CONFERENCE
TRANSFORMING HEALTH THROUGH INNOVATION

ABSTRACT ID: A0018

Strengthening Tuberculosis Prevention Through Community-Centred Implementation in East Nusa Tenggara, Indonesia: A Qualitative Study

Najafi, Marziyeh[1]; Mahendradhata, Yodi[2]; Utarini, Adi[2]; Wakde, Tejas[1]; Ahmad, Waqas[1]; Rachmayanthy, Mandira[1]; Muda, Novita[3]; Tibuludji, Joyce M.[3].

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Background
Tuberculosis preventive treatment (TPT) is an important public health strategy for preventing progression to active tuberculosis among individuals at increased risk, particularly household contacts. However, successful implementation requires more than treatment availability and depends on how preventive services are understood, accessed, and delivered within communities and health systems.

Objectives
This study explored experiences of TPT implementation in East Nusa Tenggara, Indonesia, to identify practical lessons for strengthening community-centred tuberculosis prevention.

Methods
From June to July 2026, a qualitative study in East Nusa Tenggara, Indonesia, purposively recruited nine TPT stakeholders from provincial, district/city, primary healthcare, and community levels. Data were collected through semi-structured interviews, observations of tuberculosis screening and health education, field notes, and programme document review. Reflexive thematic analysis was used, with themes interpreted using the Consolidated Framework for Implementation Research (CFIR 2.0).

Results
Five interrelated themes shaped community-centred TPT implementation. First, acceptance of preventive treatment depended on whether asymptomatic individuals understood its preventive benefits and felt confident about treatment safety and duration. Second, access and continuity were influenced by transportation barriers, population mobility, stigma, confidentiality concerns, and family support. Third, shortages of health workers and competing responsibilities constrained contact investigation, counselling, and follow-up. Fourth, health workers and community TB cadres required continuing mentoring and practical support to engage households and deliver preventive services effectively. Fifth, stronger coordination, supportive supervision, and follow-up mechanisms were needed to sustain TPT delivery across community and primary-care settings. Overall, patient-centred counselling, community engagement, family involvement, and strengthened support for frontline workers emerged as central to improving tuberculosis prevention.

Conclusion
Tuberculosis preventive treatment is shaped by how well preventive services respond to the needs and realities of individuals, families, communities, and frontline providers. Strengthening patient-centred counselling, community engagement, family support, follow-up, and supportive supervision may improve access to and continuity of TPT and strengthen tuberculosis prevention in resource-constrained settings.

Keyword: Tuberculosis preventive treatment, community health, qualitative research, implementation science

7th USIM INTERNATIONAL HEALTH CONFERENCE
TRANSFORMING HEALTH THROUGH INNOVATION

ABSTRACT ID: A0019

Passive Infectious Disease Surveillance and Gaps in Community-Level Case Detection in Iran: A Qualitative Study

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Background
Timely detection of infectious diseases is fundamental to public health prevention and response. Surveillance systems that rely primarily on patients presenting to healthcare facilities may miss infections among individuals who do not seek care or who access services outside routine public health networks.

Objectives
This study explored health-system professionals' experiences of passive infectious disease surveillance in Iran, focusing on barriers to case detection, reporting coverage, and timely public health action.

Methods
A qualitative study was conducted using semi-structured interviews with experts involved in infectious disease surveillance in Iran. Participants represented different levels and settings of the health system, including communicable disease programmes, public health services, hospitals and health-system management. Interviews explored barriers to timely identification of cases, and opportunities for improvement. Interview data were analysed thematically, with the present analysis focused on passive surveillance and coverage gaps.

Results
Participants described infectious disease surveillance as predominantly attendance-based, with cases generally detected after individuals presented to health centres, hospitals, or laboratories. Limited systematic active case finding meant that infections among people who did not seek or reach routine services could remain undetected or be identified late. Participants also identified gaps in reporting from hospitals, private providers, and services outside the primary healthcare network, further limiting surveillance coverage. Limited public awareness of available health services was perceived to reduce presentation and follow-up. Community outreach and targeted active case-finding approaches were considered potential strategies for improving detection; however, participants highlighted workforce, transportation, equipment, security, and organisational constraints affecting their feasibility.

Conclusion
Reliance on passive, attendance-based surveillance may limit timely and equitable detection of infectious diseases, particularly among populations with limited contact with routine public health services. Strengthening community awareness, reporting across public and private healthcare providers, and targeted active case finding could broaden surveillance coverage and support earlier preventive public health action.

Keyword: Infectious disease, passive surveillance, case detection, community health, disease prevention

7th USIM INTERNATIONAL HEALTH CONFERENCE
TRANSFORMING HEALTH THROUGH INNOVATION

ABSTRACT ID: A0020

Undernutrition Among Adults with TB Under India's National Tuberculosis Elimination Programme: A District-Level Analysis

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Background
Undernutrition is an important comorbidity among people with tuberculosis (TB) and may complicate recovery and TB programme outcomes. Understanding its burden and distribution within routine TB services can help identify populations requiring greater nutritional attention.

Objectives
This study assessed the prevalence of undernutrition and associated sociodemographic and clinical factors among adults with TB registered under India's National Tuberculosis Elimination Programme (NTEP) in Ranchi district.

Methods
A district-level analysis of routine NTEP data was conducted among 62,098 adults with TB aged ≥15 years. Nutritional status was classified using body mass index (BMI), with BMI <18.5 kg/m² defined as undernutrition. Sociodemographic and clinical characteristics were described using frequencies and percentages. Associations between undernutrition and age, gender, HIV status, diabetes status, bacteriological confirmation, and TB type were assessed using bivariate analysis and logistic regression.

Results
Among 62,098 adults with TB, 40,544 (65.3%) were undernourished. Undernutrition was particularly common among patients aged 15–24 years (69.6%), females (68.0%), bacteriologically confirmed patients (72.6%), and those with pulmonary TB (68.8%). Significant differences in nutritional status were observed by age group, gender, diabetes status, bacteriological confirmation, and TB type (all p<0.001), whereas HIV status was not significantly associated with undernutrition (p=0.138). Multivariable analysis further demonstrated variation in undernutrition according to demographic and clinical characteristics, although some estimates involving small reference categories require cautious interpretation.

Conclusion
Undernutrition affected nearly two-thirds of adults with TB in this district-level NTEP population, demonstrating a substantial nutritional burden within routine TB services. Strengthening systematic nutritional assessment and prioritising nutritional support for populations with a high burden of undernutrition may contribute to more comprehensive, patient-centred TB care and support tuberculosis control efforts.

Keyword: Tuberculosis, undernutrition, nutritional status, body mass index, public health

7th USIM INTERNATIONAL HEALTH CONFERENCE
TRANSFORMING HEALTH THROUGH INNOVATION

ABSTRACT ID: A0025

Can Neurologists Trust Artificial Intelligence? Explainable AI as the Missing Link Between Algorithmic Accuracy and Clinical Decision-Making.

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Background
High-performing machine learning models have demonstrated expert-level diagnostic accuracy in stroke, epilepsy, neurodegenerative disorders, and brain tumours. Yet, these tools are rarely adopted in routine clinical practice. Explainable AI (XAI) addresses this barrier by revealing feature importance and model logic, enabling physicians to double-check predictions before treatment planning.

Methods (Search Strategy)
Recent peer-reviewed studies were reviewed to evaluate XAI implementations across neuroimaging, electroencephalography, predictive modelling, and combined diagnostic workflows. Key data were extracted regarding diagnostic utility, workflow feasibility, current technical constraints, and translational requirements.

Findings / Synthesis
Across various applications, XAI frameworks effectively identified the specific anatomical and physiological features driving model decisions. In cerebrovascular, oncological, and neurodegenerative cases, visual and quantitative explanations helped multidisciplinary teams verify predictions. Nevertheless, important challenges remain. Most evaluations rely on historical datasets instead of real-world clinical trials; few studies assess whether explanations alter clinical decisions or patient outcomes, and validation protocols lack standardisation across the literature.

Conclusion
Algorithmic accuracy alone is insufficient for successful clinical integration. physicians must be able to audit how outputs are generated. XAI provides necessary oversight for decision support, but prospective trials and standardized validation frameworks are essential before these tools can deliver real-world health impact.

Keyword: Explainable AI, Neurology, Clinical Decision-Making, Machine Learning, Health Innovation

ABSTRACT ID: A0034

Integrated Behavioural, Molecular and Histopathological Assessment of PET Microplastic-Induced Neurotoxicity in Adult Zebrafish

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Background
Polyethylene terephthalate microplastics (PET-MPs) are persistent environmental pollutants increasingly relevant to aquatic and planetary health. Their chronic effects on the adult vertebrate brain remain insufficiently characterised.

Objectives
This study integrated behavioural, molecular and histopathological endpoints to assess PET-MP-induced neurotoxicity in adult zebrafish.

Methods
Adult zebrafish were exposed to PET-MPs at 100, 250, 500 and 1000 mg/L for 21 days. Neurobehavioural changes were evaluated using the Novel Tank Diving Test, focusing on anxiety-like geotaxis, vertical exploration and locomotor activity. Brain GLUT1a expression, a marker related to glucose transport and cerebral energy homeostasis, was assessed using RT-PCR. A complementary histopathology component examined zebrafish brain sections from control and PET-MP exposure groups, including 50, 100, 250, 500 and 1000 mg/L, across multiple magnifications to characterise neuroanatomical and cellular alterations.

Results
Higher PET-MP concentrations, particularly 500 and 1000 mg/L, were associated with stronger anxiety-like behaviour and locomotor impairment. GLUT1a expression increased dose-dependently, reaching approximately 4.1-fold at 1000 mg/L (p < 0.001), suggesting a possible compensatory response to brain energy stress. Preliminary brain histopathological profiling provided structural context for PET-MP-associated neurotoxicity, although quantitative scoring remains necessary to confirm dose-related tissue injury.

Conclusion
Integrating behavioural dysfunction, GLUT1a upregulation and brain histopathological profiling supports adult zebrafish as a sentinel model for PET-MP environmental neurotoxicity. Future validation should include oxidative stress markers, inflammatory endpoints and quantitative histopathological scoring.

Keyword: PET microplastics, adult zebrafish, environmental neurotoxicity, GLUT1a, brain histopathology

7th USIM INTERNATIONAL HEALTH CONFERENCE
TRANSFORMING HEALTH THROUGH INNOVATION

ABSTRACT ID: A0036

Network Pharmacology Analysis of Xue Fu Zhu Yu (XFZY) for Potential Therapeutic Impact on Tension-Type Headache (TTH)

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Background
Globally, tension-type headache (TTH) is the most common neurological disorder with a prevalence of 26.5% in Malaysia. Moreover, TTH is associated with poor sleep quality, physical activity and psychological health, affecting the quality of life. There is growing interest in using phytotherapy. The holistic approach of phytotherapy in this study analyses the potential role of target genes in the aspect of stress-relieving effect, analgesic properties and reducing neuroinflammation via computational methods which reduces need for laboratory works and sustainable ecological approach to reduce uses of plants for research.

Objectives
This study aims to evaluate the potential mechanisms of action of the multi-herbs Xue Fu Zhu Yu on TTH.

Methods
This study employed a network pharmacology and provides topological analysis to construct herbal-ingredients-active compounds-target interaction network. An electronic search was conducted in the UniProt database to identify the potential XFZY active compounds, while target genes for TTH were retrieved from TCMSP database. A Venn diagram was used to obtain overlapping target genes. Subsequently, hub genes were retrieved from Cytoscape 3.10.4.

Results
The bioactive compounds quercetin, kaempferol, and naringenin demonstrated the highest therapeutical potential. A total of 293 target genes associated with XFZY met the screening the criteria of oral bioavailability (OB) > 40% and (DL) > 0.18. In contrast, TTH-related target genes were 3658. The overlapping hub genes were analysed via a Venn diagram, and the hub genes identified were AKT1, TNF, IL6, IL1B, JUN, TP53, PTGS2, CASP3, ESR1, and BCL2.

Conclusion
Overall, this study provides a deeper understanding of the mechanisms of action of XFZY in the treatment of TTH through computational analyses. The findings bridge traditional medicines and modern molecular science by simulating how bioactive compounds in XFZY interact with molecular targets involved in disease regression, thereby providing insights into its potential therapeutic effects for TTH.

Keyword: Phytotherapy, sustainable ecology, bioactive compounds, primary headache.

7th USIM INTERNATIONAL HEALTH CONFERENCE
TRANSFORMING HEALTH THROUGH INNOVATION

ABSTRACT ID: A0041

Clinical Trajectories and Outcomes of Generalized Tetanus: A Case Series

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Background
Generalized tetanus is a potentially life-threatening neurological infection characterized by progressive muscle rigidity, spasms, respiratory compromise, and autonomic dysfunction. Although diagnosis is primarily clinical, disease severity may evolve rapidly, requiring continuous reassessment and individualized management. This case series highlights the importance of dynamic clinical monitoring in transforming the management of generalized tetanus.

Case Description
Three adult patients with generalized tetanus were managed at a secondary referral hospital. A 46-year-old man developed generalized rigidity, dysphagia, and spasms approximately 10 days after a nail puncture wound. Initially classified as grade III tetanus, he subsequently developed frequent prolonged spasms, respiratory deterioration, and severe autonomic instability, progressing to grade IV disease and cardiopulmonary arrest despite intensive management. An 84-year-old man presented with trismus, neck and abdominal rigidity approximately 10 days after a hoe-related foot injury. His clinical course was complicated by hypotension, but treatment could not be completed because the family requested discharge against medical advice due to financial constraints. A 68-year-old man developed generalized tetanus following a foot injury from a snail shell while working in a rice field. His condition temporarily progressed to grade III during episodes of seizures, followed by gradual improvement to grade II. Diazepam was progressively reduced and transitioned to oral therapy as rigidity decreased, and the patient was prepared for discharge with stable hemodynamic.

Discussion
These cases demonstrate distinct clinical trajectories despite similar generalized tetanus presentations. Serial assessment of spasms, respiratory status, and hemodynamic changes enabled recognition of deterioration and guided escalation or de-escalation of therapy. The cases also highlight the importance of early recognition following tetanus-prone injuries continuity of care.

Conclusion
Dynamic rather than static clinical assessment may improve recognition of deterioration, guide individualized treatment, and support safer de-escalation in generalized tetanus. This approach represents a practical innovation in clinical care where timely reassessment can directly influence patient management and outcomes.

Keyword: Generalized tetanus, Dynamic clinical monitoring, Clinical management

ABSTRACT ID: A0042

Delayed diagnosis of Bacteremia in Cancer Patients in Palestine

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Background
Bacteremia is a time-critical complication in immunocompromised cancer patients, where diagnostic delay can compromise antibiotic selection and survival. Data on bacteremia prevalence, resistance patterns, and diagnostic turnaround time (TAT) among cancer patients in Palestine, and their link to outcomes, are lacking.

Objectives
To evaluate the epidemiology, TAT, antimicrobial resistance, and clinical outcomes of bacteremia in cancer patients in Palestine; specifically to determine prevalence and microbiological characteristics, measure TAT across diagnostic phases and identify the greatest bottleneck, assess multidrug resistance (MDR) as a predictor of 30-day mortality, and examine associations between diagnostic delay and secondary outcomes (ICU admission, length of stay).

Methods
This retrospective cross-sectional study was conducted at Augusta Victoria Hospital, East Jerusalem, using blood-culture and clinical records of oncology patients (2021–2025). Pathogenic bacterial isolates were analyzed for demographic, microbiological, susceptibility, TAT, and 30-day mortality data using chi-square/Fisher's exact and Mann-Whitney U tests.

Results
Of 14,785 oncology-linked cultures, 1,321 (8.9%) were positive, yielding 1,003 pathogenic isolates from 326 patients. Enterobacterales predominated, led by E. coli (16.8%) and K. pneumoniae (15.6%). MDR affected 57.1% of classifiable isolates. Median time to positivity was 13.0 hours; median total turnaround was 81.9 hours, with the post-detection identification/reporting interval the longest step (50.0 hours). Thirty-day mortality was 24.9%, significantly higher with MDR infection (29.4% vs 21.5%), older age, and Acinetobacter baumannii.

Conclusion
Bacteremia in Palestinian cancer patients is largely driven by Gram-negative, often multidrug-resistant organisms, with diagnostic turnaround delayed mainly at the post-detection reporting stage. MDR status, more than turnaround time itself, was the strongest predictor of 30-day mortality, underscoring the need for local antibiograms, faster laboratory reporting, and stronger antimicrobial stewardship in this setting.

Keyword: Blood stream infections, Antimicrobial Resistance, Antibiotic Susceptibility Testing, Clinical & Laboratory Standards Institute

7th USIM INTERNATIONAL HEALTH CONFERENCE
TRANSFORMING HEALTH THROUGH INNOVATION

ABSTRACT ID: A0047

Nutritional Status and Opportunistic Infection Burden as Combined Predictors of Mortality in HIV/AIDS Patients: A Retrospective Cohort Study

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Background
Late presentation and disease severity remain major drivers of HIV/AIDS mortality in resource-limited settings. Cachexia and opportunistic infections were previously identified as strong prognostic markers in this cohort, but were recorded only as qualitative clinical judgments.

Objectives
Body Mass Index (BMI) and opportunistic infection (OI) burden are objective, low-cost, bedside-measurable alternatives that could support early risk stratification without laboratory turnaround.

Methods
A retrospective cohort study was conducted among HIV/AIDS patients at PKU Muhammadiyah Hospital Surakarta, Indonesia (2019–2024). Eighty-six patients with complete BMI, OI count, and mortality data were analyzed. BMI was categorized using Asia-Pacific cutoffs (underweight <18.5 kg/m²); OI burden was defined as the number of concurrent opportunistic infections at diagnosis. Mann-Whitney U tests, Spearman correlation, multivariable logistic regression adjusted for age and sex, and chi-square tests for a combined risk-group stratification were performed.

Results
Of 86 patients, 29 (33.7%) died. BMI was significantly lower among non-survivors (Mann-Whitney U=402.5, p<0.001), and OI count was significantly higher among non-survivors (p=0.030). BMI and OI counts were weakly, independently correlated (Spearman r=-0.244, p=0.024), supporting their use as complementary markers. After adjusting for age and sex, underweight status remained an independent predictor of mortality (adjusted OR 4.45, 95% CI 1.55–12.81, p=0.006), while higher OI burden showed a trend-level association (adjusted OR 1.61 per infection, 95% CI 0.95–2.72, p=0.076). Patients with both risk factors had markedly higher mortality (55.9%) compared with those with one (20.5%) or neither (15.4%) risk factor (χ^2=12.47, p=0.002).

Conclusion
Low BMI and higher opportunistic infection burden independently and jointly predict mortality in HIV/AIDS patients. Combining these two simple, cost-free bedside markers may support early risk stratification and prioritized care in resource-limited settings, without requiring laboratory turnaround such as CD4 or viral load testing.

Keyword: Body Mass Index, Opportunistic Infections, Mortality, Nutritional Status

7th USIM INTERNATIONAL HEALTH CONFERENCE
TRANSFORMING HEALTH THROUGH INNOVATION

ABSTRACT ID: A0049

Knowledge of Dementia Among Healthcare Staff Working in Government Health Clinic in Northern Seberang Perai District

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Background
Dementia is a growing public health concern. Healthcare staff play a key role in its detection and care, but evidence on their dementia knowledge in Malaysia remains limited.

Objectives
To assess dementia knowledge among different healthcare staff in government health clinics in Northern Seberang Perai, Penang.

Methods
A cross-sectional study was conducted from June to July 2026 among clinical staff working in government health clinics in Northern Seberang Perai, Penang. Participants were categorised into different work scopes and selected using stratified simple random sampling. Dementia knowledge was assessed using the 25-item Dementia Knowledge Assessment Scale (DKAS), administered via an online questionnaire. DKAS consists of 25 true/false statements rated on a five-point Likert scale, with scores ranging from 0 to 50; higher scores indicated better knowledge. Socio-demographic characteristics, profession and dementia training experience were assessed descriptively.

Results
Among 138 participants, nurses comprised 59(42.8%), doctors 35(25.4%), pharmacy personnel 24(17.4%), medical assistants15(10.9%) and allied health professionals 5(3.6%). The majority were female 113 (81.9%), aged 36–50 years 93(67.4%), Malay 114 (80.4%) and had worked for 11-15 years 40 (29.0%). Overall,42 (30.4%) participants had received previous dementia training. Continuing medical education was the most commonly reported type of training 25 (18.1%), followed by courses 13 (9.4%). Lectures and workshops were each reported by 5(3.6%), while clinical and online training were reported by 4(2.9%) and 1(0.7%) respectively. The mean DKAS score was 28.86 (SD 10.36), indicating a moderate level of dementia knowledge. Allied health professionals recorded the highest mean score at 33.20 (5.45), followed by doctors at 32.60 (8.11) and medical assistants at 32.07 (12.45). Nurses and pharmacy personnel recorded lower mean scores of 26.41 (10.95) and 26.50 (9.31), respectively.

Conclusion
Dementia knowledge varied by occupation and working experience. Targeted and regularly updated dementia education may help improve knowledge among staff.

Keyword: Dementia, Knowledge, Health Clinic

ABSTRACT ID: A0051

Modulatory role of Blastocystis-derived solubilized antigens in colorectal carcinogenesis: A systematic review

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Background
Colorectal cancer (CRC) is influenced by complex interactions between tumour biology, immune responses, and the intestinal microenvironment. Blastocystis sp., a common intestinal protozoan, has been increasingly implicated in intestinal inflammation and disruption of gut homeostasis. However, its potential role in CRC and the underlying mechanisms remain unclear. This systematic review aimed to synthesise experimental evidence on the modulatory effects of Blastocystis-derived solubilized antigens (BSA) in colorectal carcinogenesis.

Methods (Search Strategy)
A systematic literature search was conducted in PubMed, Scopus, Web of Science, and CINAHL from database inception to May 2026, following PRISMA guidelines and a prospectively registered PROSPERO protocol (CRD420261338777). The search combined terms related to Blastocystis, solubilized antigens, host immune responses, inflammation, and experimental cell-based studies. Reference lists of eligible studies were also manually screened. Original experimental studies investigating BSA effects on CRC-related cellular or molecular outcomes were included.

Findings / Synthesis
Of 391 records identified, 23 duplicates were removed and 10 articles underwent full-text assessment, with six studies meeting the inclusion criteria. BSA promoted CRC cell proliferation, with Subtype 3 (ST3) producing the strongest proliferative response in HCT116 cells. BSA exposure was associated with reduced p53 expression and increased expression of tumour-associated and inflammatory mediators, including cathepsin B, TGF-β, IL-6, IL-8, and NF-κB. ST3-derived BSA also reduced the cytotoxic efficacy of 5-fluorouracil. In PBMCs, responses differed according to host condition, with chemotherapy-treated CRC patients showing attenuated metabolic and immune responses.

Conclusion
Current experimental evidence suggests that Blastocystis-derived antigens may contribute to CRC-related processes through modulation of tumour cell proliferation, inflammatory signalling, immune responses, and chemotherapy sensitivity. The subtype-dependent effects, particularly those associated with ST3, highlight the need for further mechanistic and clinical studies to clarify the potential role of Blastocystis in CRC progression and treatment outcomes.

Keyword: Blastocystis, colorectal cancer, solubilized antigen, immune modulation, Apoptosis

ABSTRACT ID: A0056

Outcome of Three-dimensional Printed Denture in Community Service of Geriatric Patient: Case Series

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Background
Digital technology has enhanced denture fabrication via additive manufacturing with precise and efficient workflows. It offers fast denture fabrication. However, the practicality of the 3D-printed denture in community service setting was underexplored. While 3D-printed dentures offer superior adaptation, limitations in mechanical strength, volumetric shrinkage, and surface roughness can compromise its long-term durability. Thus, might impact the quality of life.

Case Description
This case series aimed to address the feasibility of 3D-printed denture workflow in a community service setting and to assess the clinical outcomes of 3D-printed denture. An innovative digital workflow was established to fabricate digital denture for community service among geriatric population, in Nilai, Negeri Sembilan. After 8 months review, the inserted denture was assessed clinically the patient satisfaction and quality of life was measured using GOHAI questionnaire. Out of 18 patients that received 3D-printed denture, only (n = 3) patients turned up for review.

Discussion
Clinical assessment showed that 3D-printed denture has good retention, and stability. Aesthetic was acceptable, but 1 case need a redo. GOHAI results showed that (n = 2) patients experienced occasional functional limitations (mean score = 4), particularly during mastication of certain foods, while psychosocial impacts were reported generally favourable (mean score 4.17 ± 2.36). Pain and discomfort were also reported in one patient. GOHAI findings suggest an acceptable oral health related quality of life following of 3D-printed denture insertion, although interpretation is limited by the small number of respondents.

Conclusion
Within the limitation of the study, the digital workflow for 3D-printed dentures was feasible in a community service setting and provides clinically acceptable outcomes in term of function and psychosocial impact as well as their oral health–related quality of life.

Keyword: D-printed dentures, Complete dentures, Digital denture, Geriatric, GOHAI

7th USIM INTERNATIONAL HEALTH CONFERENCE
TRANSFORMING HEALTH THROUGH INNOVATION

ABSTRACT ID: A0058

Diabetic Foot Ulcer in Malaysia: A Literature Review of Epidemiology, Healthcare and Economic Burden, and Prevention Strategies

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Background
Diabetic foot ulcer (DFU) is a major complication of diabetes mellitus associated with infection, amputation, prolonged hospitalisation, and substantial healthcare costs. Despite Malaysia's high diabetes prevalence, evidence on the overall burden of DFU and challenges in its prevention remains fragmented.

Methods (Search Strategy)
A literature-based review was conducted using PubMed and Google Scholar for English-language studies published between 2010 and 2025 involving adult diabetic populations. Study selection was guided by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) framework. Twenty-four eligible studies were included, and findings were narratively synthesised according to predefined themes.

Findings / Synthesis
DFU prevalence varied markedly across healthcare settings, from 1.2% in the National Diabetes Registry to 7.5–42% in hospital-based studies, suggesting potential underestimation of the burden among patients with more severe disease. DFU contributed disproportionately to healthcare utilisation, accounting for 35.6% of orthopaedic emergency surgeries in one secondary healthcare setting, while 40.5% of patients required multiple surgeries during a single admission. Hospitalisation averaged approximately 9 days, extending to 159 days in severe cases. The broader economic burden of type 2 diabetes and its complications was substantial, with annual public-sector and indirect costs estimated at RM1.4 billion and RM12.88 billion, respectively. Despite established preventive recommendations, gaps in patient education and barriers at patient, healthcare-system, and socioeconomic levels continue to hinder effective prevention.

Conclusion
DFU imposes a substantial yet potentially underestimated burden in Malaysia. Earlier risk detection, strengthened patient education, coordinated multidisciplinary care, and improved implementation of preventive strategies are needed to reduce avoidable complications and resource utilisation.

Keyword: diabetic foot ulcer, diabetes mellitus, healthcare burden, economic burden, prevention

ABSTRACT ID: A0062

The Impact of Microplastics Exposure on Bone Metabolism

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Background
Microplastics (MPs), defined as plastic particles smaller than 5 mm, have become pervasive environmental contaminants detected in human blood, placenta, and multiple vital organs. Chronic human exposure occurs through ingestion, inhalation, and dermal contact, with particles capable of translocating across biological barriers to reach deep tissues. While the toxicity of MPs to reproductive, gastrointestinal, and respiratory systems has been extensively studied, their impact on skeletal health remains poorly characterised. Recent evidence of MP accumulation in human bone and bone marrow, coupled with associations with altered bone turnover markers, has raised concerns that MPs may disrupt bone homeostasis through oxidative stress, inflammation, and endocrine dysregulation.

Methods (Search Strategy)
This narrative review synthesised available human, animal, and cellular evidence on the effects of microplastic exposure on bone metabolism. Systematic searches were conducted in Google Scholar, PubMed, Scopus, and Elsevier for articles published in English within the past 10 years.

Findings / Synthesis
MPs have been detected in human bone tissue (~22.9 particles/g) and bone marrow, with polystyrene showing a 100% detection rate. Human studies demonstrate correlations between MP burden and elevated bone turnover markers (PINP and TRACP-5b), indicating active remodelling disruption. Mechanistically, MPs impair osteoblast function through oxidative and endoplasmic reticulum stress while promoting osteoclast differentiation via the RANKL/OPG/NFATc1 pathway. MPs also disrupt calcium transport through downregulation of TRPV6 and PMCA channels and induce systemic inflammation via IL-6 and TNF-α. Animal studies confirm MP-induced reductions in trabecular bone volume, mineral density, and mechanical strength.

Conclusion
Microplastics represent a significant environmental threat to skeletal health through multiple interconnected pathways. However, human evidence remains largely correlative, and no experimental study has directly measured bone outcomes pre- and post-controlled MP exposure. Prospective cohort studies integrating internal MP burden with bone imaging are needed.

Keyword: Microplastics, Bone metabolism, RANKL/OPG pathway, Endocrine disruption, Bone cells

7th USIM INTERNATIONAL HEALTH CONFERENCE
TRANSFORMING HEALTH THROUGH INNOVATION

ABSTRACT ID: A0066

Short-Term Outcomes of Reinforced Breast Self-Examination Education Among Female Secondary School Students in Selangor, Malaysia

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Background
Female adolescents may receive little structured breast health education, leaving gaps in their knowledge and confidence to recognise breast changes and perform breast self-examination (BSE). Reinforcement may help them retain what they learn.

Objectives
To evaluate the short-term outcomes of reinforced school-based BSE education among female secondary school students in Selangor, Malaysia

Methods
A repeated-measures quasi-experimental study involved 150 female students aged 15–16 years from three secondary schools. Participants were assigned equally to reinforcement and non-reinforcement groups. The initial programme comprised a 30-minute educational session, demonstration, supervised return demonstration and printed guide. Outcomes were assessed at baseline, immediately after the programme and five to nine weeks later. The reinforcement group received an additional session before final assessment. Changes over time were analysed using Friedman tests, and final scores were compared using Mann-Whitney U tests.

Results
All participants completed baseline, immediate and final assessments. Mean knowledge scores increased from 16.30 at baseline to 24.76 immediately after the programme and remained high at follow-up (24.64). Mean practice-related knowledge scores increased from 1.01 to 5.71 and remained at 5.57, whereas confidence increased from 15.46 to 26.40 and reached 28.93. Changes over time were significant for knowledge, practice-related knowledge and confidence (all p < .001; Kendall's W = .896, .869 and .895, respectively). At final follow-up, the reinforcement group recorded higher knowledge (24.93 versus 24.35; p < .001), practice-related knowledge (5.81 versus 5.33; p = .001) and confidence (29.88 versus 27.99; p < .001). All participants correctly sequenced the nine BSE steps at the immediate and final assessments.

Conclusion
The education programme was followed by clear short-term gains. Students receiving reinforcement had better final knowledge, practice-related knowledge and confidence, suggesting that a follow-up session may help retain learning.

Keyword: Adolescents, breast health education, breast self-examination, school-based programme, educational reinforcement

7th USIM INTERNATIONAL HEALTH CONFERENCE
TRANSFORMING HEALTH THROUGH INNOVATION

ABSTRACT ID: A0070

Pixels Over Pills for Orthodontic Pain Management

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Background
Fixed orthodontic activations trigger acute physical and emotional distress, often requiring pharmacological analgesics that can impair tooth movement. Integrating neuro-acoustics and immersive digital environments into clinical care offers a novel, non-pharmacological pathway to modulate pain via gate-control mechanisms. This study evaluates VibeRx, an innovative Virtual Reality (VR) digital therapeutic system designed to transform the patient care experience.

Objectives
To evaluate the effect of VibeRx on pain perception and oral health–related quality of life (OHRQoL) during and after fixed appliance activation

Methods
A two-phase prospective cross-sectional study (N=48) was conducted at the USIM Dental Clinic. Phase I involved engineering a specialist-validated 15-minute 3D VR environment featuring fun, AI-generated educational visual content on tooth movement paired with dynamic binaural audio tracks to induce neural relaxation. Phase II evaluated adult patients undergoing initial orthodontic activation, randomly allocated to the VibeRx intervention group (n=24) or standard care control (n=24). Pain intensity was measured using the Numerical Rating Scale (NRS) immediately post-procedure and at 24 hours. Short-term Oral Health-Related Quality of Life (OHRQoL) was evaluated at 24 hours using the OHIP-14 questionnaire.

Results
The VibeRx cohort demonstrated a clinically profound >60% reduction in mean pain perception immediately post-activation (1.92 vs. 4.96; p<0.001). This significant digital analgesic effect persisted through the critical 24-hour peak (2.38 vs. 4.92; p=0.002). Furthermore, VibeRx significantly improved OHRQoL domains, including psychological disability (p=0.011), social disability (p=0.032), handicap (p=0.033), and self-confidence (p=0.015).

Conclusion
VibeRx provides an evidence-based, drug-free digital therapeutic platform that effectively suppresses acute procedure-induced pain while preserving patient quality of life. By shifting care paradigms from conventional pharmaceuticals to bio-responsive digital innovations, this scalable framework establishes a new standard for non-invasive clinical pain management.

Keyword: Virtual Reality, Orthodontic Pain, Oral Health–Related Quality of Life

7th USIM INTERNATIONAL HEALTH CONFERENCE
TRANSFORMING HEALTH THROUGH INNOVATION

ABSTRACT ID: A0072

Frequency-Based Bioelectronic Module for Upper Limb Exoskeleton

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Background
Stroke typically causes upper limb motor dysfunction and requires repetitive and continuous rehabilitation to promote functional recovery. Upper limb exoskeletons are an emerging technology for delivering organised and supported movement training, however contemporary systems are focused on mechanical rehabilitation and have limited integration of supplementary therapeutic support before, during and after active training.

Intervention / Innovation
This research presents the conceptual design of an integrated frequency-based bioelectronic module for upper limb exoskeleton for stroke rehabilitation. The suggested system provides three rehabilitation modes, namely warm up mode, training mode and healing mode, to offer complimentary support at distinct stages of the rehabilitation process. The bioelectronic module is frequency-based and built as a detachable element, which may work as part of the exoskeleton during rehabilitation and independently if needed.

Outcome / Impact
The proposed development framework consists of three major phases, namely identification of the suitable frequency parameters for each rehabilitation mode, design and integration of the bioelectronic module with the existing exoskeleton system and evaluation of system functionality and electromagnetic interference from electronic components.

Conclusion
The proposed research is to develop a modular rehabilitation platform integrating assisted mobility training with complementary frequency-based bioelectronic support.

Keyword: : upper limb exoskeleton, frequency-based, bioelectronic module, electromagnetic interference

7th USIM INTERNATIONAL HEALTH CONFERENCE
TRANSFORMING HEALTH THROUGH INNOVATION

ABSTRACT ID: A0076

Pre-Exposure Prophylaxis (PrEP) for Homosexual Use: Analysing the Principle and Application of I'tibar Ma'alat in the Selected Fatwas Issued by Fatwa State Councils and the Malaysian National Council for Islamic Religious Affairs (MKI)

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Background
Al-Shatibi advocated several new legal theories and promoted improvement to Usul al-Fiqh approximately 650 years ago. Among the legal theories he put forth in his masterpiece, al-Muwafaqat, was the idea of i'tibar ma'alat. However, due to some collision, his theories were unnoticed and have since stagnanted. In actuality, the concept of i'tibar ma'alat has not received much attention from classical jursits in the past. However, in accordance with the development of the discipline of maqaṣid al-shariah, the discussion on the principle of ma'alat has recently started to gain momentum among scholars worldwide, including in Malaysia. It is interesting to note that al-Shatibi's magnum opus may a number of religious issues, particularly in PrEP in reducing HIV's statistic caused by sexual transmission. Several fatwas have been issued at the national as well as state levels in Malaysia in facing the conflict between public health and moral.

Methods (Search Strategy)
In this qualitative study, a comprehensive review was conducted utilizing databases such as Scopus and Google Scholar. Several fatwas issued by the State Fatwa Councils and Malaysian National Council for Islamic Religious Affairs (MKI)has been selected to analyse the principle and application of i'tibar ma'alat.

Findings / Synthesis
This study explores the principle and application of i'tibar ma'alat which was implicitly and explicitly applied in each fatwa selected. Furthermore, this indicated that the MKI and state fatwa councils has successfully implemented the principle in issuing fatwas responding to the emerging religious issues yet require attention Syariah guideline at policy level.

Conclusion
Al-Shatibi's classical jurisprudential theory of i'tibar ma'alat provides a vital, pragmatic framework for resolving contemporary bioethical dilemmas, particularly the tension between public health imperatives and moral concerns surrounding PrEP for HIV prevention.

Keyword: : i'tibar ma'alat, anal sexual orientation, HIV, PrEP, al-Shatibi

7th USIM INTERNATIONAL HEALTH CONFERENCE
TRANSFORMING HEALTH THROUGH INNOVATION

ABSTRACT ID: A0082

Cost-Effectiveness of Artificial Intelligence–Assisted Precision Medicine in Oncology: A Systematic Review

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Background
Artificial intelligence (AI)–assisted precision medicine is increasingly integrated into oncology to tailor treatment decisions. Despite clear clinical potential, high implementation costs raise concerns regarding economic value. This systematic review evaluated the cost-effectiveness of AI-assisted precision medicine interventions in cancer treatment compared with standard care.

Methods (Search Strategy)
Following PRISMA guidelines, a systematic literature search was conducted across PubMed, Scopus, and Ovid MEDLINE for full economic evaluations of AI-assisted precision medicine in oncology published between 2015 and 2025. Extracted data included clinical effectiveness outcomes, costs, incremental cost-effectiveness ratios (ICERs), and willingness-to-pay (WTP) thresholds. Methodological quality was assessed using the 10-item Drummond checklist.

Findings / Synthesis
From 6,639 identified records, 9 studies met all inclusion criteria. All studies were conducted in high-income countries and evaluated oncogenomic-guided therapy (n=3), molecular testing (n=3), and next-generation sequencing (NGS) (n=3) across various cancers. Drummond scores indicated high (n=6; 9–10) to modest (n=3; 5–7) methodological quality. Most studies (n=7; 77.8%) reported improved clinical outcomes, but 8 studies (88.9%) incurred higher total healthcare costs due to testing and targeted drug therapies. ICERs ranged from $16,571 to $561,967/QALY. Overall, 4 studies (44.4%) were cost-effective, 4 (44.4%) were not cost-effective due to high costs exceeding WTP thresholds, and 1 (11.1%) was non-evaluable due to missing ICER data.

Conclusion
Evidence on the cost-effectiveness of AI-assisted precision medicine in cancer care remains inconclusive and context-dependent. High technology and downstream targeted therapy costs represent the primary barrier to economic viability. Future research should prioritize standardized economic evaluation frameworks and real-world data to better inform health policy and resource allocation.

Keyword: : Artificial Intelligence, Precision Medicine, Oncology, Cost-Effectiveness, Systematic Review

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TRANSFORMING HEALTH THROUGH INNOVATION

ABSTRACT ID: A0083

Knowledge, Attitude and Perception of Practice on Basic Life Support among Urban versus Rural Secondary School Students in South Sulawesi, Indonesia

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Background
Basic life support (BLS) and choking management literacy are critical for emergency preparedness.

Objectives
This study compares BLS knowledge, choking management knowledge, and BLS attitudes/willingness between urban and rural high school students.

Methods
A cross-sectional survey was conducted among 382 senior high school students in Makassar and Maros, Indonesia. Group comparisons between urban and rural students' scores were analysed using Welch's independent-samples t-tests.

Results
Rural students demonstrated slightly higher BLS knowledge than urban students (mean 1.12 vs. 1.05, p=0.018). Conversely, urban students exhibited significantly higher choking management knowledge (1.76 vs. 1.59, p<0.001) and more positive attitudes/willingness toward BLS (1.76 vs. 1.50, p<0.001). Overall previous training exposure was remarkably low for both CPR (3.1%) and choking management (5.0%), with 97.4% of all students lacking any training certification.

Conclusion
While BLS knowledge strengths vary slightly by location, absolute CPR and choking literacy remains critically low across the board. Standardized, school-embedded BLS and choking management training with periodic refreshers is urgently needed in both settings.

Keyword: Knowledge, attitude, perception of practice, CPR, rural vs urban

7th USIM INTERNATIONAL HEALTH CONFERENCE
TRANSFORMING HEALTH THROUGH INNOVATION

ABSTRACT ID: A0090

Strengthening Tuberculosis Continuity of Care Through Digital Follow-up in Kota Kupang, Indonesia: A Programmatic Implementation Assessment

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Background
Digital tuberculosis (TB) information systems support case notification and programme monitoring, but their presence does not necessarily translate into timely digital support for patient follow-up. In Kota Kupang, Indonesia, routine TB reporting is supported through the national TB information system, while medicine collection, appointment monitoring and responses to missed visits continue to rely substantially on manual registers, telephone calls, community cadres and home visits.

Objectives
This implementation assessment examined routine follow-up processes and identified practical opportunities for digital strengthening.

Methods
A programmatic implementation assessment was undertaken during a public health placement with the Kota Kupang Health Office from June to July 2026. The assessment drew on routine programme information, placement field notes, observations of TB service processes, discussions with programme and frontline staff, and mapping of the routine pathway from case notification to missed-visit response. Observations were synthesised to identify recurring implementation barriers, facilitators and feasible opportunities for strengthening existing workflows. No patient-level identifiable data were collected.

Results
Three key implementation issues were identified. First, although the existing information system supports notification and transfer tracking, routine identification of missed visits depends heavily on manual checking of registers and calendars. Second, health workers, families, treatment supporters and community cadres remain central to continuity of care. Third, poorly integrated digital interventions could add to frontline workload through duplicate processes. Potential strengthening options included opt-in WhatsApp reminders, automated missed-visit lists, structured escalation from messaging to telephone or home follow-up, and digital recording of follow-up actions.

Conclusion
Strengthening TB follow-up in Kota Kupang may not require a separate digital platform. Integrating simple digital functions into existing workflows could support earlier identification of missed visits while preserving essential human follow-up. Future implementation should assess feasibility, acceptability, workload implications and continuity-of-care outcomes before wider scale-up.

Keyword: Tuberculosis, Digital health, Implementation research, Continuity of care

7th USIM INTERNATIONAL HEALTH CONFERENCE
TRANSFORMING HEALTH THROUGH INNOVATION

ABSTRACT ID: A0093

A Comparative Study of Whey and Plant-Based Protein Supplementation on Muscle Recovery in Amateur Bodybuilders

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Background
Muscle recovery is essential for training performance among amateur bodybuilders who perform high-intensity resistance training. Whey protein is considered the gold standard for post-exercise recovery due to its rapid digestion and high leucine content, which stimulates muscle protein synthesis. Plant-based supplements have gained popularity owing to vegan diets, lactose intolerance, and health preferences, yet evidence comparing these sources specifically in amateur bodybuilders remains limited.

Methods (Search Strategy)
Following the Arksey and O'Malley framework with Levac et al. enhancements and PRISMA-ScR reporting guidelines, literature searches were performed in PubMed, Scopus, Web of Science, and Google Scholar using relevant keywords. Eligible studies included randomized controlled trials, systematic reviews, and meta-analyses involving resistance-trained individuals that directly compared whey and plant-based protein supplementation.

Findings / Synthesis
Whey protein produced a faster anabolic response due to its rapid digestion and higher leucine content, resulting in earlier stimulation of muscle protein synthesis. However, plant-based proteins showed comparable effects on strength recovery, DOMS reduction, and markers of muscle damage and inflammation when consumed in adequate amounts or with complete amino acid profiles. Most studies reported minimal differences in overall recovery between sources, and evidence specific to amateur bodybuilders was scarce.

Conclusion
Both whey and plant-based protein supplements effectively support muscle recovery after resistance training, with total protein intake and amino acid adequacy appearing more influential than protein source alone. The limited number of studies in amateur bodybuilders restricts current evidence, highlighting the need for future clinical trials in this population.

Keyword: Whey-Protein, Plant-based Protein, Muscle recovery, Resistance Training, Amateur bodybuilders

7th USIM INTERNATIONAL HEALTH CONFERENCE
TRANSFORMING HEALTH THROUGH INNOVATION

ABSTRACT ID: A0095

Effect of Sad Music on Mental Health: A Systematic Review

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Background
Music is commonly used to express emotions, influence mood, and help people cope with emotional problems. Although sad music expresses negative emotions such as sadness and loss, some people may find it comforting and helpful in managing their emotions. However, the effects of sad music on mental health may be different between individuals. Some may experience emotional relief, while others may experience increased sadness and negative thoughts.

Methods (Search Strategy)
A targeted literature search from 2000 to 2026 was conducted using PubMed and Google Scholar. The search terms included “sad music”, “music and sadness”, “music emotion regulation”, and “sad music AND depression/anxiety”. Studies involving human participants that examined the psychological or emotional effects of sad music, including mood, emotional regulation, depression, anxiety, and coping, were included. Only English-language studies published between 2000 and 2026 were considered.

Findings / Synthesis
A total of 1,290 articles were identified. After removing duplicates and screening the abstracts and full texts, 12 studies were included in this review. The findings showed that sad music can have both positive and negative effects on mental health. It may help people regulate their emotions, express their feelings, feel relieved, and reflect on their experiences. However, it may also increase negative emotions and rumination, especially in individuals with depressive symptoms. The effects of sad music may also depend on emotional regulation, emotional awareness, personality, and existing mental health conditions. Sad music may be useful as a coping strategy when used to process emotions, but repeated listening may have negative effects if it increases rumination.

Conclusion
Sad music can have both beneficial and harmful effects on mental health. Its effects depend on the individual, their mental health condition, and the reason for listening. Therefore, sad music should not be considered completely helpful or harmful, but its effects depend on how it is used.

Keyword: Sad music, Mental health, Emotional regulation, Psychological effects, Coping strategy

7th USIM INTERNATIONAL HEALTH CONFERENCE
TRANSFORMING HEALTH THROUGH INNOVATION

ABSTRACT ID: A0096

Coping Strategies Among Couples Undergoing Infertility Treatment at LPPKN Centres in Malaysia: Findings from a Mixed-Methods Study

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Background
Infertility is a significant reproductive health issue that extends beyond the inability to conceive, often resulting in considerable psychological distress and reduced quality of life. While emotional well-being among infertility patients has been widely investigated, evidence on coping strategies among Malaysian couples receiving government-funded fertility treatment remains limited.

Objectives
This study aimed to assess coping strategies among individuals undergoing infertility treatment at LPPKN fertility centres and to explore factors influencing adaptive and maladaptive coping.

Methods
A convergent mixed-methods study was conducted among 222 individuals (111 couples) receiving infertility treatment at four LPPKN fertility centres in Malaysia. The quantitative component employed validated Bahasa Malaysia versions of the Brief COPE Inventory, Depression Anxiety Stress Scale-21 (DASS-21), and Fertility Quality of Life (FertiQoL) questionnaire. Descriptive statistics, bivariate analyses, correlation analyses, and multiple linear regression were performed to identify factors associated with coping strategies. The qualitative component included in-depth interviews with couples and focus group discussions involving healthcare professionals to explore lived experiences and coping mechanisms.

Results
Participants predominantly adopted adaptive coping strategies, with religious coping, positive reframing, active coping, and planning being the most frequently reported approaches. Maladaptive coping strategies were comparatively less common but were significantly associated with higher levels of depression, anxiety, stress, and poorer fertility-related quality of life. Qualitative findings further revealed that resilience was strengthened through religious faith, spousal support, positive communication, and empathetic healthcare providers, whereas repeated

Keyword: Infertility, Adaptive Coping, Emotional Well-being, Psychosocial Intervention, Fertility Care

7th USIM INTERNATIONAL HEALTH CONFERENCE
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ABSTRACT ID: A0100

Maternal–Infant Research in a Conflict-Affected Setting: Methodological Challenges and Lessons from a Prospective Cohort Study in Hebron, Palestine

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Background
Longitudinal maternal–infant research in conflict-affected settings may be influenced by recruitment, healthcare access, informed consent, data collection, and follow-up continuity. Hebron, Palestine, provides a distinctive context for implementing a prospective cohort across two residential areas, H1 and H2.

Objectives
To describe cohort implementation, including recruitment, residential classification, postnatal anthropometry, longitudinal follow-up, and context-specific methodological adaptations.

Methods
A quantitative prospective longitudinal cohort was conducted among pregnant women living in H1 and H2. Third-trimester recruitment occurred through Al-Ridwan Clinic (H1) and Al-Haram Clinic (H2), following local permissions and informed consent. Maternal information was collected at recruitment; infant weight, length, and head circumference were measured after delivery at baseline (≤40 days), 6 weeks, 3 months, and 6 months. Residential classification used maternal residence rather than delivery location. Follow-up was coordinated with routine age-specific immunisation visits.

Results
The cohort included 211 mother–infant dyads: 112 (53.1%) from H1 and 99 (46.9%) from H2. Complete recorded follow-up through 6 months was maintained for all dyads (100% retention). Descriptive differences between H1 and H2 were observed in maternal education, employment, parity, birth-weight category, and feeding pattern, whereas gestational age and infant sex distributions were similar. Mean infant weight at baseline was 3.19 kg in H1 and 2.96 kg in H2; at 6 months, corresponding means were 6.47 kg and 6.09 kg. H2 presented greater access and mobility challenges and occasionally required additional recruitment explanation and reassurance.

Conclusion
Prospective maternal–infant research can be implemented across distinct residential contexts in conflict-affected settings when standardised protocols are combined with flexible field procedures. Clear residential classification, local healthcare coordination, context-sensitive consent, standardised anthropometry, and integration with routine child-health services supported complete recorded retention through 6 months. These findings highlight the importance of adapting communication, transport planning, scheduling, and community coordination while preserving measurement consistency and participant trust during follow-up periods.

Keyword: maternal–infant health, prospective cohort, methodological challenges, conflict-affected setting, ; longitudinal follow-up

7th USIM INTERNATIONAL HEALTH CONFERENCE
TRANSFORMING HEALTH THROUGH INNOVATION

ABSTRACT ID: A0103

Vape Experimentation and Associated Factors Among Selected Tertiary Education Students in the Klang Valley, Malaysia: A Pilot Cross-Sectional Study

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Background
Electronic cigarette (vape) use among young people is an emerging public health concern. Peer influence, risk perceptions and increasing exposure to vape products may contribute to experimentation among students. Preliminary evidence from tertiary education settings may help identify potential factors for targeted preventive interventions.

Objectives
To determine the proportion of students reporting vape experimentation and explore factors associated with ever vape use among students aged below 25 years from selected tertiary education institutions in the Klang Valley, Malaysia.

Methods
A pilot cross-sectional study was conducted over one week in September 2025 among students from selected tertiary education institutions, including universities, colleges and vocational institutions, in the Klang Valley. Participants were recruited through convenience sampling during programme attendance. Eligible participants were students aged below 25 years. Data were collected using an adapted self-administered questionnaire assessing sociodemographic characteristics, vape use, risk perceptions, peer influence, promotional exposure and behavioural intentions. Seventy eligible respondents were analysed. Descriptive statistics, independent-samples t-tests, Chi-square/Fisher's exact tests and binary logistic regression were performed using IBM SPSS Statistics. Statistical significance was set at $p<0.05$.

Results
Among 70 respondents (mean age 20.1±2.5 years; 57.1% male), 18.6% reported ever using vape. All ever-users were male. Ever-users were significantly younger ($p=0.001$) and reported lower daily pocket money ($p=0.029$). Ever use was significantly associated with gender, susceptibility to a peer offer, future intention to vape and support for vape-control laws. In multivariable analysis, susceptibility to trying vape when offered by a friend remained independently associated with ever use (adjusted OR=15.71; 95% CI: 3.20–77.06; $p=0.001$).

Conclusion
Approximately one in five respondents reported vape experimentation. Peer susceptibility was strongly associated with ever vape use, suggesting that peer-resistance and refusal skills may be important targets for prevention. As this pilot study involved a modest convenience sample from selected tertiary education institutions, the findings should be interpreted as preliminary and should not be generalised to all tertiary students or young people in the Klang Valley. Larger representative studies are warranted.

Keyword: E-cig, vape, youth, peer influence, smoking prevention

7th USIM INTERNATIONAL HEALTH CONFERENCE
TRANSFORMING HEALTH THROUGH INNOVATION

ABSTRACT ID: A0104

Affordable but Inconvenient, Convenient but Expensive: Population Perceptions of Malaysia's Dual Healthcare System

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Background
Malaysia's dual healthcare system involves trade-offs between affordability and responsiveness. Public services offer greater financial protection, while private services offer greater convenience and choice at higher out-of-pocket cost. Whether these trade-offs vary across socioeconomic groups is an equity concern relevant to health-system reform. Evidence on intersectoral population perceptions in Malaysia however, remains limited.

Objectives
We performed a comparative sectoral analysis aimed at understanding the perception variations by socioeconomic characteristics.

Methods
Adults aged ≥18 years (n=19,959) from the National Health and Morbidity Survey 2015 rated their perceptions of public and private clinics and hospitals across technical, interpersonal, access and affordability domains using a five-point scale. Good or excellent ratings were classified as favourable perceptions. Perceptions were summarised descriptively, and intersectoral differences were examined using t-tests.

Results
Overall perceptions were more favourable for public than private clinics (78.6% vs 72.2%, p<0.01). However, private clinics were perceived more favourably for technical (78.1% vs 75.3%), interpersonal (76.3% vs 71.2%) and access (70.9% vs 60.1%) quality domains (all p<0.01). Affordability showed the largest difference, with 89.6% perceiving public clinics favourably for treatment charges versus 25.7% for private clinics (p<0.01). Private clinics had notable advantages in ability to choose doctor (68.9% vs 39.6%) and waiting time (69.1% vs 31.3%). Similar patterns were observed for hospitals, particularly for the access domain (waiting time, doctor choice and private room availability). More favourable perceptions of private healthcare were noted among urban, highly-educated, and wealthier populations.

Conclusion
Public and private healthcare were perceived to have different strengths. Public services were favoured for affordability, whereas private services were perceived to offer greater convenience, choice and interpersonal quality. Differences by socioeconomic characteristics suggest that affordability and responsiveness are not experienced uniformly. Health-systems reforms should monitor affordability and key responsiveness measures, disaggregated by wealth and locality, to assess improvements without widening socioeconomic inequalities.

Keyword: Quality of Health Care, Perception, Health Services Accessibility, Public and Private

7th USIM INTERNATIONAL HEALTH CONFERENCE
TRANSFORMING HEALTH THROUGH INNOVATION

ABSTRACT ID: A0110

Effectiveness of Balloon Tuboplasty in Eustachian Tube Dysfunction: A Narrative Review

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Background
Eustachian tube dysfunction (ETD) is a common cause of aural fullness and hearing impairment in adults. Medical therapy only provides symptomatic relief and does not correct underlying ETD. Balloon Eustachian Tuboplasty (BET) is a minimally invasive intervention for patients with chronic obstructive ETD who do not respond to medical therapy. BET is promising, but evidence on its effectiveness and safety remains variable.

Methods (Search Strategy)
This narrative review examined studies published between 2020 and 2026 evaluating the effectiveness and safety of BET. A literature search was conducted using PubMed, Scopus, Cochrane Library, ScienceDirect, Wiley and Google Scholar with keywords including “Eustachian tube dysfunction”, “balloon tuboplasty”, “BET”, “effect” and “complication”. A total of 23 studies involving adult populations with clinically diagnosed ETD were included.

Findings / Synthesis
Prevalence of ETD in adults is approximately 1-5% based on objective criteria, with higher rates in symptom based studies. Balloon Eustachian tuboplasty demonstrates effective short and long term outcomes, with success rates of 50-90% and benefits lasting up to 5 years. There is no significant different outcome between BET alone compare to combination of BET with myringotomy and grommet insertion. Most of the articles reported BET is generally safe, with most complications being minor and self limiting, including transient otalgia, epistaxis and tinnitus. Serious complications are rare.

Conclusion
BET is a safe surgical treatment for patient suffer with chronic ETD. It also demonstrate good short and long term outcomes.

Keyword: Eustachian tube, balloon tuboplasty, prevalence, outcomes, complications

7th USIM INTERNATIONAL HEALTH CONFERENCE
TRANSFORMING HEALTH THROUGH INNOVATION

ABSTRACT ID: A0123

Beyond Anaphylaxis: Kounis Syndrome in a Low-Risk Young Man

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Background
Kounis syndrome (KS) is a rare acute coronary syndrome triggered by an allergic reaction. The diagnosis should be entertained when chest pain is temporally linked to an allergic manifestation such as urticaria. We report a case of Kounis syndrome in a young man with ST-elevation myocardial infarction following urticaria.

Case Description
A 31-year-old man, smoker, with no known illness nor allergy, presented with a sudden onset of generalised urticaria followed by a central chest pain associated with profuse sweating and dyspnoea. Systemic review was unremarkable. Despite intramuscular adrenaline and intravenous hydrocortisone at the clinic, the angina persisted, prompting him to seek treatment at the hospital. A serial electrocardiogram showed evolving ST-elevations at leads V1-V5. The case was referred to a tertiary hospital for primary percutaneous intervention. Coronary angiography demonstrated acute total occlusion (ATO) of the mid-left anterior descending (LAD) artery and diffuse disease of the right coronary artery (RCA). Revascularization of the mid-LAD ATO was achieved by “dottering” until subsequent angiography revealed residual 60–70% luminal stenosis mid-distal LAD. When isosorbide dinitrate (vasodilator) was administered, there was complete resolution of the distal LAD narrowing, indicating relieved vasospasm. Intravascular ultrasound confirmed a significant plaque burden of 69% at the mid-LAD, which was successfully treated with a drug-coated balloon, establishing TIMI III flow. The RCA lesion was treated medically.

Discussion
KS is divided into three subtypes depending on the coronary artery status. Type 1 is due to vasospasm; Type 2 occurs when pre-existing coronary atherosclerotic plaques ruptures causing infarction and type 3 results from stent thrombosis secondary to platelet activation. The combination of chest pain, urticaria together with presence of significant plaque burden in two coronary arteries and vasospasm categorized this case as type 2 KS.

Conclusion
This case illustrates how a high index of suspicion for KS in low-risk young patients with allergic reactions, saves lives.

Keyword: clinical medicine, percutaneous intervention, cardiology, diagnostics

7th USIM INTERNATIONAL HEALTH CONFERENCE
TRANSFORMING HEALTH THROUGH INNOVATION

ABSTRACT ID: A0127

Artificial Intelligence Modalities For Clinical Decision Support And Diagnostic Applications: A Systematic Review

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Background
Artificial intelligence (AI) is increasingly integrated into healthcare, particularly in clinical decision support and diagnostic applications. Despite high reported performance, uncertainty remains regarding how different AI modalities perform across clinical settings and which factors influence their clinical applicability and reliability.

Methods (Search Strategy)
This systematic review was conducted according to PRISMA guidelines. PubMed and IEEE Xplore were searched for studies published between 2020 and 2025. Studies applying machine learning or deep learning to clinical diagnosis or decision support and reporting measurable performance outcomes were included. Twenty studies met the eligibility criteria. Due to heterogeneity in study designs, datasets, and outcomes, a qualitative synthesis was performed.

Findings / Synthesis
Deep learning models, particularly convolutional neural networks and transformer-based architectures, demonstrated strong performance in imaging-based diagnostics across cardiovascular, oncological, neurological, and other clinical conditions. Machine learning models were more commonly applied to structured clinical data and showed value in prediction and risk stratification, particularly in critical care settings. However, substantial variation was observed in dataset characteristics, validation methods, and study designs. Most studies relied on retrospective data, with limited external or prospective validation. Comparisons with clinicians showed that AI could achieve comparable performance in specific tasks but did not consistently outperform experienced clinicians. Overall, the findings suggest that AI effectiveness depends not only on algorithmic performance but also on data quality, interpretability, validation, and clinical context.

Conclusion
AI demonstrates strong potential to improve diagnostic accuracy and support clinical decision-making. However, most systems remain in the development or validation stages, with limited evidence of real-world clinical impact. AI is therefore best viewed as a supportive tool rather than a replacement for clinicians. Future research should prioritize prospective evaluation, robust external validation, improved interpretability, and integration into clinical workflows to demonstrate meaningful benefits for patient outcomes.

Keyword: Artificial intelligence, Clinical decision support, Diagnostic imaging, Machine learning

7th USIM INTERNATIONAL HEALTH CONFERENCE
TRANSFORMING HEALTH THROUGH INNOVATION

ABSTRACT ID: A0137

Porphyromonas gingivalis Lipopolysaccharide Alters Primary Cilia Morphology and Upregulates Cilia-Associated and Inflammatory Gene Expression in Human Periodontal Ligament Fibroblasts

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Background
Human periodontal ligament fibroblasts (hPDLF) participate actively in periodontal inflammatory responses. Primary cilia regulate cellular signalling and mechanosensation, but their response to periodontal inflammatory stimuli remains poorly understood.

Objectives
1. To establish primary hPDLFs culture via explant methods.
2. To determine the effects of various concentrations of P.gingivalis lipopolysaccharide (LPS-PG) on cilia-associated gene expression and primary cilia incidence and length in hPDLFs.

Methods
PDLFs were obtained through the explant method and identified via immunofluorescence staining for vimentin. The cells were seeded at a density of 2.5 x 10^5, then serum-starved to promote ciliogenesis before being exposed to PG-LPS. Gene expression levels were measured using real-time qPCR. Additionally, the frequency and length of primary cilia were assessed by co-immunofluorescence staining for ARL13B, an axoneme marker, and γ-tubulin, a basal body marker.

Results
Exposure to 100 ng/mL PG-LPS caused the greatest fold change in gene expression across all three targets: KIF3A, IFT88, and TNF-α at both 48 and 72 hours. PG-LPS-treated PDLFs showed a significantly higher percentage of ciliated cells ($p \leq 0.05$) and a notably shorter mean PC ($p \leq 0.05$) compared to untreated controls at both time points.

Conclusion
LPS-PG altered primary cilia homeostasis in hPDLFs, characterised by increased ciliation but reduced ciliary length, together with upregulation of TNF-α, KIF3A and IFT88. These findings suggest a previously underexplored relationship between periodontal inflammatory signalling and primary cilia regulation, and provide a foundation for investigating the potential ciliary and extraciliary functions of cilia-associated proteins during periodontal inflammation.

Keyword: Primary Cilia, Periodontal Ligament Fibroblasts, Porphyromonas gingivalis, P.gingivalis, Lipopolysaccharide

7th USIM INTERNATIONAL HEALTH CONFERENCE
TRANSFORMING HEALTH THROUGH INNOVATION

ABSTRACT ID: A0143

Imaging Features of Brain Frailty in Acute Ischaemic Stroke and Their Prognostic Significance: A Narrative Review

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Background
Acute ischaemic stroke (AIS) can lead to poor long-term outcome. Brain frailty reflects pre-existing structural brain vulnerability that may influence recovery following AIS. Neuroimaging provides an opportunity to identify this vulnerability beyond chronological age and acute infarct characteristics. This review aimed to examine imaging features used to define brain frailty in AIS and summarise their prognostic significance for neurological and functional outcomes.

Methods (Search Strategy)
A search of PubMed, Web of Science, and Scopus databases was performed. Studies evaluating pre-existing neuroimaging abnormalities in adults with AIS and their relationship with neurological or functional outcomes published between 2016 and 2026 were included.

Findings / Synthesis
A total of 21 articles were included in this review. Three imaging features recurred most consistently in definitions of brain frailty: white matter disease or white matter hyperintensities, cerebral atrophy, and previous infarction or lacunes. Composite brain frailty scores commonly combined these features, while cerebral microbleeds and enlarged perivascular spaces were included less consistently. Greater brain frailty burden was generally associated with poorer functional outcomes and less favourable neurological recovery, including among patients treated with thrombolysis or thrombectomy, although these associations were not consistent across all studies. White matter disease and cerebral atrophy were the individual features most frequently associated with adverse outcomes, with variation according to study population, imaging assessment and outcome measure.

Conclusion
White matter disease, cerebral atrophy and previous infarction appear to represent the most consistent imaging components of brain frailty in AIS. Their combined assessment may provide additional prognostic information beyond chronological age and acute infarct characteristics. These findings may guide selection of MRI features for future studies evaluating brain frailty and stroke outcome.

Keyword: brain frailty, acute ischaemic stroke, neuroimaging, cerebral small vessel disease, stroke outcome

7th USIM INTERNATIONAL HEALTH CONFERENCE
TRANSFORMING HEALTH THROUGH INNOVATION

ABSTRACT ID: A0150

Harnessing Near-Peer Education for Adolescent Smoking and Vaping Prevention: A University Student-Led School-Based Intervention

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Background
Smoking and vaping remain important public health concerns among Malaysian adolescents. Vaping prevalence among Malaysian adolescents increased from 9.8% in 2017 to 14.9% in 2022. Near-peer education, delivered by educators who are closer in age and social context to adolescents, may provide a relatable and engaging approach to smoking and vaping prevention.

Objectives
To implement and evaluate near-peer-led smoking and vaping education intervention delivered by trained undergraduate university students to secondary school students.

Methods
Undergraduate university students were recruited as near-peer educators and participated in a one-day multidisciplinary training programme covering nicotine addiction, tobacco control, smoking and vaping prevention, and approaches to engaging adolescents. The students subsequently worked in four teams to independently design half-day education programmes, with guidance and supervision from the multidisciplinary team. Each team liaised with and delivered the programme at a secondary school located around the university. Secondary school students completed pre- and post-intervention surveys assessing knowledge of nicotine addiction and attitudes towards smoking and vaping. Open-ended questions in the post-intervention survey explored students' feedback and acceptance of the programme.

Results
A total of 95 undergraduate university students participated as near-peer educators. The teams developed diverse, interactive activities including talks, role plays, creative activities, games and open forums. Among 444 secondary school students, mean (SD) knowledge scores significantly increased from 63.5 (21.8) pre-intervention to 80.2 (11.7) post-intervention (p<0.001), while median (IQR) attitude scores significantly decreased from 36.7 (18.3) to 33.3 (15.0) (p<0.001). Open-ended feedback indicated high acceptance, positive perceptions of the programme, and requests for more programmes of a similar nature.

Keyword: near-peer education, smoking prevention, vaping, adolescent health, tobacco use disorder

7th USIM INTERNATIONAL HEALTH CONFERENCE
TRANSFORMING HEALTH THROUGH INNOVATION

ABSTRACT ID: A0151

Expanding Access to Professionally Applied Topical Fluoride Among Preschool Children Through Community-Based Oral Health Outreach

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Background
Early childhood caries remains a major public health challenge worldwide. Preventive measures including effective oral hygiene practices, adequate fluoride exposure and timely access to preventive dental service, are particularly important during early childhood. However, children attending non-government preschools may have fewer opportunities to participate in organised oral health programmes than those enrolled in government-linked preschool systems. This report describes the implementation and reach of a large-scale, community-based preventive oral health outreach programme for preschool children in Negeri Sembilan, Malaysia.

Intervention / Innovation
An integrated preventive oral health programme was delivered through a network of non-government preschools across two districts. The programme combined age-appropriate oral health education, toothbrushing demonstrations, supervised toothbrushing and professionally applied topical fluoride. It was implemented by a multidisciplinary dental team involving dental professionals and ten dental students, with preschool teachers supporting local coordination, participant engagement and programme delivery. This collaborative approach integrated preventive dental services into a familiar community setting, reducing the need for children to access clinic-based care.

Outcome / Impact
Between October and December 2025, the programme was implemented across 13 non-government preschools in Nilai and Seremban, reaching 1128 children aged below six years. Its successful delivery across multiple sites demonstrated the operational feasibility of extending preventive oral healthcare to underserved preschool settings through coordinated partnerships between higher education institutions and community-based educational organisations.

Conclusion
Integrating oral health education, supervised toothbrushing and professionally applied topical fluoride within non-government preschool settings represents a feasible and potentially scalable approach to expanding access to early preventive oral healthcare. University-community partnerships can strengthen the reach of existing oral health services and support more equitable access among preschool populations. Future implementation should incorporate clinical outcome measures and longitudinal evaluation to determine effectiveness, sustainability and potential for wider adoption.

Keyword: Fluoride, Oral Health, Preschool Children, Preventive

7th USIM INTERNATIONAL HEALTH CONFERENCE
TRANSFORMING HEALTH THROUGH INNOVATION

ABSTRACT ID: A0152

Development of Toothplay: A 3-In-1 Dental Board Game for Oral Health Education Among Primary School Children

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Background
Conventional oral health education, including verbal instruction and printed materials, may not adequately engage children because of their limited attention spans and preference for interactive learning. Fear and anxiety associated with dental visits may further reduce their interest in oral health education. Game-based learning provides a child-friendly approach that encourages active participation, enjoyment and knowledge retention. This project aimed to develop an innovative dental board game to improve oral health knowledge among primary school children.

Intervention / Innovation
A 3-in-1 dental educational board game named TOOTHPLAY was developed, comprising ToothPoly, ToothChess and ToothDetective. Each game incorporates age-appropriate educational content through structured gameplay, questions, rewards, challenges and peer interaction. The complete set includes foldable game boards, tooth-shaped player tokens, artificial tooth tokens, toy forceps, a spinning wheel, dice and dental character cards. Seventy oral health knowledge cards, 50 reward cards and 50 consequence cards were developed. Educational content covered tooth functions, toothbrushing practices, fluoridated toothpaste, dental plaque, dental visits, sugar consumption, cariogenic foods and healthy food selection. Content was informed by recommendations from recognised national and international health organisations. Standardised instruction manuals were also prepared for all three games.

Outcome / Impact
The project successfully produced a complete, portable and reusable prototype that integrates three complementary dental games into a single educational package. TOOTHPLAY offers an engaging and non-threatening way for children to learn and reinforce important oral health messages. Its low-cost, non-digital format supports implementation in dental clinics, schools, homes and community outreach programmes without requiring internet access or electronic devices.

Conclusion
TOOTHPLAY represents an innovative and practical approach to child-centred oral health education. Further pilot evaluation is required to determine its usability, acceptability and effectiveness in improving children's oral health knowledge and interest in dentistry.

Keyword: Gamification, Oral health education, Primary school children, Health education innovation

7th USIM INTERNATIONAL HEALTH CONFERENCE
TRANSFORMING HEALTH THROUGH INNOVATION

ABSTRACT ID: A0162

Sociodemographic and Clinical Profile of Dengue Inpatients in a Malaysian Tertiary Hospital: A Retrospective Case-Mix Analysis

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Background
Dengue remains a leading cause of hospital admission in Malaysia, placing continuous strain on tertiary hospitals. Despite this burden, institution-level data describing the casemix and resource utilisation profile of hospitalised patients are scarce.

Objectives
To describe the sociodemographic and clinical characteristics, case-mix severity, and resource utilisation of confirmed dengue inpatients at a Malaysian tertiary hospital in 2024.

Methods
A retrospective analysis of the hospital's case-mix database was conducted, identifying confirmed dengue cases via ICD-10 codes (A97.0–A97.9). Due to the non-normal distribution of continuous variables, statistical summaries were presented as medians along with interquartile ranges. Categorical variables were analysed by calculating frequencies and percentages to illustrate the distribution of demographic and clinical characteristics among the dengue cases.

Results
A total of 725 confirmed dengue inpatient episodes were identified in 2024, representing 1.44% of all inpatient admissions at the hospital that year(725/50,176). Most cases were coded as dengue, unspecified (A97.9; 90.6%, followed by dengue with warning signs(A97.1; 6.2%) and dengue without warning signs(A97.0; 2.9%), severe dengue(A97.2) accounted for 0.1%. Dengue was the primary(first-listed) diagnosis in 96.0% of episodes(n=696). Median age was 33.0 years (IQR 21–51; range 0–93), with 53.8% male (n=390) and 46.2% female (n=335). Median length of stay was 4 days (IQR 3–5). The dominant case-mix category was A-4-13-I (Viral and other non-bacterial infections Mild, 90.1%). Among all 725 episodes, 26.8% (n=194) had ≥ 1 recorded procedure;the most common were routine chest X-ray(ICD-9-CM 87.44; 12.0%), electrocardiogram(89.52; 5.4%), and injection/infusion of electrolytes (99.18; 4.7%). Discharge status was predominantly discharge home(99.2%, n=719), with a small proportion against medical advice(0.7%, n=5) or unknown(0.1%, n=1). Median cost per episode was RM2,099, with total inpatient dengue costs of RM1,744,304 for the year.

Conclusion
Milder disease categories dominated dengue hospitalisation in this Malaysian tertiary Hospital. These data are essential for clinical planning and future economic evaluation of dengue management in Malaysia.

Keyword: Dengue, casemix, clinical profile, diagnosis-related group

ABSTRACT ID: A0163

A Scoping Review of Maternal Clinical Outcome Indicators for Intrapartum Monitoring in Low- and Middle-income Countries

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Background
Maternal health remains a global priority in low- and middle-income countries (LMICs), where maternal mortality and morbidity remain disproportionately high. Despite Sustainable Development Goal 3.1, targeting a maternal mortality ratio below 70 per 100,000 live births by 2030, substantial gaps persist in how maternal clinical outcomes (MCO) are defined, measured, and reported, hindering reliable monitoring and cross-country comparison. This scoping review aimed to identify and categorise MCOs reported during the intrapartum period in LMICs as indicators for monitoring, examine how they were defined and measured, and explore challenges in outcome selection and measurement given LMICs' varied resource capacity.

Methods (Search Strategy)
Guided by the Joanna Briggs Institute methodology and reported per PRISMA-ScR guidelines, this review included studies published between 2000 and 2025 in LMICs reporting MCOs assessed intrapartum regardless of onset; primary/secondary classification followed original studies. Screening, extraction, and synthesis were conducted by a single reviewer using a Population, Concept, Context framework. Bias associated with single-reviewer screening was mitigated through a calibration exercise, predefined criteria, an audit trail, and supervisor consultation. Data were analysed using an inductive-deductive approach guided by WHO frameworks (Maternal Near Miss [MNM], EmOC, MPDSR), mapped by outcome and frequency.

Findings / Synthesis
Searches across six databases and four grey literature sources yielded 8,271 records; 36 studies from 20 LMICs were included. The most commonly reported primary outcomes were maternal mortality (33/36, 91.7%) and MNM (16/36, 44.4%). Secondary outcomes included haemorrhage (36/36, 100%), hypertensive disorders (35/36, 97.2%), sepsis/infection (35/36, 97.2%), anaemia/blood transfusion (28/36, 77.8%), uterine rupture (27/36, 75%), and obstructed labour (15/36, 41.7%). Definitions varied widely, shaped by limited diagnostics, blood supply, and workforce shortages.

Conclusion
Maternal mortality, maternal near miss, and severe obstetric complications were the most commonly reported intrapartum outcomes in LMICs, though definitions and measurement varied considerably. Harmonising outcome indicators would strengthen monitoring and inform maternal health innovations.

Keyword: Maternal clinical outcomes, intrapartum care, low- and middle-income countries, scoping review, maternal health monitoring

7th USIM INTERNATIONAL HEALTH CONFERENCE
TRANSFORMING HEALTH THROUGH INNOVATION

ABSTRACT ID: A0164

Patterns of Generative Artificial Intelligence Utilization and Related Factors Among Medical Students at the Faculty of Medicine, Universitas Muslim Indonesia: A Cross-Sectional Study

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Background
Generative AI has been widely adopted by medical students,
but its use may vary qualitatively. A substitutive pattern, in which AI replaces cognitive work,
may lead to maladaptive cognitive offloading, whereas a dialogic-verificative pattern positions AI as a thinking partner.

Objectives
This study aimed to describe patterns of generative AI use and the factors
associated with them among students at the Faculty of Medicine, UMI

Methods
We conducted a cross-sectional study using an online questionnaire from July 16 to 20 2026, and analyzed data from 195 preclinical and clinical students. We measured substitutive (7 items) and dialogic-verificative (7 items) usage patterns on a 5-point Likert scale. Reliability was assessed with Cronbach's alpha and McDonald's omega; internal structure was examined with exploratory factor analysis; bivariate associations were analyzed with Spearman correlation and Mann-Whitney tests with Holm correction; and multivariable analysis was performed with multiple linear regression.

Results
78.5% of respondents used generative AI at least five days per week, and 91.8% used ChatGPT. The dialogic-verificative pattern score (mean = 3.77, SD = 0.74) was higher than the substitutive pattern score (mean = 2.06, SD = 0.68). The two patterns were not correlated (rho = - 0.048; p = 0.507) and loaded on two distinct factors (inter-factor correlation = 0.008). Usage intensity was associated with both patterns (substitutive β = 0.25; p < 0.001; dialogic-verificative β = 0.34; p < 0.001). A history of AI training was associated with the dialogic-verificative pattern (B = 0.235; 95% CI: 0.034-0.437; p = 0.022). Gender and stage of education were not associated with either pattern.

Conclusion
Substitutive and dialogic-verificative patterns are two independent dimensions rather than opposite ends of a single continuum. High usage intensity is associated with both patterns, suggesting that AI literacy development should focus on the quality of human-AI interaction rather
than merely limiting usage frequency.

Keyword: generative artificial intelligence, medical students, usage patterns, cognitive offloading, cross-sectional study

7th USIM INTERNATIONAL HEALTH CONFERENCE
TRANSFORMING HEALTH THROUGH INNOVATION

ABSTRACT ID: A0165

Supplementary Feeding Program (PMT) for Undernourished Toddlers at The Community Health Center

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Background
Undernourished toddlers represent a vulnerable population at risk for impaired growth and weakened immunity. The Supplementary Feeding Program (PMT) implemented at community health centers (Puskesmas) serves as a strategic intervention to improve child nutritional status.

Objectives
This study was conducted at Tabaringan Community Health Center, a training site for medical profession program (MPPD) students of the Faculty of Medicine, Universitas Muslim Indonesia (UMI).

Methods
This study applied a pretest–posttest one-group design involving 40 undernourished toddlers (aged 6–59 months) who participated in the PMT program for 8 weeks. Anthropometric measurements (weight and height) were recorded before and after the intervention. Data were analyzed using the paired t-test to determine changes in nutritional indicators

Results
After the PMT intervention, there was a statistically significant improvement in nutritional indicators: W/A (p < 0.001), H/A (p = 0.046), and W/H (p = 0.021). The proportion of children with normal nutritional status increased notably ; W/A: 0% to 57%, H/A: 55% to 70%, and W/H: 25% to 40%.

Conclusion
The PMT program at the Tabaringan Community Health Center proved effective in improving the nutritional status of undernourished toddlers within 8 weeks. Expansion of this program with maternal education, regular monitoring, and the use of locally sourced nutritious ingredients is recommended to ensure sustainability and long-term impact

Keyword: Community Health Center, Supplementary Feeding Program, Toddler, Nutrition

7th USIM INTERNATIONAL HEALTH CONFERENCE
TRANSFORMING HEALTH THROUGH INNOVATION

ABSTRACT ID: A0172

Integration of Religious Faith Spiritual (RFS) Values in Public Health Policy through the Biopsychosocial-Spiritual-Religious (BPSSR) Framework: A Literature Review of Pre-Exposure Prophylaxis (PrEP) Policy for Populations at High Risk of HIV Acquisition

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Background

Pre-exposure prophylaxis (PrEP) is highly efficacious against HIV acquisition, but real-world effectiveness depends on adherence and contextual factors, including sociocultural and religious influences. Objective of this study is to examine the integration of religion, faith and spirituality (RFS) into PrEP policy through the Biopsychosocial-Spiritual-Religious (BPSSR) framework.

Methods (Search Strategy)

A systematic literature review searched PubMed, Scopus and Google Scholar for English-language, peer-reviewed publications from 2020–2026. Articles were coded using a conceptual model to examine relationships between RFS, HIV prevention, PrEP acceptability and underlying mechanisms.

Findings / Synthesis

Of 1,359 records identified, 21 publications were included: 19 primary research reports and two reviews (9.5%). Primary research was conducted in Africa (36.8%), North America (31.6%) and Asia (31.6%). Provisional, overlapping classifications identified Muslim or Islamic contexts in eight publications (38.1%), Christian contexts in nine (42.9%), and other religious traditions in three (14.3%). Four overlapping themes concerned PrEP acceptability (eight publications), sociocultural and religious influences (13), RFS interventions and implementation mechanisms (eight), and BPSSR applicability (five). The synthesis highlighted tensions between PrEP uptake and religious or sociocultural norms, alongside potential protective contributions through abstinence, risk avoidance, self-regulation, resilience and social or spiritual support. These findings suggest that religious values should not be characterised solely as barriers. Limited understanding of these relationships warrants further research into context-specific mechanisms and engagement with faith leaders and organisations.

Conclusion

PrEP policy should integrate biomedical evidence with sociocultural concerns and religious perspectives, including engagement with bodies such as the National Fatwa Council in Muslim settings. Systematic incorporation of abstinence approaches alongside sexual health education and biomedical prevention merits consideration. The BPSSR framework offers a basis for culturally responsive and spiritually congruent policy; its effects on acceptability and health outcomes require further evaluation.

Keyword: Biopsychosocial-Spiritual-Religious Framework, HIV Prevention, Pre-Exposure Prophylaxis (PrEP), Public Health Policy

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ABSTRACT: POSTER PRESENTATION

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ABSTRACT ID: A0001

Expanding bone with fading sound. Sensorineural hearing loss due to Paget's diesease, A case report

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Background
Paget's disease is a bone remodeling disorder that typically begins with excessive bone resorption in adult. Bilateral progressive hearing loss is the most frequently encountered complication of Paget's disease.

Case Description
47-year-old male presented right sided severe hearing loss 3 years ago and now complaint of sudden left sided hearing loss upon waking up. He has skull enlargement for past 3 years ,no bone deformity or bowing limbs and no bony pain. Clinically bilateral external auditory canal are normal ,tympanic membranes is intact and cone of light is present . He has a prominent skull, no bowing of legs and has normal gaits, no joint tenderness. His blood investigation showed normal calcium levels but ALP is deranged . The audiometry showed right severe sensorineural hearing loss and left severe to profound hearing loss. MRI IAM showed bone hypertrophy at right internal auditory canal and petrous bone. This cause internal auditory canal stenosis and slight compression of semicircular canal, vestibule and cochlea. He was started on intravenous calcium gluconate in HDU under cardiac monitoring.

Discussion
Paget's disease of bone is a disorder that affects skeletal segments, and is characterised by focal impairment of bone remodelling. In this process normal bone architecture is replaced by more disorganised bone tissue and more susceptible to fracture. In Paget's disease a relationship has been confirmed between hearing loss and skull involvement with the disease. Various mechanisms have been described to explain hearing loss with Paget's disease. Compression of the auditory nerve in the inner auditory canal due to bone growth, fixation of the ossicular chain and others.

Conclusion
Sudden sensorineural hearing loss is multifactorial and with sign and symptoms suggestive of Paget's disease this should not be missed and appropriate treatment should be started as early as possible

Keyword: Paget's, sensorineural hearing loss, alkaline phosphatase

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ABSTRACT ID: A0003

Clinically Silent, Genetically Significant: Detection of Homozygous Hemoglobin Constant Spring (HbCS) Using the Hybribio Thalassemia GenoArray Diagnostic Kit

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Background
Hemoglobin Constant Spring (HbCS) is the most common non-deletional α-thalassemia mutation in Southeast Asia. It results from termination codon mutation in the α2-globin gene, producing an elongated and unstable α-globin chain. Homozygous HbCS is uncommon and may be underdiagnosed because its clinical presentation is highly variable, ranging from asymptomatic individuals to mild hemolytic anemia, jaundice, hepatosplenomegaly, and thalassemia intermedia-like features. Despite the mild phenotype, identification is important because co-inheritance with other hemoglobin disorders can result in clinically significant conditions such as HbH-Constant Spring disease, severe HbH disease, and Hb Bart's hydrops fetalis syndrome.

Case Description
A 19-year-old Malay man was identified through routine pre-marital thalassemia screening. He was clinically well, with no history of anemia, jaundice, transfusion, or other hematological disorders. Full blood count revealed mild hypochromic microcytic anemia (Hb 12.5 g/dL, MCV 75.4 fL, MCH 23.5 pg). Capillary electrophoresis demonstrated normal HbA_2 and HbF levels with a small peak (3.1%) in the HbC/CS zone, suggesting HbCS. Molecular analysis using the Hybribio Thalassemia GenoArray Diagnostic Kit subsequently confirmed homozygous Hb Constant Spring. The patient received genetic counselling and was advised regarding partner screening.

Discussion
Detection of HbCS using conventional hemoglobin analysis is challenging because of its low circulating concentration and instability. Consequently, homozygous cases may be missed, particularly in asymptomatic individuals. The Hybribio Thalassemia GenoArray Diagnostic Kit combines multiplex PCR, reverse dot blot assay, and flow-through hybridization technology, enabling rapid simultaneous detection of α- and β-thalassemia mutations and accurate determination of zygosity. In this case, the assay provided definitive molecular confirmation of an otherwise unsuspected diagnosis.

Conclusion
This case highlights the value of GenoArray technology in detecting uncommon homozygous HbCS, particularly among asymptomatic individuals who might otherwise remain undiagnosed. Early recognition enables appropriate genetic counselling, informed reproductive planning, and prevention of severe hemoglobinopathies resulting from co-inheritance with other thalassemia mutations or hemoglobin variants.

Keyword: Hemoglobin Constant Spring, Homozygous, Alpha-thalassemia, GenoArray Technology, Premarital Thalassemia Screening

7th USIM INTERNATIONAL HEALTH CONFERENCE
TRANSFORMING HEALTH THROUGH INNOVATION

ABSTRACT ID: A0006

Endodontic Diagnostic Performance Among Malaysian Undergraduate Dental Students: A Multi-Centre Cross-Sectional Study

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Background
Accurate diagnosis of pulpal and periapical diseases is fundamental to endodontic treatment planning. Errors in diagnosis may result in inappropriate treatment, persistent disease, and compromised patient outcomes. Although previous studies have reported diagnostic difficulties among undergraduate dental students, evidence regarding diagnostic performance and its associated educational factors among Malaysian dental students remains limited.

Objectives
This study evaluated endodontic diagnostic performance among Malaysian undergraduate dental students and identified factors associated with diagnostic errors.

Methods
A validated online questionnaire comprising demographic information and five endodontic clinical case scenarios was distributed to Year 4 and Year 5 students from public and private universities (n = 304). Data were analysed using chi-square tests and binary logistic regression, with statistical significance set at p < .05.

Results
The lowest diagnostic accuracy was observed for pulpal necrosis with asymptomatic apical periodontitis. Public university students demonstrated significantly higher diagnostic accuracy than private university students for symptomatic irreversible pulpitis with symptomatic apical periodontitis (80.6% vs. 54.2%, p < .05). Diagnostic accuracy generally improved with academic seniority and clinical experience. Seminar-based teaching and case-based discussions were associated with higher diagnostic accuracy, whereas e-learning was associated with lower performance. Students who had completed more than three root canal treatments achieved significantly better diagnostic accuracy in selected scenarios. Inadequate teaching emerged as the most consistent predictor of diagnostic errors, increasing the odds of misdiagnosis by 2.75–9.33 times across three of the five cases.

Conclusion
Diagnostic performance varied across endodontic conditions and was influenced by teaching methods, clinical experience, and academic level. Structured active learning and increased clinical exposure were associated with improved diagnostic performance, while inadequate teaching significantly increased the risk of diagnostic errors.

Keyword: Endodontics, Diagnostic Performance, Undergraduate Dental Students

7th USIM INTERNATIONAL HEALTH CONFERENCE
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ABSTRACT ID: A0007

Insulin Resistance, Metabolic Dysfunction, and Weight Management in Polycystic Ovary Syndrome: The Limitations of Calorie Restriction Alone

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Background
Polycystic ovary syndrome (PCOS) is one of the most common endocrine disorders affecting women of reproductive age and is characterised by reproductive abnormalities, hyperandrogenism, and metabolic dysfunction. Although weight management is a cornerstone of PCOS management, many women experience persistent difficulties achieving and maintaining weight loss with conventional calorie-restriction strategies. This suggests that impaired weight regulation in PCOS extends beyond simple energy imbalance and involves complex physiological disturbances, particularly insulin resistance and hormonal dysregulation.

Methods (Search Strategy)
A narrative review of peer-reviewed literature was conducted, focusing on insulin resistance, compensatory hyperinsulinaemia, hyperandrogenism, adipose tissue metabolism, and weight regulation in women with PCOS. Evidence on calorie-restriction-based interventions and physiologically targeted approaches addressing insulin sensitivity and related metabolic abnormalities was also reviewed

Findings / Synthesis
Evidence supports insulin resistance as a central metabolic feature of PCOS, leading to compensatory hyperinsulinaemia. Elevated insulin may increase ovarian androgen production and reduce hepatic sex hormone-binding globulin, thereby increasing androgen activity. Hyperinsulinaemia and androgen excess may interact with altered adipose tissue metabolism and distribution, while visceral adiposity may further impair insulin sensitivity, creating a self-perpetuating metabolic-endocrine cycle contributing to weight dysregulation. Although calorie restriction can induce weight loss and improve metabolic outcomes, it may not fully address the underlying insulin resistance, hyperinsulinaemia axis and its downstream effects. Current evidence therefore supports consideration of approaches that address both energy balance and insulin sensitivity, including dietary modification, physical activity, and appropriate metabolic interventions.

Conclusion
Calorie restriction remains important in PCOS weight management but may not represent a complete mechanistic approach to weight dysregulation. Integrating energy balance with strategies targeting insulin sensitivity and the underlying metabolic phenotype may provide a more physiologically informed framework for sustainable weight management.

Keyword: Polycystic ovary syndrome; insulin resistance, hyperinsulinaemia, hyperandrogenism, calorie restriction, weight regulation

7th USIM INTERNATIONAL HEALTH CONFERENCE
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ABSTRACT ID: A0008

Ensuring Goal-Concordant Care via Advanced Care Planning: The Experience of a Hospice Director with Leprosy Community

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Background
Recent evidence demonstrates the controversial impact of advance care planning (ACP) on achieving goal-concordant care. Despite this, ensuring end-of-life care consistent with preferences is an essential part of holistic care.

Intervention / Innovation
Aim: To illustrate how ACP was conducted by a hospice director with elders living with leprosy in a community setting to ensure preferences at the end of life were honoured and the lessons learnt from the process.

Intervention: The concept of ACP is initially introduced during social gatherings. Then, participants are asked about the four priorities in terms of people they love, things they value, important roles they play, and activities they like to do that give meaning to their lives. Each section of the ACP form is then explored with the participants only at the second stage. These sections include the name of the chosen health representative, special wishes, worries or fears about the future, important goals when health deteriorates, and preferences for health and personal care. The copies of ACP are then kept with the participant, the chosen health representative and the healthcare professional. The document is revisited whenever necessary.

Outcome / Impact
Participants were more aware of their life priorities. They focused more on living in the present. Their fear of death reduced. For those who have passed on, not only have they lived well but also died well, with their wishes known and fulfilled. These experiences impacted other leprosy elders who had witnessed the process and hence wished to explore their own ACP.

Conclusion
ACP should always be regarded as a communication tool or process for exploring care preferences. It should be preceded by exploring life priorities and not solely be used for ceiling of treatment discussion. It should be revisited from time to time, and the documented discussion should be kept by the relevant parties to ensure goal-concordant care.

Keyword: Advance care planning, leprosy, hospice care

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ABSTRACT ID: A0009

Understanding the Perspectives on the Utility of Wearable Technology among Community-Based Palliative Care Patients: An Exploratory Qualitative Study

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Background
Emerging technology has transformed healthcare systems. However, little is known about the real-world needs and expectations of wearable devices in the palliative care population.

Objectives
To explore the perspectives of community-based palliative care patients on the use of wearable devices at home. To identify the facilitators and barriers to the adoption of wearable technology and to explore its acceptability among these patients.

Methods
Participants were recruited from the Living Well Day Centre of two hospices using convenience sampling. Individual face-to-face semi-structured interviews were conducted using a topic guide which was developed with input from the palliative care Patient and Public Involvement & Engagement group. The interviews were transcribed verbatim for reflexive thematic analysis.

Results
6 community-based palliative care patients were interviewed. All were White British and at least 60 years old, with 5 being female. All had an Australia-modified Karnofsky Performance Status (AKPS) of at least 60. 4 participants had experience with wearable devices. All were willing to try a new wearable device and would wear it most of the day. 4 participants preferred a smartwatch. 4 overarching themes were identified: 1) Double-edged sword- participants often valued the potential of wearable technology to support health and independence but were concerned about the risks associated with its use; 2) Practical considerations beyond functionality- factors such as design, materials, price, and user reviews were often considered; 3) The quest for security assurance- some participants felt the need to be reassured about its security features; 4) Connected for peace of mind- most participants thought owning a wearable device would be comforting.

Conclusion
Understanding patients' perspectives is essential to ensure that these devices are person-centred, ethical, and clinically useful. Further study considering the perspectives of unpaid carers and involving a larger sample size in multiple centres would contribute to the expansion of knowledge on the research topic.

Keyword: Palliative care, Wearable electronic devices, Qualitative research

ABSTRACT ID: A0010

An Emerging Cluster of Primary SXT-Resistant Melioidosis in Malaysia: A Call for Targeted Environmental Surveillance and Clinical Vigilance

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Background
Burkholderia pseudomallei is intrinsically resistant to a wide range of antibiotics, making sulfamethoxazole-trimethoprim (SXT) the global cornerstone for the prolonged oral eradication phase to prevent lethal melioidosis relapses. While true SXT resistance is generally rare, an emerging cluster of resistant strains poses a severe clinical challenge. We report a case series of six patients with SXT-resistant melioidosis managed at a single tertiary centre in Malaysia between 2024 and 2025.

Case Description
Among six patients (median age 61.5 years; 100% possessing metabolic or renal comorbidities), five presented with primary SXT resistance upon admission, while one developed acquired resistance following intermittent SXT exposure. Clinical manifestations were severe, encompassing rapid bacteraemic shock, neuromelioidosis, and chronic xanthogranulomatous pyelonephritis mimicking a pelvic malignancy. Notably, one patient exhibited intra-host susceptibility discordance, yielding an SXT-sensitive respiratory isolate alongside resistant deep-tissue cultures. The overall mortality rate was 50% (n = 3), primarily driven by end-stage comorbidities and delays in appropriate empiric antibiotic therapy. The three survivors, who had deep-seated infections (extradural, prostatic, and hepatic abscesses), were successfully managed with extended intensive intravenous antibiotics followed by high-dose oral co-amoxiclav.

Discussion
This cluster of primary SXT resistance suggests environmental circulation of resistant B. pseudomallei, posing a severe public health threat. Future genomic surveillance must investigate resistance mechanisms, particularly the upregulation of the bpeEF-oprC efflux pump genes. Clinically, diagnostic mimicry and intra-host discordance necessitate comprehensive multi-site culturing. When standard SXT eradication is compromised, our findings validate high-dose co-amoxiclav as a highly effective salvage therapy.

Conclusion
Clinicians in endemic regions must maintain a high index of suspicion for primary SXT-resistant melioidosis, utilizing co-amoxiclav as an effective salvage therapy. Ultimately, mitigating this emerging threat requires targeted environmental sampling combined with future genomic profiling, specifically tracing regulatory mutations driving bpeEF-oprC overexpression, to map resistance reservoirs and guide public health interventions

Keyword: Burkholderia pseudomallei, melioidosis, antimicrobial resistance, Sulfamethoxazole-Trimethoprim

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TRANSFORMING HEALTH THROUGH INNOVATION

ABSTRACT ID: A0012

Evaluating Denture Maintenance Practices and Periodontal Health: Implications for Multidisciplinary Oral-Systemic Care

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Background

Removable partial dentures (RPDs) effectively restore masticatory function and aesthetics in partially edentulous individuals. However, poor prosthesis maintenance significantly elevates the risk of local complications, including periodontal disease, dental caries, and denture stomatitis—conditions with known systemic health implications. Maintaining adequate denture and oral hygiene is essential not only for prosthetic longevity but also for preserving oral tissue integrity and overall patient health.

Objectives

To evaluate denture hygiene practices, plaque accumulation, and underlying periodontal health among partially edentulous patients wearing RPDs at the USIM Dental Polyclinic.

Methods

A cross-sectional study was conducted involving 95 RPD wearers. Participants completed a structured questionnaire evaluating self-reported oral and denture hygiene practices. Clinical assessments of denture plaque accumulation and periodontal parameters were subsequently performed by two calibrated examiners.

Results

Although 100% of participants reported cleaning their dentures daily (30.5% once daily; 69.5% twice or more daily), clinical evaluations revealed significant plaque accumulation. Over half of the cohort (53.7%) exhibited visible plaque covering 25% to 50% of the denture surface. Furthermore, clinical examination demonstrated a mean gingival bleeding score of 43.37%, signalling widespread, generalized gingivitis across the patient population.

Conclusion

While reported cleaning frequency appears adequate, the periodontal health of the patients i.e. the high rates of residual denture plaque and prevalent generalized gingivitis highlight a critical gap between patient-reported hygiene habits and effective plaque removal. These findings underscore the need for targeted patient education and cross-disciplinary health promotion to mitigate oral inflammation and improve long-term systemic and oral health outcomes.

Keyword: Partial Denture, Denture Hygiene, Periodontal Health

7th USIM INTERNATIONAL HEALTH CONFERENCE
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ABSTRACT ID: A0014

Exploring Entrepreneurial Competencies in Undergraduate Medical Training: A Qualitative Study Protocol

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Background
Entrepreneurial competencies such as value creation and the development of innovative solutions are increasingly important in medical students to address complex and patient-centered healthcare challenges. However, entrepreneurship education remains limited within medical curricula, as the integration may be challenging due to perceived conflicts regarding professionalism and patient-centered care. This gap leaves many medical graduates unprepared for innovation, opportunity recognition, and leadership. A structured understanding of how entrepreneurial skills are perceived and can be nurtured within undergraduate medical training is therefore needed to inform curricular reform.

Aim / Objectives
This protocol describes a qualitative study designed to (1) explore medical students' and lecturers' identification of entrepreneurial skills and competencies relevant to medical practice, including current opportunities and challenges for their development and (2) generate recommendations for integrating entrepreneurial skill development into undergraduate medical education, including effective teaching, learning and assessment approaches.

Methods
Following ethical approval from the ethics committee, this qualitative protocol will employ focus group discussions with 40 medical students (n=5 per group) from various gender and year of study. Semi-structured interviews will also be conducted with 10 educators from the business and medical faculties. Data collection will continue until saturation is reached. Sessions will be audio-recorded, transcribed and analyzed thematically using NVivo V.16, guided by Braun and Clarke's (2006) framework, with constant comparison applied across focus groups to ensure analytical rigour.

Results
This protocol is anticipated to yield thematically derived insights into how entrepreneurial competencies are conceptualised by students and educators, alongside the facilitators, barriers and pedagogical strategies perceived as effective for their integration into the curriculum.

Conclusion
Implementation of this protocol is expected to generate an adaptable, evidence-informed framework to guide curricular reform, fostering entrepreneurial competency development among future medical graduates.

Keyword: Entrepreneurial Competencies, Undergraduate, Medical Training, Medical Education

7th USIM INTERNATIONAL HEALTH CONFERENCE
TRANSFORMING HEALTH THROUGH INNOVATION

ABSTRACT ID: A0016

The Role of Morphine in Palliative Care for Advanced Cancer Patients: Balancing Pain Relief and Side Effects

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Background
Morphine is a cornerstone for moderate-to-severe cancer pain in palliative care. However, continued use causes opioid-induced constipation (OIC), affecting over 50% of patients, and sedation, impairing quality of life (QoL). Patients often rate constipation more burdensome than pain itself, creating a therapeutic dilemma. This review compares combined interventions (morphine titration with prophylactic laxatives) versus morphine alone on QoL (EORTC QLQ-C15-PAL), pain intensity (Numeric Rating Scale), and incidence of OIC, sedation, and respiratory depression in adult cancer patients over 12 months.

Methods (Search Strategy)
Following PRISMA, we searched PubMed, ClinicalKey, and Google Scholar (2019-2025). Of 127 records, six studies met inclusion criteria: one quasi-experimental (n=112), one retrospective cohort (n=928), one Cochrane review, one expert guideline, one physician survey (n=501), and one meta-analysis. No RCTs were qualified. Laxative regimens varied: stimulants (bisacodyl/senna) plus osmotic versus macrogol (78% preference). We excluded non-cancer pain, non-oral routes, and pre-2019 studies. Narrative synthesis was used due to heterogeneity.

Findings / Synthesis
Prophylactic laxatives reduced OIC from >50% to 23-45%, with significant QoL improvement and better physical functioning (p<0.001). Pain control remained equivalent without compromising efficacy. However, this benefit was not universal; one cohort study found no significant difference (48.1% vs 48.9%; OR=0.97) and identified age ≥65 (OR=1.53) and poor performance status (OR=1.69) as risk factors. Sedation was transient (30-40% initially, declining over time), and clinically significant respiratory depression remained rare (<1%).

Conclusion
Morphine combined with prophylactic laxatives appears to reduce constipation and preserve analgesia, supporting its use as a preferred approach. However, the absence of RCTs and conflicting cohort data limit the evidence; patient age and functional status may influence OIC risk. While prophylactic laxatives remain advisable, clinicians must stratify risk by age, performance, and future RCTs are needed to guide individualized protocols

Keyword: Palliative care, Morphine, Opioid-induced constipation, Quality of life, Cancer pain

7th USIM INTERNATIONAL HEALTH CONFERENCE
TRANSFORMING HEALTH THROUGH INNOVATION

ABSTRACT ID: A0017

High-Level Trimethoprim-Sulfamethoxazole Resistance in Clinical Burkholderia pseudomallei Occurs Independently of Structural oprC Mutations

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Background
Trimethoprim-sulfamethoxazole (SXT) is critical for melioidosis eradication therapy, but the emergence of highly resistant Burkholderia pseudomallei threatens clinical outcomes. While the BpeEF-OprC efflux system is implicated in multidrug resistance, reliable genetic markers for rapid diagnostic screening remain poorly defined, and the role of structural oprC sequence variation requires clarification.

Objectives
This study aimed to evaluate the phenotypic SXT resistance levels of a pre-selected cohort of resistant clinical B. pseudomallei isolates from East Coast Malaysia and determine whether structural oprC locus mutations drive this resistance.

Methods
Nineteen SXT-resistant clinical B. pseudomallei isolates from tertiary hospitals in East Coast Malaysia were cultured on Ashdown's agar and confirmed via a Type III secretion system 1 (TTS1) targeted qPCR assay. Phenotypic SXT resistance profiles were re-evaluated and confirmed using E-test strip per CLSI M45 (3rd Edition) guidelines. Genotypically, the oprC gene was PCR-amplified and subjected to bidirectional Sanger sequencing. Consensus sequences were aligned against the wild-type reference genome (GenBank CP038225.1), and phylogenetic relationships were inferred using the Neighbor-Joining method in MEGA X.

Results
All 19 pre-selected clinical isolates exhibited phenotypic SXT resistance (MIC ≥4.0 µg/mL), with 15.8% (n=3) demonstrating high-level, off-scale resistance MIC ≥32 µg/mL. Despite this phenotypic resistance, sequence analysis of the amplified oprC gene fragment revealed complete structural conservation. Pairwise alignments identified zero single nucleotide polymorphisms (SNPs) or indels, demonstrating a 100% nucleotide match with the wild-type reference. Phylogenetic reconstruction confirmed tight, low-divergence clustering across the dataset.

Conclusion
The structural conservation of the analyzed oprC fragment indicates this locus is unsuitable as a resistance diagnostic marker for SXT resistance. Instead, the high-level resistance observed must be driven by alternative mechanisms, such as regulatory-driven pump overexpression (bpeT/bpeS) or enzymatic target-site mutations (folA/folM). To prevent therapeutic failure during the eradication phase, diagnostic development and genomic surveillance must urgently pivot to targeting these alternative markers.

Keyword: Burkholderia pseudomallei, melioidosis, trimethoprim-sulfamethoxazole resistance, oprC gene, molecular diagnostic

7th USIM INTERNATIONAL HEALTH CONFERENCE
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ABSTRACT ID: A0021

UniMEDS Blood Ordering System: Transforming Blood Ordering Through an Integrated Electronic s\System in Transfusion Medicine

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Background
In transfusion medicine, a systematic blood ordering system is critical to ensure timely availability of compatible blood components while minimizing unnecessary crossmatching, clinical delays, and administrative workload. Prior to 2025, the Transfusion Medicine Unit at Hospital Al-Sultan Abdullah Universiti Teknologi MARA (HASA UiTM) relied on manual ordering and telephone notifications, leading to communication errors, inadequate traceability, and inefficient workflows. This highlighted the need for a standardized electronic system to enhance communication, process efficiency, and patient safety.

Intervention / Innovation
A systematic electronic blood ordering system was developed collaboratively by the Transfusion Medicine Unit and the Department of Infostructure, HASA UiTM. Integrated as a module within the web-based Hospital Information System (UniMEDS), it was built using PHP, MySQL and Mirth Connect to integrate with the Blood Bank Information System. The platform aimed to streamline ordering, facilitate real-time tracking of blood product readiness for issuance, enhance traceability, and standardize workflows.

Outcome / Impact
The UniMEDS Blood Ordering System (UniBOS) was successfully implemented hospital-wide, accompanied by standardized workflows for clinicians and transfusion staff. Following implementation, the time required to submit a complete request dropped from approximately 30 minutes to 5 minutes. Additionally, mandatory data entry fields improved complete information capture, accuracy, traceability, and workflow efficiency.

Conclusion
UniBOS demonstrated that integrating an electronic blood ordering module into hospital infrastructure significantly enhances efficiency, standardization, and traceability. The innovation improved clinician-lab communication, supported safer transfusion practices, and offered a scalable model for digital transformation in transfusion services across healthcare institutions.

Keyword: Blood bank information system, electronic blood ordering, digital health, hospital information system, workflow optimization

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TRANSFORMING HEALTH THROUGH INNOVATION

ABSTRACT ID: A0022

Expert consensus and validation of a context specific BLS-Dental Module for Medical Emergency Training in Dental Practice

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Background
Medical emergencies occur in notable frequency in dental practice, yet many dental practitioners remain insufficiently prepared due to a lack of standardised, context specific training. In Malaysia, a tailored resuscitation frameworks for dental settings have been historically absent. To bridge this critical educational gap, The Faculty of Dentistry, USIM has developed a training medical emergencies manual aligned with the 2023 National Committee of Resuscitation Training guidelines.

Objectives
To develop a consensus-based training manual for the management of medical emergencies among dental professionals and auxiliaries.

Methods
A two-round Delphi study was conducted with 16 experts panelists from Oral and Maxillofacial Surgery and Emergency Medicine. Panelists evalauated the proposed module using a pre-tested questionnaire. Data were analysed using IBM SPSS Statistics to determine the mean, median, quartile deviation (QD) and percentage of agreement. Consensus was defined as a median score above 5 and a QD less or equal to 0.5, while strong consensus required more or equal to 80% agreement.

Results
All items achieved median scores > 5 across both rounds. Following refined edits post-Round 1, Round 2 evaluation demonstrated high consensus with QD values for all items, except for a single item in Chapter 2.2. Inter-expert agreement surpassed 80% across all sections, establishing strong overall validation for the training framework.

Conclusion
The high level of consensus achieved validates the final BLS-Dental Module as an appropriate training tool for managing medical emergencies in dental settings. Its adoption has the potential to enhance preparedness among dental professionals and auxiliaries, thereby addressing a critical gap in standardized training manual in medical emergencies

Keyword: Delphi method, Medical emergency, Training manual, Module, Validation

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TRANSFORMING HEALTH THROUGH INNOVATION

ABSTRACT ID: A0026

Evaluating the Effectiveness of a Transdisciplinary Teaching Module Integrating Behavioral Science and Professional Development for Medical Students

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Background
Behavioral Sciences teaching in Malaysian medical curricula remains largely confined to clinical psychiatry during the preclinical phase, while Personal and Professional Development (PPD) is typically introduced only during clinical training. This creates an uneven curricular distribution and limits opportunities for early professional development. Existing PPD modules also tend to emphasize practical activities with limited theoretical grounding and focus primarily on psychological and sociological perspectives, with insufficient integration of Islamic principles that are essential for holistic medical education.

Objectives
This study evaluated the implementation of a transdisciplinary teaching module for Year 1 MBBS students that integrates Medicine, Psychology, Sociology and Social Anthropology, and Islamic principles.

Methods
Guided by the Design and Development Research (DDR) framework, the study involved three phases: (1) needs analysis through peer and literature reviews, (2) module design and development based on expert evaluation and consensus, and (3) implementation and evaluation through student assessments and feedback. This paper focuses on the implementation and evaluation phase.

Results
Quantitative findings indicated high levels of student satisfaction across all evaluated domains, including lecturer expertise (97.6%), learning objectives (97.7%), content suitability (95.2%), assessment methods (95.2%), and course duration (97.6%). Qualitative feedback revealed improvements in attitudes and behaviours, teamwork, self-confidence, and interpersonal skills. Students particularly appreciated the integration of theoretical learning delivered through lectures and self-learning packages with experiential activities such as explorace, cooking competitions, idea innovation sessions, and expert sharing. Although minor concerns regarding venue suitability and budget constraints were reported, these did not diminish the overall positive learning experience. Importantly, all students (100%) achieved an A grade in the course.

Conclusion
The integration of trans-disciplinary domains, including Islamic principles, effectively fulfills the Course Learning Outcomes (CLOs) during the preclinical phase. This theory-driven and practical approach successfully enhances students' professional development and offers a viable framework for holistic medical education curricula.

Keyword: Transdisciplinary Teaching-Learning Module, Behavioral Science, Undergraduate Medical Education, Personal & Professional Development, Islamic Principles

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ABSTRACT ID: A0027

A Scoping Review of Carica Papaya Leaf Extract in Dengue Management

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Background
Dengue continues to be a significant public health issue in Malaysia, with cases persisting despite government interventions. Carica papaya leaf extract (CPLE) has gained increasing attention as a potential adjunct therapy in dengue management as current management is largely supportive due to the lack of specific antiviral therapy. CPLE has been investigated for its potential hematological and antiviral effects, although the available evidence remains scattered across different study designs and formulations. This scoping review aimed to map the available evidence on CPLE in dengue management by describing study characteristics, CPLE preparations, reported laboratory and clinical outcomes, and current evidence gaps.

Methods (Search Strategy)
This scoping review was conducted in accordance with PRISMA-ScR framework. A comprehensive search in PubMed, EBSCOhost, ScienceDirect, and Scopus was conducted for studies published between 2011 and 2025 in English. The search was done using related keywords. Studies involving dengue patients or experimental models receiving CPLE were included. Data on study design, population, intervention details, outcomes, and adverse events were extracted using a Google Forms–based tool.

Findings / Synthesis
Eleven studies were included in this review. Most studies reported significant effects of CPLE, including increased platelet, white blood cell (WBC), erythrocyte counts, and reductions in NS1 antigen levels. However, one animal study did not show significant findings. Study populations, formulations, dosages, treatment duration, and outcome measures varied widely across studies, highlighting the need for standardization.

Conclusion
CPLE demonstrated potential as an adjunct therapy in dengue management by improving hematological markers and exhibiting antiviral properties. However, the current evidence is limited by small-scale studies and heterogeneity in populations, dosages, and formulations. Future research should focus on large-scale standardized trials to evaluate efficacy, establish safe dosing, and clarify mechanisms of action.

Keyword: Carica papaya leaf extract, dengue, adjunct therapy

7th USIM INTERNATIONAL HEALTH CONFERENCE
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ABSTRACT ID: A0028

Growing Older, Staying Independent: Understanding ADL Limitation among Older Persons in Malaysia

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Background
Malaysia has a growing older population. Functional disability is an emerging public health concern that has an impact on the health and quality of life of older adults. If functional disability is recognised early, it will be possible to support them to live independently.

Objectives
This study examines the prevalence and determinants of limitation in activities of daily living among older persons in Malaysia.

Methods
Data from the National Health and Morbidity Survey 2025, a nationwide cross-sectional survey employing a stratified sampling design, were analysed. A total of 7,205 older persons aged ≥60 years were included. Data were collected through face-to-face interviews using the Barthel Index of Daily Living. Logistic regression using complex sampling analysis was conducted to identify factors associated with ADL limitation.

Results
The overall prevalence of ADL limitation among older persons was 10.0%. Age was significantly associated with ADL limitation, with participants aged 60–69 years having lower odds of ADL limitation compared with those aged ≥80 years (aOR=0.23, 95% CI: 0.13–0.38). Depression was also significantly associated with ADL limitation; participants without depression had lower odds of ADL limitation compared with those with depression (aOR=0.22, 95% CI: 0.15–0.35). Similarly, participants without diabetes had lower odds of ADL limitation compared with those with diabetes (aOR=0.56, 95% CI: 0.40–0.77).

Conclusion
ADL limitation affects one in ten older persons in Malaysia and is associated with older age, depression and diabetes. These findings highlight the importance of early identification of functional limitation and continued prevention and management of diabetes and depression among older persons. Integrating functional assessment into routine care may help identify older persons who require additional support to maintain independence and quality of life.

Keyword: Older person, ADL limitation, NHMS

7th USIM INTERNATIONAL HEALTH CONFERENCE
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ABSTRACT ID: A0030

Overcoming Diagnostic Limitations: The Role of Deep Learning and Artificial Intelligence in Musculoskeletal Imaging for Obese Populations

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Background
Rising global obesity predisposes to numerous health risks, notably musculoskeletal (MSK) conditions like osteoarthritis. Consequently, accurate diagnostic imaging is critical for clinical management. However, obese patients present technical challenges for modalities like Computed Tomography (CT) and Magnetic Resonance Imaging (MRI). Increased body fat limits the field of view, attenuates radiofrequency beams, and generates significant image noise, which often necessitates higher radiation doses or yields suboptimal diagnostic quality. This review aims to identify the benefit and challenges of AI in MSK diagnosis of obese patients.

Methods (Search Strategy)
Literature review with keywords; 'obesity', 'Artificial Intelligence (AI),' 'Machine Learning (ML)', 'Deep Learning (DL)', 'Computed Tomography (CT)', 'Magnetic Resonance Imaging (MRI)', and 'musculoskeletal' were used with Boolean operators in databases; PubMed, SpringerLink, BMJ Open, Cochrane Library and Google Scholar. Articles in last 5 years were reviewed, focusing on AI's clinical efficacy in image reconstruction, image enhancement, automated body segmentation and diagnostic support in obese patients, while also critically analyzing the ethical, and technical limitations.

Findings / Synthesis
Clinically, deep learning algorithms improve image reconstruction, minimize radiation doses, and significantly shorten MRI durations by up to 50%. AI also accelerates precise body-composition segmentation and automates fracture detection. However, despite these benefits, limitations include dataset biases that underrepresent obese populations, AI-generated "hallucinations," and "black-box" models lacking explainability. Moreover, ethical disputes over diagnostic accountability and data privacy remain unresolved. Future progress relies on utilizing diverse multicenter datasets alongside Explainable AI (XAI) to establish clinical trust. Integrating multimodal clinical parameters, real-time noise correction, and federated learning architectures will ultimately optimize diagnostic safety, patient equity, and overall clinical accuracy.

Conclusion
To fully realize AI's potential and ensure equitable healthcare, future advancements must prioritize diverse data training, explainable AI (XAI) frameworks, and secure, multimodal learning approaches. Addressing these alongside with updated regulatory policies, will be essential for safely bridging gap between technological innovation and clinical reliability.

Keyword: Obesity, Musculoskeletal, Artificial Intelligence (AI), Machine Learning (ML), Deep Learning (DL)

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ABSTRACT ID: A0031

A Case Report of Peripheral Odontoma

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Background
Peripheral odontomas are extraosseous benign mixed odontogenic tumours. Histologically, these rare soft tissue enlargements demonstrate the same histopathologic features as their intraosseous counterparts but emerge in the gingiva and mucosa.

Case Description
An 11-year-old female paediatric patient was referred following incidental finding of a sessile growth in lower anterior gingiva of during scaling. The swelling was located lingual to the labially displaced teeth 31 and 32, not associated with any symptoms, and was unclear whether there were any changes in size or appearance. Medical history was non-contributory. Grittiness was felt upon excisional biopsy. Histopathological examination revealed the mass comprised mainly of dentine with cementoid layers, entrapped cementocytes, and vital pulp tissue with peripheral odontoblast-like cells. Surrounding loose fibrous connective tissue was relatively uninflamed and covered by hyperplastic parakeratinised stratified squamous epithelium. The microscopic findings suggested a complex or compound odontome. However, given the site of the lesion, a diagnosis of peripheral odontoma was established.

Discussion
Odontomas are odontogenic hamartomas that develop from remnants of dental lamina (rests of Serres). Diagnosis of odontomas is made with radiographs, gross examination and histological evaluation. Intraosseous odontomas are most common whilst extraosseous (peripheral) variations are extremely uncommon. Histopathologically, both intraosseous and peripheral variations have the same features. They are typically divided into compound and complex subgroups. Complete surgical removal promises an excellent prognosis, but rare recurrence may be associated with incomplete removal.

Conclusion
Diagnosis of peripheral odontomas may be challenging since they clinically appear as a firm, slow-growing gingival mass covered by normal mucosa. They may be clinically misdiagnosed as the more common reactive mucosal lesions such as pyogenic granuloma, irritation fibroma, peripheral giant cell granuloma, or peripheral ossifying fibroma. Thus, awareness and recognition of the clinical and histopathological features are important in achieving a diagnosis.

Keyword: peripheral odontoma, odontogenic tumour, benign extraosseous mixed odontogenic tumour, hamartoma

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ABSTRACT ID: A0032

Improving LGBTQ Health Literacy: Identifying Barriers and Facilitators Among Adolescents.

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Background
Adolescence is a stage of identity exploration. In Malaysia, sexuality education rarely addresses LGBTQ issues creating a gap in adolescent knowledge and impacts health. This review aims to explore factors affecting LGBTQ knowledge among adolescents.

Methods (Search Strategy)
Scoping review guided by PRISMA-ScR with inclusion of literatures that examined adolescents' knowledge, facilitators, and barriers toward LGBTQ issues and associated health risks, published from 2016 to 2026, across databases including PubMed, SpringerLink, BMJ Open, and Google Scholar. Keywords like "teenagers," "adolescents," "LGBTQ," "sexual health," "sexual knowledge," "sex education," and "health risks" were used with Boolean operators. Database searches identified twenty-five records (22 peer reviewed articles, 3 reports/policy documents). Malaysia specific studies were prioritized, while selected international studies were retained for comparative and theoretical support. After screening and duplicate removal, sixteen (16) studies were included in the final synthesis.

Findings / Synthesis
Knowledge Gaps: Adolescents demonstrate limited knowledge of LGBTQ issues, including difficulty differentiating between gender identity and sexual orientation. Furthermore, there is misunderstanding about LGBTQ and sexual infections like STI and HIV.
Key Facilitators: Inclusive sexuality education and supportive school environments are vital enablers. Strong peer networks, positive family support, and digital platforms also play crucial roles. Over 70% of LGBTQ teens utilize social media to explore their identities. Digital peer support has shown to improve self-acceptance. Hence, these facilitators are significant routes for imparting knowledge on healthy sexuality and correcting misconceptions.
Significant Barriers: Cultural and religious stigma restrict information on LGBTQ. Moreover, schools' inadequate curricula focus on sexuality education but excludes LGBTQ. Additionally, lack of guidance from adult, stigma and peer victimization actively deter information seeking behaviors.

Conclusion
In Malaysia, there is a gap in adolescents' knowledge on LGBTQ and existing studies focused on adult. Therefore, more studies are required to identify the factors influencing LGBTQ knowledge acquisition. This will assist the stakeholders for forthwith impactful interventions.

Keyword: Youth, teenagers, LGBTQ, HIV, STI

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ABSTRACT ID: A0033

An Integrated Environmental and Digital Toxicology Approach Linking Klang River Suspected Microplastic Occurrence with In Silico Prediction of Polymer-Specific Organ Affinity

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Background
Microplastic pollution in urban rivers is an emerging environmental and planetary health concern, particularly in highly urbanised and industrially influenced waterways.

Objectives
This study integrated preliminary Klang River surveillance with exploratory in silico toxicology to link suspected microplastic occurrence with polymer-specific organ-affinity prediction for environmental health risk prioritisation.

Methods
Subsurface water samples were collected from four urban Klang River locations: Taman Kuchai, PJS 7, Kampung Lembah Kinrara and Taman Perindustrian USJ 1. Samples were digested using 15% hydrogen peroxide at 37°C for 24 hours, filtered through 0.45 µm PVDF membranes and examined microscopically. Suspected particles were classified as films, fragments, fibres, foams and pellets. In parallel, polystyrene, polyethylene terephthalate and polyamide fragments were evaluated using molecular docking against I-FABP, CYP1A1 and ABCB1/P-glycoprotein, representing gut, liver and blood–brain barrier-related interfaces. Docking outputs were incorporated into an exploratory compartmental toxicokinetic model.

Results
Suspected microplastics were detected at all river locations, with total mean abundance ranging from 221.15 particles/L at Kampung Lembah Kinrara to 837.65 particles/L at Taman Perindustrian USJ 1. Fragments were the dominant morphology, representing approximately 80.5% of total suspected particles. The in silico model suggested polymer-specific differences in biological interaction, with polystyrene showing stronger predicted affinity toward ABCB1 and CYP1A1, while polyethylene terephthalate and polyamide showed distinct exploratory organ-affinity trajectories.

Conclusion
Combining river surveillance with in silico toxicology provides a practical framework for prioritising microplastic-related environmental health risks. Future studies should include polymer confirmation and experimental validation.

Keyword: Suspected microplastics, Klang River, environmental health, planetary health, in silico toxicology

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ABSTRACT ID: A0035

Health Benefits and Risks of Artificial Sweeteners as an Alternative to Sugar

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Background
The use of artificial sweeteners as a substitute for sugar has grown substantially, driven by rising rates of obesity, diabetes, and increased consumer demand for low-calorie alternatives. However, evidence on whether artificial sweeteners genuinely offer a healthier alternative to sugar remains inconsistent across the literature. This narrative review examines the comparative health effects of artificial sweeteners relative to conventional sugar, focusing on three outcomes: glycemic control, appetite regulation, and cardiovascular risk.

Methods (Search Strategy)
A structured literature search was conducted in PubMed, Scopus, ScienceDirect, and Google Scholar for peer-reviewed English-language studies published between 2015 and 2025, using search terms related to artificial sweeteners, non-nutritive sweeteners, sugar, glycemic control, appetite regulation, and cardiovascular risk.

Findings / Synthesis
For glycemic control, studies show no significant acute rise in blood glucose or insulin following non-nutritive sweetener consumption; however, some longer-term studies have found higher type 2 diabetes risk and reduced insulin sensitivity among users, though reverse causality and limited study duration constrain firm conclusions. Findings on appetite regulation do not support a consistent stimulating or suppressing effect; observed reductions in caloric intake appear to stem primarily from substitution of sugary products rather than direct appetite suppression, and this benefit can be offset by compensatory eating. Cardiovascular outcomes show the most consistent signal of concern, with several studies linking higher artificial sweetener intake to increased risk of cardiovascular disease, stroke, and cardiovascular death, though this evidence remains largely observational, with limited experimental data available to confirm causation.

Conclusion
Overall, this review finds that the health impact of artificial sweeteners is highly outcome-dependent and shaped by recurring methodological limitations, including reverse causality, short study duration, and reliance on observational data, rather than being uniformly beneficial or harmful.

Keyword: artificial sweeteners, non-nutritive sweeteners, glycemic control, appetite regulation, and cardiovascular risk.

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ABSTRACT ID: A0037

Childhood Vaccine Hesitancy in Malaysia: Prevalence, Determinants and Strategies to Improve Acceptance

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Background

Malaysia's national immunisation programme has historically achieved high vaccination coverage and contributed substantially to the control of vaccine-preventable diseases. However, increasing parental vaccine hesitancy may undermine these gains and compromise herd immunity. In Malaysia's multi-ethnic population, vaccination decisions are influenced by interrelated religious, cultural, socioeconomic, informational and healthcare-related factors. Objective: To review the prevalence and factors influencing childhood vaccine hesitancy in Malaysia and identify strategies that may improve parental vaccine acceptance.

Methods (Search Strategy)

A literature review was conducted using PubMed and Google Scholar. Search terms included combinations relating to vaccine hesitancy, vaccine refusal, vaccine acceptance, childhood, Malaysia, determinants and barriers. Full-text English-language studies published from 2017 onwards addressing childhood vaccine hesitancy, prevalence, influencing factors or strategies to improve vaccine acceptance in Malaysia were reviewed.

Findings / Synthesis

Reported prevalence varied substantially according to vaccine type, population and setting. Delayed vaccination ranged from 0.03% to 21%, while refusal rates ranged from 0.08% to 42.5%. Vaccine refusal among children under two declined nationally from 3.2% in 2016 to 2.3% in 2019, although regional variation persisted. Major determinants included religious concerns, particularly vaccine halal status; cultural preferences; socioeconomic and educational factors; social-media misinformation and conspiracy beliefs; and distrust of healthcare systems. Higher educational attainment did not consistently predict greater vaccine acceptance. Potential strategies include culturally appropriate education, engagement with religious and community leaders, strengthening digital health literacy, improved healthcare-provider communication, transparent adverse-event monitoring and targeted public-health interventions.

Conclusion

Childhood vaccine hesitancy in Malaysia is multifactorial and context-dependant. Sustainable improvement in vaccine acceptance requires integrated strategies combining evidence-based communication, culturally and religiously sensitive engagement, strengthened healthcare trust and effective responses to misinformation.

Keyword: Childhood vaccination, vaccine hesitancy, vaccine refusal, immunisation

7th USIM INTERNATIONAL HEALTH CONFERENCE
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ABSTRACT ID: A0038

Haemoglobin Hofu in a Malaysian Adolescent: A Rare Variant Identified during Form 4 Thalassaemia Screening

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Background
Structural haemoglobin variants are occasionally encountered during routine thalassaemia screening and may complicate the interpretation of haematological indices. Haemoglobin (Hb) Hofu is a rare beta globin variant caused by a c.380T>A mutation at codon 126 (GTG>GAG), substituting valine with glutamic acid (β126 Val→Glu). We report the detection of Hb Hofu in a Malaysian adolescent.

Case Description
A 16-year-old asymptomatic female was screened as part of the Form 4 students Thalassaemia screening. Full blood count showed mild microcytosis and hypochromia (haemoglobin 11.4 g/dL, mean corpuscular volume 77.5 fL and mean corpuscular haemoglobin 23.1 pg). Capillary electrophoresis (CE) demonstrated HbA_2 2.7%, HbA 55% and a prominent abnormal peak at zone 12 (42.3%). High-performance liquid chromatography (HPLC) revealed HbA_2 3.3%, HbA 53.6% and HbF 0.8%, with a distinct double peak in the A window at 2.20 minutes accounting for 31.7% of total haemoglobin. Sanger Sequencing of beta globin gene confirmed a heterozygous state of Codon 126 GTG>GAG, establishing the diagnosis of Hb Hofu. Family screening identified the mother as heterozygous for the same variant, while the father had no detectable beta globin abnormality.

Discussion
Hb Hofu is a rare, mildly unstable haemoglobin variant that is clinically silent in the heterozygous state. Consistent with the literature, our patient was asymptomatic. While CE and HPLC provide characteristic separation patterns, neither technique alone can reliably distinguish Hb Hofu from other uncommon structural variants with similar migration or retention characteristics. This underscores the complementary role of molecular diagnostics in resolving unusual haemoglobin fractions detected during routine screening.

Conclusion
This case expands the geographical distribution of Hb Hofu to Malaysia and highlights importance of integrating haematological findings with haemoglobin and molecular analyses for accurate identification of rare haemoglobin variants. Recognition of Hb Hofu is essential to avoid misclassification during thalassaemia screening and to facilitate appropriate genetic counselling.

Keyword: Haemoglobin Hofu, haemoglobin variant, thalassaemia screening, molecular testing

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ABSTRACT ID: A0039

Wandering Tube: A Case of a Neglected Cholecystostomy Catheter

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Background
A cholecystostomy is a medical procedure that creates an open path into the gallbladder through the skin to drain fluids, pus, or bile using a pigtail catheter. It provides source control in patients with acute cholecystitis or gallbladder empyema, particularly in patients who are critically ill or unsuitable for immediate surgery.

Case Description
A 60-year-old Chinese gentleman with diabetes mellitus and hypertension was admitted for severe sepsis complicated with perforated gallbladder empyema with a right subhepatic collection. A percutaneous cholecystostomy was performed and the patient recovered well. Index cholecystectomy was deferred in view of anticipation of dense adhesion and complicated surgery. He was discharged with a cholecystostomy tube and planned for cholecystectomy later. However, the patient defaulted his hepatobiliary surgery appointment.
He presented again to hospital after 1 year secondary to infected sacral sore and acute kidney injury. CECT Abdomen was performed to assess the previous collection and locate the catheter. The findings showed the tip of the catheter had migrated into the large bowel and the previous collection had resolved. The patient was scheduled for colonoscopy later.

Discussion
Cholecystostomy catheter serves as a bridge to interval cholecystectomy, allowing time for infection and inflammation to resolve. It typically remains in place for several weeks, commonly 4–8 weeks. For ill patients permanently unsuitable for surgery, long-term or indefinite drainage may be necessary with periodic catheter assessment and replacement every 6-8 weeks. .
In this case, the patients had prolonged indwelling cholecystostomy catheters without replacement for more than 12 months. Delayed complications, particularly catheter migration occurs secondary to chronic inflammation and erosion of the surrounding tissue.

Conclusion
This case highlights the importance of regular catheter assessment, timely removal when clinically appropriate, and multidisciplinary follow-up to prevent potentially serious complications associated with prolonged catheterization.

Keyword: cholecystostomy, gallbladder, empyema

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ABSTRACT ID: A0040

Superior Surface Stability? Comparing 3D-Printed and Vacuum-Formed Thermoplastic Retainers Under Thermocycling Stress

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Background
A retainer is an appliance worn after orthodontic treatment to hold teeth in their newly aligned positions and prevent them from relapse. In 2022, the Faculty of Dentistry, USIM initiated research evaluating 3D-printed retainers as alternatives to conventional vacuum-formed thermoplastic retainers (VFR). While previous research evaluated the fitting accuracy, the current study investigates surface roughness as a measure of material performance.

Objectives
To evaluate and compare the surface roughness of 3D-printed and conventional vacuum-formed thermoplastic retainers before and after thermocycling.

Methods
A total of 24 3D-printed and 24 vacuum-formed retainers (VFR) underwent thermocycling to simulate one year of intraoral exposure. Using a stylus profilometer, surface roughness was measured before and after thermocycling across four distinct dental zones: the incisor, canine, premolar, and molar regions.

Results
Paired t-tests showed no significant intra-group changes in surface roughness following thermocycling for either retainer ($p=0.28$). However, independent t-tests revealed statistically significant inter-group differences between 3D-printed and conventional retainers at both baseline and post-thermocycling ($p=0.04$).

Conclusion
Neither retainer type exhibited statistically significant changes in surface roughness following thermocycling. However, conventional vacuum-thermoformed retainers demonstrated higher surface roughness compared to 3D-printed retainers even prior to thermocycling.

Keyword: 3D-printed retainer, conventional thermoplastic retainer, thermocycling, mechanical properties, surface roughness.

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ABSTRACT ID: A043

Mapping GLP-1 Receptor Agonist Utilization in Malaysia: A Preliminary Study

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Background
Glucagon-like peptide-1 receptor agonists (GLP-1RAs) are well established for managing type 2 diabetes, offering strong cardiovascular, renal, and weight-related benefits. Their marked efficacy in promoting weight loss has, however, driven a surge in off-label use for cosmetic purposes, often obtained through private-sector channels that bypass recommended clinical pathways. This growing pattern raises pressing safety and regulatory concerns in Malaysia, yet local evidence remains scarce, with current guidance relying heavily on international trial data rather than real-world local usage patterns, acquisition channels, or adverse event profiles.

Objectives
This study aims to characterize GLP-1RA utilization in Malaysia, including acquisition routes, adverse drug reactions, and supply chain dynamics shaping access outside formal clinical oversight.

Methods
A mixed-methods design will be used in this study. Quantitative data will be drawn from a retrospective pharmacovigilance analysis of Individual Case Safety Reports in the National Pharmaceutical Regulatory Agency (NPRA) database, alongside structured surveys of GLP-1RA users recruited via social media, assessing acquisition patterns and body image outcomes using validated psychological scales. Qualitative data will be collected through semi-structured questionnaires with private healthcare providers in Kuala Lumpur and Selangor, and interviews with pharmaceutical representatives, continuing until data saturation. Quantitative data will be analysed in SPSS, while qualitative data will be analysed thematically using ATLAS.ti.

Results
The study is expected to map primary acquisition routes, characterize common and severe adverse reactions across GLP-1RA agents, and identify vulnerabilities within private-sector supply chains. Triangulation of quantitative and qualitative findings will help cross-validate safety signals and prescribing behaviours.

Conclusion
This study will generate the first local, real-world evidence on GLP-1RA utilization in Malaysia, supporting regulatory stewardship by the Ministry of Health and NPRA, informing safer prescribing guidelines, and guiding equitable, evidence-based obesity management amid rising off-label use.

Keyword: : GLP-1 receptor agonists, weight management, off-label use, adverse events, pharmacovigilance

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ABSTRACT ID: A0044

Dyslipidemia and Atherosclerotic Cardiovascular Disease: Pathophysiology and Current Management Strategies - A Narrative Review

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Background
Atherosclerotic cardiovascular disease (ASCVD) remains a major cause of morbidity and mortality worldwide. Dyslipidemia is an important modifiable cardiovascular risk factor and contributes to atherosclerosis through exposure to and retention of atherogenic lipoproteins, followed by vascular inflammation and plaque progression.

Methods (Search Strategy)
A narrative literature review was conducted using PubMed, ScienceDirect, the Cochrane Library, Wiley Online Library, and Google Scholar. Search concepts included dyslipidemia, atherosclerosis, ASCVD, LDL-C, apolipoprotein B, statins, lipid-lowering therapy, ezetimibe, PCSK9, hypertriglyceridemia, lipoprotein(a), and cardiovascular risk reduction. Literature published primarily from 2021 onward was prioritized, while selected earlier publications were retained for foundational evidence. Original studies, reviews, systematic reviews, consensus statements, and clinical practice guidelines were considered. Findings were synthesized narratively. Because complete deduplicated screening and exclusion counts were unavailable, a quantitative PRISMA flow diagram was not applied.

Findings / Synthesis
Retention of apolipoprotein B-containing lipoproteins, particularly LDL particles, within the arterial intima is a central event in atherogenesis. Lipoprotein modification, endothelial activation, monocyte recruitment, macrophage lipid uptake, foam-cell formation, and chronic inflammation contribute to plaque development and progression. LDL-C remains the principal therapeutic target, while apolipoprotein B and non-HDL-C may provide complementary information regarding atherogenic particle burden. Lipoprotein(a) and triglyceride-rich lipoproteins contribute to residual cardiovascular risk. Lifestyle modification remains fundamental, while statins constitute first-line pharmacological therapy. Ezetimibe, PCSK9-directed therapies, and bempedoic acid provide additional options when greater LDL-C reduction is required or statin therapy is not adequately tolerated.

Conclusion
Dyslipidemia contributes to ASCVD through sustained exposure to atherogenic lipoproteins and their retention within the arterial wall. Effective prevention requires individualized cardiovascular risk assessment, lifestyle modification, and appropriately intensified lipid-lowering therapy. Contemporary management increasingly incorporates atherogenic particle burden, Lp(a), triglyceride-rich lipoproteins, and residual cardiovascular risk in addition to LDL-C.

Keyword: Dyslipidemia, Atherosclerosis, Atherosclerotic Cardiovascular Disease, LDL-C, Lipid-lowering Therapy

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ABSTRACT ID: A0045

Transcriptomic Profiling of Klebsiella pneumoniae Exposed to Tannic Acid Reveals Dose-Dependent Reprogramming of Polyol Metabolism and Outer Membrane Porins

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Background

Klebsiella pneumoniae has been reported to cause worldwide life-threatening infections due to resistance to antibiotics. Tannic acid, a plant polyphenol, is known to possesses a wide range of potent antibacterial activities including *K. pneumoniae.* However, the depth understanding of its molecular effect toward the pathogen remain scarce.

Objectives

This study was aimed to characterize the global transcriptional responses of *K. pneumoniae* treated with tannic acid.

Methods

K. pneumoniae exposed to low (0.125mg/mL) and moderate (0.31mg/mL) sub-inhibitory concentrations of tannic acid was subjected to high-throughput next-generation RNA sequencing and compared to untreated controls. Read alignment, differential gene expression profiling (log2 FC, q 0.05) and Gene Ontology (GO) over-representation analysis were conducted. Quality control was validated via per-base nucleotide distribution and global correlation matrices (R2 ≥0.974).

Results

K. pneumoniae exposed to tannic acid revealed a concentration-dependent transcriptional shift, resulting 95 differentially expressed genes (DEGs) in 0.125mg/mL (63 upregulated, 32 downregulated) and 113 DEGs in 0.31mg/mL (68 upregulated, 45 downregulated). The cell envelope permeability was constrained evidenced by downregulation (up to log2 FC= -2.50) of the major outer membrane porins (KPHS_13260, KPHS_13250). Genes encoding glyoxalase detoxification (KPHS_26380), carbon starvation transporters (cstA, KPHS_06220) and the acetoin/butanediol fermentation operon (KPHS_09960–09980, up to log2 FC= +2.38) were significantly upregulated. GO term enrichment revealed a complete 100% upregulation of polyol, glycerol, and organic hydroxy compound metabolic pathways in 0.31mg/mL (FDR q 0.003), due to elevation of glycerol kinase activity.

Conclusion

Tannic acid exhibits a potent antibacterial activity towards *K. pneumoniae.* However, the pathogen mitigates intracellular acid and oxidative stress by reducing outer membrane permeability and metabolic reprogramming. These findings elucidate key survival pathways in *K. pneumoniae* targeted by tannic acid and indicate the need to administer it at or above its Minimum Inhibitory Concentration (MIC) to fully eradicate the pathogen.

Keyword: *Klebsiella pneumoniae*, RNA-seq, Tannic acid, Porin suppression, Polyol metabolism

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ABSTRACT ID: A0052

Development and Preliminary Content Validation of a Biopsychospiritual Questionnaire on Healthy Sexuality and Gender Identity Among Youth

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Background
Youth face complex challenges related to sexual health, gender identity and mental health, that are compounded by biopsychosocial stressors and spiritual concerns. Concurrently, youth increasingly turn to artificial intelligence (AI) for information and guidance. However, the existing tools to assess knowledge, attitudes, practices and misconceptions regarding healthy sexuality and gender identity in youth rarely integrate biopsychospiritual dimensions. These include Islamic spirituality and spirituality of other religious traditions, as well as AI-related considerations.

This study aimed to develop a biopsychospiritual questionnaire on healthy sexuality and gender identity among youth. Therefore, preliminary content validity using expert ratings of essentiality was conducted and rated.

Intervention / Innovation
Questionnaire domains and items were generated from a literature review, theoretical foundations, and focus group discussions with experts in the field, religious scholars, and/or leaders from relevant religious traditions. The items were bilingual. A multidisciplinary panel of experts assessed each item's essentiality using Lawshe's three-point essentiality scale. Content validity ratio (CVR), overall mean CVR, and construct-level mean CVRs were calculated. Item-level CVRs were compared with the critical CVR value to inform item refinement. Expert feedback and theoretical considerations were applied in decisions regarding item retention, modification, or removal.

Outcome / Impact
The initial questionnaire consisted of 191 items across 8 constructs. CVR values were 0.33, 0.67, or 1.00, corresponding to 4, 5, or 6 of 6 experts rating an item as essential, respectively. The overall mean CVR was 0.87, indicating strong overall expert agreement on the questionnaire items. Construct-level mean CVRs ranged from 0.80 to 0.97. Based on expert evaluation, theoretical relevance, construct coverage, item redundancy, and the need to balance items across constructs, the initial 191-item pool was refined to 142 items.

Conclusion
The findings provide preliminary content validation. A pilot testing for the items and reliability of the questionnaire is essential for the instrument's full validation.

Keyword: Questionnaire Development, Content Validation, Biopsychospiritual, Healthy Sexuality and Gender Identity, Youth.

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ABSTRACT ID: A0053

Antibiotic Resistance Profiles of Staphylococcus aureus and Methicillin-Resistant Staphylococcus aureus (MRSA) Isolated from Oral Cavities of Healthy Adults in Pandan Indah, Kuala Lumpur

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Background
Staphylococcus aureus is a major opportunistic pathogen causing a wide range of infections including life-threatening systemic diseases. The colonization of healthy nasal passages and oral mucosa serves as a potential reservoir for the transmission of multi-drug-resistant strains, including Methicillin-Resistant Staphylococcus aureus (MRSA). The evolution of VISA (Vancomycin-Intermediate Stapylococcus aureus) and VRSA (Vancomycin-resistance Stapylococcus aureus) has also jeopardize treatment choices.

Objectives
This study was aimed to profile antibiotic resistance and susceptibility patterns of *S. aureus* and MRSA isolated from oral cavities of healthy adults.

Methods
A total of 54 isolates collected from healthy oral cavities were subjected to standard microbiological testing to confirm bacterial identification. Antimicrobial susceptibility was tested using the Kirby-Bauer disk diffusion method on Mueller-Hinton agar against a panel of antibiotics including vancomycin (30 µ"g"), cefoxitin (30 µ"g"), and oxacillin (1 µ"g"). Minimum Inhibitory Concentrations (MIC) were evaluated using gradient diffusion assay (Etest).

Results
The antimicrobial susceptibility testing revealed 24.07% (n=13) of the isolates were fully susceptible *S. aureus.* 48.15% (n=26) of the isolates were accounted as MRSA, all of which were susceptible to vancomycin, while displaying resistance to oxacillin alone (n=22) or to both oxacillin and cefoxitin (n=4). Additionally, 27.78% (n=15) of isolates demonstrated reduced sensitivity to vancomycin.

Conclusion
There was remarkable high prevalence of MRSA which accounted for 48.15% in oral cavity of healthy adults. Hence, highlights the oral cavity as a notable reservoir for community-associated multi-drug-resistant pathogens. Monitoring of antimicrobial susceptibility profile remains necessary to confirm antibiotic resistant strains including vancomycin-intermediate or resistant strains via quantitative MIC testing.

Keyword: Methicillin-Resistant Staphylococcus aureus (MRSA), Oral cavity, Antibiotic resistance, Disc diffusion test, Minimum Inhibitory Concentration (MIC)

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ABSTRACT ID: A0054

Emotional Well-being of Couples Undergoing Fertility Treatment in Malaysia: A Multicentre Qualitative Perspective

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Background
Subfertility affects approximately one in six couples in Malaysia, with significant emotional and psychological consequences. Despite growing recognition of the psychological impact of infertility treatment, limited research explores the comprehensive emotional experiences of Malaysian couples, particularly the male perspective and coping mechanisms employed during treatment.

Objectives
This qualitative study aimed to (1) identify psychosocial and emotional challenges faced by couples throughout subfertility treatment, (2) explore factors influencing couples' emotional well-being, (3) identify emotional management strategies used by couples, and (4) understand their hopes, expectations, and optimism.

Methods
In-depth online interviews were conducted with 12 participants (6 couples) from National Subfertility Centres across Malaysia (Kuala Lumpur, Penang, and Sarawak) between July and October 2025. Participants aged 28-43 years were selected through convenience sampling. Interviews were transcribed verbatim and analysed manually using thematic analysis. Trustworthiness was ensured through member checking, triangulation, and maintenance of an audit trail.

Results
Seven main themes emerged: (1) Emotional burden of subfertility treatment, encompassing positive emotions (calmness, optimism) and negative emotions (sadness, disappointment, fear, and anxiety); (2) Social stigma and gendered expectations; (3) Strain on marital and intimate relationships, particularly through medicalised intimacy and altered couple dynamics; (4) Factors influencing emotional well-being, spanning employment, financial strain, spirituality, accessibility, lifestyle modification, social support, and social media; (5) Coping and adaptive strategies, including psychospiritual practices, couple-based communication, and active partner support; (6) Gaps in psychosocial support within fertility care, and (7) Hopes and optimism, reflecting enduring aspirations for parenthood, improved healthcare support, and the often-overlooked male perspective on infertility.

Conclusion
This study highlights the complex emotional burden carried by Malaysian couples undergoing subfertility treatment, with notable insights into male experiences. Findings underscore the need for comprehensive psychosocial support services, specifically gender-focused interventions, improved counselling protocols, and greater awareness about male infertility within Malaysian healthcare settings.

Keyword: Subfertility, emotional well-being, coping strategies, male infertility, Malaysia

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ABSTRACT ID: A0055

Retinoids and Salmon-Derived Polydeoxyribonucleotide (PDRN) in Anti-Aging Skincare

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Background
Retinoids are well-established anti-aging agents with substantial clinical evidence supporting their efficacy in improving features of skin aging. Recently, salmon-derived polydeoxyribonucleotide (PDRN) has emerged as a potential anti-aging ingredient, however, clinical evidence regarding its efficacy and safety remains limited. This literature review aims to determine the mechanism of action, latest evidence and safety considerations associated with retinoids and salmon-derived PDRN in anti-aging skincare.

Methods (Search Strategy)
The literature review was conducted using electronic databases, including PubMed, Google Scholar, Scopus, and ScienceDirect. English-language publications were identified using combinations of keywords related to retinoids, salmon-derived PDRN and anti-aging skincare. A total of 18 relevant articles were included in the review.

Findings / Synthesis
Retinoids and salmon-derived PDRN share several proposed anti-aging mechanisms, particularly the promotion of collagen synthesis and improvement of hyperpigmentation. Retinoids additionally increase epidermal thickness and promote epidermal cell turnover. In comparison, salmon-derived PDRN has demonstrated anti-inflammatory and antioxidant properties. Retinoid use is commonly associated with dryness, peeling and erythema with teratogenicity being an important safety concern. In contrast, topical salmon-derived PDRN appears to be generally well tolerated, although allergic reactions remain a potential concern and evidence regarding its safety profile is still limited.

Conclusion
Retinoids remain the gold standard in topical anti-aging therapy, supported by a stronger clinical evidence base. Salmon-derived PDRN shows promising anti-aging properties and may represent a potential alternative for individuals who are unable to tolerate retinoids. However, robust clinical studies are required to establish its comparative efficacy, long-term safety, and role in anti-aging skincare.

Keyword: Retinoids, salmon-derived PDRN, polydeoxyribonucleotide, anti-aging skincare, skin aging.

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ABSTRACT ID: A0057

Integrated Oral-Systemic Health: A Scoping Review of Periodontal, Metabolic, and Respiratory Indicator

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Background
Non-communicable diseases (NCDs), including metabolic syndrome and chronic respiratory conditions, share systemic inflammatory pathways with periodontal disease. Over the past decade (2016–2026), evidence linking oral inflammation to metabolic and pulmonary dysfunctions has expanded significantly. However, clinical indicators across these three health domains are rarely evaluated within an integrated population health framework. This scoping review aims to map recent evidence (2016–2026) on periodontal assessment tools, metabolic risk indicators, and spirometric parameters to inform multi-disciplinary screening strategies.

Methods (Search Strategy)
Following the Joanna Briggs Institute (JBI) methodology and PRISMA-ScR guidelines, a systematic search strategy was designed across PubMed, Scopus, and Web of Science for studies published between 2016 and 2026. Search strings combined MeSH terms and keywords for periodontal disease (e.g., BPE, CPI, pocket depth), metabolic syndrome (e.g., IDF criteria, waist circumference, blood glucose), and pulmonary function (e.g., spirometry, FEV_1, FVC). Observational and interventional studies evaluating at least two triad domains in adults (≥ 18 years) were targeted.

Findings / Synthesis
Recent 10-year literature demonstrates strong pairwise associations between severe periodontitis, metabolic dysregulation, and impaired spirometric parameters (FEV_1/FVC restriction/obstruction). Diagnostic tools vary: rapid tools like the Basic Periodontal Examination (BPE) and CPI predominate in community settings, while full clinical charting dominates hospital studies. However, integrated population screening models assessing all three domains simultaneously remain scarce, particularly in Southeast Asia.

Conclusion
Synthesizing recent evidence reveals a critical gap in multi-domain NCD surveillance. Combining rapid periodontal screening (BPE) with metabolic and spirometric indicators offers an innovative, practical public health model for early disease detection.

Keyword: Oral-Systemic Health, Periodontal Disease, Metabolic Syndrome, Pulmonary Function, Scoping Review

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ABSTRACT ID: A0059

Sleep Deprivation and Its Effects on Cognitive Performance Among University Students

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Background
Sleep deprivation is a common problem among university students worldwide. In this review, sleep deprivation refers broadly to inadequate sleep, encompassing insufficient sleep duration and poor sleep quality. Many students experience inadequate sleep due to academic demands, poor time management, and lifestyle factors. Inadequate sleep may adversely affect cognitive functions, including memory and attention, as well as academic performance. However, this issue is often overlooked, particularly in Malaysia where local data remain limited. This review aimed to: (1) identify the prevalence of sleep deprivation among university students, and (2) examine its effects on memory, attention, and academic performance.

Methods (Search Strategy)
A literature review was conducted using Google Scholar, ScienceDirect, PubMed, and SpringerLink. A total of 30 peer-reviewed articles published between 2016 and 2026 were included. Only English-language articles were selected. Data on prevalence and cognitive effects were extracted and narratively synthesised.

Findings / Synthesis
The prevalence of poor sleep quality among university students ranges worldwide, from 30% to over 70% due to the confounding factors related to lifestyle. In Africa, the prevalence was 63.3%, while in China rates varied from 31.0% to 72.3%. In Malaysia, rates ranged from 58.1% to 70.6%, indicating that more than half of university students were affected. Inadequate sleep and poor sleep quality were consistently associated with poorer attention, memory, working memory, executive function, and academic performance. Students with poor sleep were also reported to have lower grades, increased forgetfulness, difficulty concentrating, and greater daytime sleepiness.

Conclusion
Inadequate sleep and poor sleep quality are prevalent among university students and are associated with poorer cognitive and academic outcomes. Malaysian studies reported relatively high rates of poor sleep quality, highlighting the importance of promoting healthy sleep practices among university students. Universities should consider incorporating sleep education and sleep health promotion into student health and well-being programmes.

Keyword: Sleep deprivation, cognitive performance, university students, memory, attention

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ABSTRACT ID: A0060

Informal Caregiving and Its Impact on Adults in Malaysia Across Age Groups

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Background
Informal care refers to unpaid care or support to individuals with long-term health conditions or disabilities. Increasing age, declining physical capacity, and chronic disease burden may reduce caregiving capacity.

Objectives
To determine the prevalence of informal caregiving and its impact on health, work, and social activities among adult informal caregivers in Malaysia, stratified by age group.

Methods
Data of 11,674 adults aged ≥18 years (n=11,674) from the National Health and Morbidity Survey 2019, a nationwide cross-sectional household survey of the non-institutionalised population in Malaysia, were analysed. Data were collected via face-to-face interviews using a validated questionnaire. Complex sample descriptive statistics were conducted using STATA v18.

Results
Overall, 5.67% (95% CI: 4.99–6.43) of adults in Malaysia were informal caregivers. Prevalence increased with age, from 4.17% (95% CI: 3.31–5.25) among adults aged 18–34 years to 8.60% (95% CI: 6.85–10.76) among those aged 50–59 years, before declining slightly to 7.12% (95% CI: 5.51–9.15) among adults aged ≥60 years. Across all age groups, prevalence was consistently higher among females than males, increasing from 5.2% (95% CI: 3.86–6.88) among females aged 18–34 years to 10.68% (95% CI: 8.13–13.90) among those aged 50–59 years. Caregiving was more prevalent among adults with non-communicable diseases (7.39%; 95% CI: 5.99–9.09). Two-thirds of caregivers provided care to older persons aged ≥60 years (66.74%; 95% CI: 60.63–72.34). Impacts on health and work were highest among caregivers aged 50–59 and ≥60 years, while caregivers aged 50–59 years reported the highest impact on social activities.

Conclusion
Higher informal caregiving prevalence among females, particularly those aged 50–59 years, highlights a disproportionate caregiving burden among women. The substantial burden among adults aged ≥60 years is highly suggestive of older adults caring for other older adults despite their own health and physical limitations. Age- and gender-responsive support is needed to mitigate informal caregiving impacts and promote caregivers' health and well-being.

Keyword: Informal care, Caregivers, Malaysia, Health Surveys

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ABSTRACT ID: A0061

Confirmatory Factor Analysis of the Malay Adult Eating Behaviour Questionnaire among Malaysian Adults

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Background
Malaysia faces a double burden of malnutrition, with 5.1% of adults underweight and 54.4% overweight or obese according to NHMS 2023. This burden highlights the need to understand behavioural factors influencing eating patterns and weight status. Appetitive traits, including food responsiveness and satiety responsiveness, may contribute to weight-related outcomes. The Adult Eating Behaviour Questionnaire (AEBQ) assesses these traits, and its Malay version offers potential for use among Malaysian adults. However, its factor structure requires further evaluation.

Objectives
To evaluate the factor structure of the Malay AEBQ using confirmatory factor analysis (CFA).

Methods
A cross-sectional study was conducted among 320 participants recruited from eight randomly selected government agencies in Kota Bharu using two-stage simple random sampling. Participants completed the Malay AEBQ. Confirmatory factor analysis (CFA) using robust maximum likelihood estimation (MLR) was performed to evaluate the hypothesised eight-factor structure. Model fit was assessed using χ^2, comparative fit index (CFI), Tucker–Lewis index (TLI), root mean square error of approximation (RMSEA), and standardised root mean square residual (SRMR). Model refinement considered standardised factor loadings and theoretical relevance

Results
The original eight-factor, 35-item model demonstrated suboptimal fit (χ^2 = 1,048.95, df = 532, p < 0.001; CFI = 0.846; TLI = 0.827; RMSEA = 0.055; SRMR = 0.092). Model refinement resulted in the removal of two items, SE1 and SR1, due to low standardised factor loadings. The resulting 33-item, eight-factor model demonstrated improved fit (χ^2 = 888.81, df = 467, p < 0.001; CFI = 0.869; TLI = 0.852; RMSEA = 0.053; SRMR = 0.081). The refined model retained all eight original constructs, supporting the underlying theoretical structure of the Malay AEBQ among Malaysian adults.

Conclusion
The refined 33-item Malay AEBQ retained the original eight-factor structure with improved model fit. These findings provide evidence for its construct validity and potential use in assessing appetitive traits among Malaysian adults.

Keyword: AEBQ, Appetitive traits, Eating behaviour, Confirmatory Factor Analysis

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TRANSFORMING HEALTH THROUGH INNOVATION

ABSTRACT ID: A0063

Hospital and Neighbourhood Characteristics Associated with High-acuity Emergency Department Attendance in Malaysian Ministry of Health Hospitals

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Background
Increasing emergency department (ED) attendance outpaced public-sector service capacity expansion, warranting efficient resource planning and equitable service delivery. Understanding factors associated with high-acuity ED demand is important for strengthening emergency care.

Objectives
This study aimed to identify hospital, population demographic, and socioeconomic characteristics associated with high-acuity ED attendance across Ministry of Health (MOH) hospitals in Malaysia.

Methods
This ecological study analysed 2023 ED attendance data from 137 MOH hospitals using official MOH reports and administrative databases. Population demographic and socioeconomic were derived from 2023 Department of Statistics Malaysia, aggregated at the electoral boundary level, and assigned to hospitals according to their location to characterise the surrounding neighbourhoods. High-acuity ED attendance defined as red- and yellow-category cases according to the Malaysian Triage Category 2011. Descriptive statistics were used to characterise high-acuity ED attendance. Negative binomial regression was used to examine associations between high-acuity ED attendance with hospital, population demographic, and socioeconomic factors; presented as incidence rate ratios (IRR) with 95% confidence intervals (CI).

Results
Average high-acuity ED attendances per day were 42 (SD=40). Attendance was higher in urban and specialist hospitals, particularly in central and southern Peninsular Malaysia. In the adjusted multivariable model, notable hospital, population demographic, and socioeconomic characteristics associated with higher high-acuity ED attendance included urban hospital location (IRR=1.71, 95% CI: 1.40–2.07), higher total dependency ratio (IRR=1.01, 95% CI: 1.00–1.02), and lower household poverty (IRR=0.98, 95% CI: 0.97–0.99). Other associated factors included hospital bed capacity, road density, and citizen proportion.

Conclusion
High-acuity ED attendance varies substantially according to hospital and neighbourhood characteristics. Integrating hospital, demographic, socioeconomic and geographic data provides an evidence-base for targeted and data-driven emergency care planning. These findings support innovative approaches to resource allocation, including emergency physician deployment, trauma capability, ambulance distribution and future hospital expansion, tailored to local characteristics rather than over population size alone.

Keyword: emergency department, high-acuity attendance, health service utilisation, ecological study, negative binomial regression

7th USIM INTERNATIONAL HEALTH CONFERENCE
TRANSFORMING HEALTH THROUGH INNOVATION

ABSTRACT ID: A0064

In Vitro Activity of Tigecycline, Ceftazidime-Avibactam and Colistin Against Carbapenem-Resistant Enterobacterales (CRE) with Predominant Metallo-B-Lactamase Production at a Malaysian Tertiary Hospital

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Background
Carbapenem-resistant Enterobacterales (CRE) represent a critical threat due to limited therapeutic options. Local surveillance of last-line antimicrobial agents is essential to guide empirical and targeted therapy.

Objectives
This study aimed to evaluate the in vitro susceptibility profiles of clinical CRE isolates against tigecycline (TGC), ceftazidime-avibactam (CZA) and colistin from a teaching hospital in East Coast Malaysia.

Methods
A total of 47 non-duplicate clinical CRE isolates were evaluated. Carbapenemase phenotypes were differentiated using the modified carbapenem inactivation method (mCIM) and EDTA-modified carbapenem inactivation method (eCIM). Minimum inhibitory concentrations (MICs) for TGC and CZA were determined using Liofilchem MIC Test Strips, while colistin susceptibility was determined using the BD Phoenix automated broth microdilution system. Results were interpreted using FDA criteria (TGC) and CLSI 2026 guidelines (CZA, colistin).

Results
Klebsiella pneumoniae was predominant (23/47, 48.9%), followed by Enterobacter cloacae complex (14/47, 29.8%) and Escherichia coli (7/47, 14.9%). Twenty-nine isolates (61.7%) were metallo-β-lactamase (MBL) producers, and 1 (2.1%) was a serine carbapenemase producer. Tigecycline demonstrated the highest in vitro activity, with 100% of isolates classified as susceptible (MIC range: 0.094 –1.5 mcg/mL). CZA susceptibility was observed in only 34% (16/47), while 31 (66.0%) were resistant (MIC range: 0.125 – ≥ 256 mcg/mL), likely reflecting local endemicity of MBL, consistent with the high proportion of MBL-producing CRE observed in this cohort. For colistin, 80.9% (38/47) were intermediate, and 19.1% (9/47) were resistant.

Conclusion
Tigecycline exhibited excellent in vitro activity against local CRE strains. High CZA resistance is aligned with a heavy endemic burden of MBL-producing CRE, against which combination therapies (e.g., ceftazidime-avibactam plus aztreonam) may be clinically required. These findings highlight the need for routine molecular genotypic surveillance to track plasmid-mediated horizontal gene transfer and reinforce antimicrobial stewardship strategies in tertiary care settings.

Keyword: carbapenem-resistant Enterobacterales (CRE), tigecycline (TGC), ceftazidime-avibactam (CZA), colistin, antimicrobial susceptibility

7th USIM INTERNATIONAL HEALTH CONFERENCE
TRANSFORMING HEALTH THROUGH INNOVATION

ABSTRACT ID: A0065

The Relationship Between Timing of Coffee Intake and Sleep Quality Among University Students: A Systematic Review

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Background
Caffeine consumption, particularly through coffee, is common among university students and has been associated with disrupted sleep. Although overall caffeine intake is well studied, the specific role of coffee timing on sleep quality remains underexplored. This review addresses that gap by synthesising evidence on how the timing of coffee intake affects sleep quality among university students. This study aims to systematically review existing literature on the association between the timing of coffee consumption and sleep quality in university students.

Methods (Search Strategy)
A systematic search was carried out using the PubMed, SageJournal and ScienceDirect databases. Medical Subject Headings (MeSH) terms, including “caffeine intake”, “sleep quality”, “timing of coffee intake”, and “university students,” were applied as keywords across all search fields. Studies published between 1995 and 2026 were included.

Findings / Synthesis
A total of 2968 articles were retrieved from the search. After duplicate removal and title, abstract, and full-text screening, five studies met the inclusion criteria. All five selected studies reported that caffeine intake negatively affects sleep quality among students. However, only three study explicitly examined the timing of coffee consumption, while other studies focused on total daily caffeine.

Conclusion
Evidence directly linking coffee timing to sleep quality in university students is limited. Instead, many studies tend to examine overall caffeine consumption rather than specifically looking at the timing of coffee intake. Therefore, sleep hygiene education for students should shift focus from total daily caffeine limits to establishing an individualized 'last-call' time for coffee to protect sleep architecture.

Keyword: caffeine or coffee intake, sleep quality, university student, timing of coffee or caffeine intake

7th USIM INTERNATIONAL HEALTH CONFERENCE
TRANSFORMING HEALTH THROUGH INNOVATION

ABSTRACT ID: A0067

Knowledge and Dietary Practices Related to Cardiovascular Risk Among Young Adults in Malaysia: A Literature Review

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Background
Cardiovascular disease (CVD) remains a leading cause of global mortality. In Malaysia, modifiable risk factors such as obesity and poor dietary habits are increasingly prevalent among young adults, who are often already at moderate to high risk for developing CVD within a decade. Understanding current knowledge and lifestyle patterns is vital for early prevention during this critical life stage.

Methods (Search Strategy)
A literature review was conducted using electronic databases, including PubMed, Scopus, Web of Science, and Google Scholar. The search focused on articles published between 2016 and 2026 that reported on CVD-related knowledge or dietary practices among Malaysian youth and young adults.

Findings / Synthesis
The reviewed literature indicates that Malaysian young adults generally demonstrate a moderate level of knowledge regarding CVD risk factors, with greater awareness of commonly recognized risks such as smoking, obesity, and physical inactivity. However, knowledge of diet-related risk factors and asymptomatic conditions such as hypercholesterolemia remains limited. Dietary practices were frequently characterized by inadequate fruit and vegetable consumption alongside frequent intake of energy-dense, salty, and sugar-rich foods. Despite awareness of several CVD risk factors, this knowledge was not consistently reflected in healthier dietary behaviours, suggesting a persistent knowledge–practice gap. Overall, the findings indicate that factors beyond individual knowledge, including behavioural, social, and environmental influences, may contribute to dietary choices among Malaysian young adults.

Conclusion
Knowledge alone is often insufficient to ensure healthy eating habits or reduce cardiovascular risk. These findings highlight the need for innovative, multifaceted interventions that integrate health education with behavioural, environmental, and social strategies to bridge the knowledge–practice gap and promote healthier dietary practices among Malaysian young adults.

Keyword: Cardiovascular risk, Knowledge, Dietary practices, Young adults, Malaysia

ABSTRACT ID: A0068

Early Breast Health Education Among Adolescent Girls in Selangor, Malaysia: Evidence from a School-based Intervention

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Background
Breast cancer is the most common cancer among Malaysian women, and 50.5% of breast cancer cases are diagnosed at Stage III or IV. Limited awareness of breast-warning signs may contribute to delayed help-seeking. Adolescence is an ideal stage to introduce breast health education and build healthy awareness from an early age.

Intervention / Innovation
A school-based programme for breast health education was delivered to 150 female students aged 15-16 years from three secondary schools in Selangor, Malaysia. The programme introduced breast warning signs and used breast self-examination (BSE) as a breast-awareness learning activity through explanation, demonstration, guided practice and a printed guide. Participants completed structured assessments before and immediately after the programme.

Outcome / Impact
Before the intervention, 84.7% had never received BSE education, and 92.0% had never performed BSE. At baseline, only 16.7% of participants recognised inverted nipple, abnormal nipple discharge, and breast skin changes. Recognition of these warning signs increased to 98.7–100% immediately after education. Median breast warning-sign knowledge increased from 16 to 25 out of 25, BSE procedural knowledge from 1 to 6 out of 6, confidence from 15 to 26 out of 30, and correct sequencing of BSE steps from 1 to 9 out of 9 (all p < 0.001).

Conclusion
The substantial knowledge gaps identified before the programme highlight the need for breast health education during adolescence. Providing age-appropriate information and practical breast-awareness skills can help girls understand their bodies, recognise unusual changes and seek professional assessment when needed. School-based education supports adolescents' right to health information and greater agency in decisions concerning their own health, creating a foundation for informed breast health practices and timely help-seeking into adulthood.

Keyword: Adolescent girls, breast health education, breast self-examination, breast awareness, school-based intervention

7th USIM INTERNATIONAL HEALTH CONFERENCE
TRANSFORMING HEALTH THROUGH INNOVATION

ABSTRACT ID: A0069

Role of Aromatherapy for Managing Challenging Behaviour in Children with Autism Spectrum Disorder (ASD)

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Background
Autism Spectrum Disorder (ASD) significantly impacts behavior, social interaction, and learning. Children with ASD frequently experience emotional difficulties such as anxiety, anger, and distress, placing substantial stress on families. While behavioral therapies remain the primary intervention, limited accessibility and varied responses have raised interest in gentle, non-invasive options like aromatherapy. This review evaluates current evidence on aromatherapy's calming effects and underlying mechanisms in both neurotypical populations and children with ASD.
Methods (Search Strategy)
A literature review across PubMed, ProQuest, Sage Journals, Cochrane Library, and Google Scholar targeted English-language studies (2016-2026). Selection criteria focused on children with ASD, aromatherapy interventions, and behavioral or emotional outcomes- specifically challenging behaviors, anxiety, aggression, tantrums, and emotional regulation. Studies involving adults, non-ASD populations, or unrelated outcomes were excluded. Ultimately, 9 articles were synthesized narratively.
Findings / Synthesis
Aromatherapy promotes relaxation by stimulating the olfactory-limbic pathway, modulating autonomic nervous system activity, balancing neurotransmitters, and regulating cortisol via the hypothalamic-pituitary-adrenal axis. In general populations, including neurotypical children, anxious university students, and surgical patients, clinical evidence consistently demonstrates reduced anxiety, lower heart rate and blood pressure, decreased pain scores, and increased alpha brainwave activity. Conversely, findings in pediatric ASD populations remain mixed. Although some studies note reduced agitation, fewer tantrums, and better sleep, others report no significant improvement over control groups. Response varies widely depending on individual sensory sensitivities and personal scent preferences.
Conclusion
Aromatherapy reliable eases anxiety and fosters calm in broad populations, but evidence supporting its use in autistic children remains inconsistent. Unique sensory profiles mean outcomes are highly individualized. Current data are insufficient to support aromatherapy as a standalone clinical intervention for ASD, highlighting the need for rigorously powered future studies to clarify its therapeutic potential.

Keyword: Autism Spectrum Disorder (ASD), Children, Aromatherapy, Challenging Behaviour, Emotional Regulation

7th USIM INTERNATIONAL HEALTH CONFERENCE
TRANSFORMING HEALTH THROUGH INNOVATION

ABSTRACT ID: A0071

Beyond Vision Correction: Advances and Emerging Innovations in Myopia Management

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Background
Myopia is rapidly growing global public health concern, particularly among children and adolescents, with progressive axial elongation increasing the risk of sight-threatening ocular complications. Conventional spectacles and contact lenses correct refractive error but do not directly control ocular growth. This has driven a shift from passive vision correction towards proactive myopia management.

Methods (Search Strategy)
A literature review was conducted using PubMed, Scopus, and Google Scholar. Peer-reviewed studies published between 2017 and 2025 were reviewed, focusing on pharmacological, optical, behavioural, and emerging technology-based strategies for myopia control.

Findings / Synthesis
Low-dose atropine, particularly 0.05%, demonstrated strong efficacy in slowing myopia progression and axial elongation, although tolerability, rebound, and adherence remain considerations. Optical interventions, including orthokeratology, multifocal soft contact lenses, and defocus-incorporated spectacle lenses, demonstrated meaningful control of myopia progression and axial elongation. Increased outdoor exposure was effective in preventing myopia onset, although evidence for slowing progression in established myopia was more limited. Emerging approaches, including combination therapy, advanced optical designs, wearable monitoring, artificial intelligence-based prediction, and tele-ophthalmology, show promise for more personalised management, but remain limited by long-term evidence and accessibility.

Conclusion
Myopia care has evolved from passive optical correction to active, personalized myopia control. Bridging trusted clinical treatments with new tools can strengthen future outcomes, provided key challenges like long-term evidence, affordability, and equal patient access are addressed.

Keyword: Myopia management, Myopia control, Atropine, Optical interventions, Emerging technologies

7th USIM INTERNATIONAL HEALTH CONFERENCE
TRANSFORMING HEALTH THROUGH INNOVATION

ABSTRACT ID: A0074

Smart Screening: Ai-Driven Urgency Detection For Oral Lesion Referrals

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Background
Early identification and timely referral of oral lesions are crucial for effective treatment outcomes. However, prioritizing cases by urgency remains challenging due to varying expertise across healthcare settings. Although there is artificial intelligence (AI) app which offers differential diagnoses of oral lesion, none is existing on the urgency of referral.

Intervention / Innovation
This research innovation explore “Smart Screening” employing AI to assist general dentists in determining the urgency of oral lesions’ referral. By analysing lesion characteristics intraorally in patient, the AI model can classify lesions based on urgency thus prioritizing cases that require immediate attention. Using a dataset of 345 intraoral clinical images from textbooks, journals, clinics and online pictures, the Cogniflow free app was trained. Each image was annotated with differential diagnoses and urgency levels by two certified oral medicine specialists.

Outcome / Impact
Subsequently, 63 latest smartphone images meeting the predetermined criteria obtained from the USIM’s dental clinics were used to evaluate the model’s accuracy performance. For ensuring the consistency of the result, the similar images were tested in triplicate. 98.41%, or out of the 63 smartphone-captured images, 62 were consistently and accurately triaged according to urgency level across the repeated tests. Only one image was misclassified.

Conclusion
This universally accessible smart screening app can be used as an adjunct triaging tool and strong potential to be commercialised at minimum cost thus benefits the healthcare expenditure in long run because it may reduce diagnostic delays and enhance patient outcomes.

Keyword: Artificial intelligence, oral lesions, urgency, referral

7th USIM INTERNATIONAL HEALTH CONFERENCE
TRANSFORMING HEALTH THROUGH INNOVATION

ABSTRACT ID: A0077

Multimodal Visualization of the recurrent artery of Heubner: An Anatomy-Focused Structure Review

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Background
The recurrent artery of Heubner (RAH) is a critical microvascular perforator that is small caliber and anatomical variability make visualization challenging.

Methods (Search Strategy)
PubMed, Scopus, SpringerLink and Web of Science (WOS) were searched (2020-2026) following PRISMA guidelines. 15 studies were included.

Findings / Synthesis
Direct imaging of normal RAH anatomy was virtually absent, consisting only of pathological case reports (n=4) and anatomical reviews (n=2). Benchmark data were obtained from proxy perforators (n=9). VasoCT provided superior 3D detail, DSA gave a gold-standard dynamic resolution, and MRA offered non-invasive mapping. No study compared all three modalities on normal RAH anatomy in the same cohort.

Conclusion
Current literature reviews rely heavily on proxy vessels or diseased states. A paired comparative imaging study in a healthy cohort is needed to establish optimized mapping protocols.

Keyword: Recurrent artery of Heubner (RAH), cerebral perforators, VasoCT, Magnetic Resonance Angiography (MRA), Digital Subtraction Angiography (DSA)

7th USIM INTERNATIONAL HEALTH CONFERENCE
TRANSFORMING HEALTH THROUGH INNOVATION

ABSTRACT ID: A0078

CT-Trans: Transforming Health Services Through Sustainable Innovation with Healthcare Impact and Commercialization Potential

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Background
Leaking sputum specimens during transportation compromises tuberculosis (TB) diagnosis by causing specimen rejection, delayed treatment, and increased healthcare burden. At Johor Bahru Public Health Laboratory (JBPHL), leakage rates reached 1.9% in 2019 and 1.2% in 2020, mainly due to improper specimen arrangement during transportation from health clinics.

Intervention / Innovation
To address this challenge, JBPHL invented the Container Transportation System (CT-Trans), a low-cost, eco-friendly innovation that keeps sputum specimens upright and secure during transportation. Made from recycled materials, CT-Trans costs approximately RM0.10 per unit and accommodates up to four specimens. Following a pilot implementation in six districts in 2021, the innovation was expanded statewide in Johor in 2022 and sustained thereafter.

Outcome / Impact
Following implementation, CT-Trans successfully reduced sputum specimen rejection due to leakage to below 1%, consistently sustained over five consecutive years (2021–2025), surpassing the Malaysian Society for Quality in Health (MSQH) performance standard. The innovation improved specimen integrity, minimized repeat collections, reduced the waste of operational costs by approximately RM5000 to RM400, enhanced biosafety, and supported environmental sustainability through the use of recycled materials. The project also received multiple institutional and external recognitions, validating both its effectiveness and value in healthcare innovation. Implementation across diverse healthcare settings highlighted opportunities for continuous improvement. Variations in CT-Trans design and utilization among health clinics have fostered a strategic collaboration with the engineering department to further strengthen product robustness, resilience, and standardization, preserving its sustainability features. This ongoing refinement represents a key lesson learned and reinforces the innovation's readiness for wider adoption and future commercialization.

Conclusion
CT-Trans demonstrates how a simple, low-cost, and sustainable innovation can transform healthcare delivery by strengthening TB diagnostic quality, improving biosafety, and reducing operational waste. Ongoing engineering collaboration further strengthens its commercialization potential, positioning CT-Trans as a scalable solution for healthcare systems globally.

Keyword: Container Transportation System, leakage, tuberculosis, sustainable healthcare innovation.

7th USIM INTERNATIONAL HEALTH CONFERENCE
TRANSFORMING HEALTH THROUGH INNOVATION

ABSTRACT ID: A0079

A Comparative Review of Saliva-based Electrochemical Biosensors for Diagnosis and Monitoring of Periodontal Conditions

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Background

Periodontitis is a non-reversible inflammation of the peridontium, that if left untreated will eventually lead to teeth loss. Currently, the routine diagnosis of periodontal disease is primarily based on clinical examination (oral inspection, palpation and probing) and radiographic measures of periodontal tissue loss. Whilst these parameters are very useful, they only provide information on tissues destruction that already taken place hence is of limited use for prevention and early diagnosis. More non-invasive diagnosis methods have been developed, including utilizing saliva from patients and immobilization of specific analytes onto a biosensor platform for downstream detection of specific analytes or biomarkers.

Methods (Search Strategy)

This review was conducted to compare various types of saliva-based biosensors as point-of-care-testing for diagnosis and monitoring of periodontal disease such as periodontitis. The mechanisms and detection limit for each developed biosensor and their target analyte(s) were given due emphasis.A systematic literature search was performed in three public databases: Pubmed, Pubmed Central and Science Direct. The search was conducted without any restrictions on publication date however restricted to original research article that developed biosensor platform for detection of periodontitis using patient saliva samples.

Findings / Synthesis

Literature search resulted in 20 studies that describe various biosensors as point-of-care device capable of detecting specific analytes or biomarkers that associated with periodontitis. Each biosensor has different detection mechanisms and varies in detection limit of analytes tested.

Conclusion

Development of biosensors capable for detection of saliva-based analytes as a non-invasive diagnosis point-of-care test could serve as an adjunct to complement existing routine diagnosis method.

Keyword: salivary markers, electrochemical biosensor, point of care device, periodontitis, periodontal conditions

7th USIM INTERNATIONAL HEALTH CONFERENCE
TRANSFORMING HEALTH THROUGH INNOVATION

ABSTRACT ID: A0080

Differential Expression of Salivary MMP-8, MMP-9 AND IL-1β for Staging of Periodontal Diseases

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Background
Periodontitis is a gum disease that is caused by bacterial infections further damaging the soft tissues and bones supporting teeth.. Clinical assessment and radiographic imaging are primary diagnostic procedures, however, there are emerging and more advanced method using a non-invasive salivary biomarkers as oral diagnostic tools for periodontal disease. Several salivary biomarkers related to periodontal disease have been introduced such as inflammatory markers and cytokines. These enable better, fast and accurate method to diagnose periodontal diseases.

Objectives
This study aimed to determine expression level of three salivary biomarkers MMP-8, MMP-9 and IL-1β between healthy periodontium, gingivitis and periodontitis patients

Methods
A total of 94 unstimulated whole saliva samples were obtained from patients with complete clinical assessments and medical history. Based on the periodontal assessment (probing depth, blood on probing, clinical attachment level and radiograph), patients were classified into healthy periodontium, gingivitis and periodontitis (moderate to severe) groups. Determination of MMP-8, MMP-9 and IL-1β level in saliva samples were performed using enzyme-linked immunosorbent assay (ELISA) platform. The comparison of biomarkers expression levels from these groups were further analysed using Kruskal-Wallis analysis with p<0.05 considered statistically significant.

Results
ELISA analysis revealed, higher level of MMP-8 (377.99 ± 55.55 ng/ml), MMP-9 (1213.84 ± 218.96 ng/ml) and IL-1β (819.99 ± 153.44 pg/ml) biomarkers in periodontitis compared to healthy and gingivitis groups respectively. Proteomics analyses were also conducted and revealed differential proteome profile of the three groups indicating different molecular players during disease progression.

Conclusion
Our findings showed incremental trend of MMP-8 and MMP-9 with disease severity while IL-1β was higher in periodontitis followed by healthy periodontium compared to gingivitis. The combination of these biomarkers can be used to differentiate periodontitis patients from healthy periodontium and gingivitis patients. They also reflect periodontal disease progression and may aid in early prevention and treatment.

Keyword: salivary biomarkers, MMP-8, MMP-9, IL-1B, periodontal diseases

7th USIM INTERNATIONAL HEALTH CONFERENCE
TRANSFORMING HEALTH THROUGH INNOVATION

ABSTRACT ID: A0084

FH-Deficient Uterine Leiomyoma: A Case Report of an Under-Recognized Subtype

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Background
Fumarate hydratase (FH)-deficient uterine leiomyoma is a distinct molecular subtype of smooth muscle tumour linked to FH inactivation and Hereditary Leiomyomatosis and Renal Cell Cancer (HLRCC) syndrome. Due to overlapping histopathologic features with other smooth muscle neoplasms, accurate identification is essential for patient management and genetic evaluation.

Case Description
A 45-year-old lady presented with abnormal uterine bleeding and was found to have a uterine mass and a simple renal cyst on ultrasound. She underwent total abdominal hysterectomy with bilateral salpingo-oophorectomy. Histopathology of the intramural tumour showed interlacing fascicles of bland spindled and epithelioid cells, prominent eosinophilic nucleoli, staghorn-type vasculature, alveolar-pattern oedema, scattered bizarre nuclei, and eosinophilic cytoplasmic inclusions. Mitotic activity was minimal (1/10 HPF) and necrosis was absent. Immunohistochemistry demonstrated loss of FH expression in neoplastic cells

Discussion
FH-deficient leiomyomas often display a constellation of morphological features—such as hypercellularity, nucleoli surrounded by peri-nucleolar halos, staghorn vessels, bizzare nuclei and stromal oedema—that can mimic atypical leiomyoma or leiomyosarcoma. In this patient, despite focal nuclear atypia (bizarre nuclei), the low mitotic rate (1/10 HPF) and absence of necrosis excluded malignancy.
Confirmation via immunohistochemistry showing complete loss of FH expression with positive internal controls provides a definitive diagnosis. Because FH deficiency can be germline-related, identifying simple renal cysts on ultrasound warrants continued clinical monitoring and consideration of referral for germline genetic testing to rule out HLRCC syndrome.

Conclusion
Recognizing classic histopathologic clues of FH deficiency enables targeted immunohistochemical testing, preventing misdiagnosis of malignancy and facilitating timely genetic counselling for potential HLRCC syndrome.

Keyword: FH-deficient, leiomyoma, fumarate hydratase

7th USIM INTERNATIONAL HEALTH CONFERENCE
TRANSFORMING HEALTH THROUGH INNOVATION

ABSTRACT ID: A0085

Cyberchondria: The Influence of Online Health Platforms on Health Anxiety & Treatment-seeking Behaviour

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Background
The increasing use of artificial intelligence (AI) and online health platforms has transformed how individual access and interpret health information. These technologies can improve health information access and help patients become more involved in their health decision-making. However, repeated online searching can increase health anxiety rather than provide reassurance when the information is poorly understood. This behaviour is commonly described as cyberchondria.

Methods (Search Strategy)
This narrative literature review explored the relationship between online health information seeking, health anxiety and treatment-seeking behaviour. It also examined how digital health literacy and demographic factors may influence the way people interpret and respond to information found online. Relevant articles were identified using Taylor & Francis Online, SAGE Journals and ScienceDirect with relevant keywords. Greater emphasis was given to literature published from 2019 onwards.

Findings / Synthesis
The literature suggests that online health platforms can have both positive and negative effects on health-related behavior. Easy access to information may improve health awareness, encourage patients to participate in decision-making and facilitate communication with healthcare professionals. However, inaccurate or misleading information, poor digital health literacy and self-diagnosis may increase health anxiety and lead to incorrect interpretation or exaggeration of symptoms. Age, education, socioeconomic background and social support may also influence how health information is understood and used. In some cases, information obtained online may result in avoidance of professional consultation or reliance on self-treatment.

Conclusion
AI and online health platforms can be valuable sources of health information, but their benefits depend on how they are used and interpreted. Improving digital health literacy and encouraging open patient-clinician communication may help reduce cyberchondria and support safer, more informed healthcare decisions.

Keyword: Health Anxiety, Cyberchondria, Digital Health Literacy, Artificial Intelligence in Healthcare, Hypochondriasis

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TRANSFORMING HEALTH THROUGH INNOVATION

ABSTRACT ID: A0088

Proportion and Predictors of Postpartum Glucose Intolerance Among Women with Gestational Diabetes Mellitus in Primary Health Clinics in Pasir Puteh District

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Background
Gestational diabetes mellitus (GDM) is affecting approximately one in six live births globally. The prevalence of GDM in Malaysia increases from 12.5% in 2016 to 27.1% in 2022. Women with GDM are at substantially increased risk of developing type 2 diabetes mellitus, with up to half progressing within five years after pregnancy.

Objectives
To determine the proportion and its predictors of postpartum glucose intolerance among GDM mother in Pasir Puteh district in 2025.

Methods
This cross sectional study included 333 women with GDM attending postpartum oral glucose tolerance testing (OGTT) in 9 primary health clinics in Pasir Puteh district, Kelantan, Malaysia. Data collected included sociodemographic characteristics, antenatal clinical factors, and postpartum OGTT results. Data were analysed using descriptive, simple and multiple logistic regression analysis.

Results
The prevalence of postpartum glucose intolerance was 14.7%, with impaired glucose tolerance accounting for 85.7% of cases. Later GDM diagnosis (Second trimester and above) had a 50% lower likelihood of developing postpartum glucose intolerance compared with those diagnosed earlier in pregnancy (aOR=0.50, 95% CI: 0.27–0.93, p=0.028). Conversely, pharmacological treatment for GDM was associated with a threefold higher likelihood to develop postpartum glucose intolerance than those managed without medication (aOR=3.15, 95% CI: 1.57–6.32, p=0.001).

Conclusion
This study demonstrates a high prevalence of postpartum glucose intolerance among Malaysian women with a history of GDM. Prioritise postpartum MOGTT completion among women with early-diagnosed GDM or requiring pharmacological treatment to enable early detection and timely intervention.

Keyword: Gestational diabetes mellitus, Postpartum glucose intolerance, Oral glucose tolerance test, Postpartum screening, Primary health care

7th USIM INTERNATIONAL HEALTH CONFERENCE
TRANSFORMING HEALTH THROUGH INNOVATION

ABSTRACT ID: A0089

Challenges in Diagnosis of Malignant Phyllodes Tumour

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Background
Malignant phyllodes tumour is a rare fibroepithelial breast neoplasm affects women at 35 and 55 years old. The reported incidence is 0.3-0.9% of all breast cancers[1]. The distinction of phyllodes from mesenchymal tumours can be challenging, particularly when immunohistochemistry is inconclusive. The classic presentation is a painless rapid growing mass. Surgical resection with clear resection margin remains the gold standard of treatment. Commencement of adjuvant treatment relies on histological diagnosis and its biological characteristic.

Case Description
We describe a young patient with typical presentation of phyllodes tumour and the challenges encountered in pathological immunohistochemistry profiling.

Discussion
A 26-year-old female presented with a rapidly growing left breast lump for two months. She is single with no significant risk factor for breast cancer. The lump was painless and increasing in size rapidly with no other focal breast symptom. It was 12.5cm in size with architectural distortion to the ipsilateral breast and nipple areolar complex. There were no metastatic symptoms. Breast ultrasound showed a unifocal left BIRADS4 lesion with no axillary lymphadenopathy. Guided percutaneous core biopsy showed a spindle cell tumour with mild nuclear atypia and few mitoses with a differential of phyllodes and other mesenchymal tumour.Subsequent CECT staging confirmed a localised lesion with clear demarcation from surrounding structures. She underwent an en-bloc wide local resection and has an uneventful recovery. Histopathology showed a 12.5 cm malignant spindle cell tumour with osteoclastic giant cells with other three differentials including malignant phyllodes.Further immunohistochemistry profiling with multidisciplinary discussion between surgeon, pathologist and radiologist conclude the diagnosis of malignant phyllodes tumour with giant cells.

Conclusion
The diagnosis of malignant phyllodes tumour is challenging, however a clinical assessment include risk stratification and radiological findings are crucial when immunohistochemistry profiling is inconclusive to achieve a definitive diagnosis for the greatest chance of cure.

Keyword: malignant phyllodes tumour, fibroepithelial, soft tissue tumour, breast mesenchymal tumour, immunohistochemistry

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ABSTRACT ID: A0091

Pineapple Consumption During Pregnancy: a Taboo?

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Background
Pineapple is a rich dietary source of bromelain, a group of proteolytic enzymes that present in its stem (80%) and fruit (10%) (Hikisz et al.,2021). Bromelain has characteristics of anti-inflammatory, cardioprotective, antimicrobial and anticancer properties (Varilla et al., 2021). Bromelain is able to increase prostaglandin levels and lead to increase in uterine contraction (Irianti et al., 2019; Harianja et al., 2017). Beliefs and myths in some communities suggest that pregnant women should avoid consuming pineapple because it may induce uterine contraction and potentially lead to abortion or premature labour.

Methods (Search Strategy)
This review aims to explore effects of pineapple on pregnancy body. Articles (from year 2016-2026) were obtained from online database (PubMed, Google Scholars) with the keywords of “ananas comosus,” “pineapple,” “pregnancy,” “bromelain,” and “miscarriage”.

Findings / Synthesis
Augustine et. al. (2019) conducted an in-vitro experiment on the effect of pineapple juice on pregnant wistar rats and found that rat uteri underwent significant substantial contractions but did not induce abortion. Sedigheh et al. (2023) reported that pineapples shown an effect of cervical ripening during the onset of labour. They did experiment on term pregnancy (40-41 weeks gestational weeks) to consume 250-gram of edible pineapple every 24 hours for 3 consecutive days. More cervical dilatation and amnion sac rupture were observed in the intervention group and only 8.3 % used cervical preparation methods compared to 76.7% in the control group.Harianja et al. (2017) conducted intervention among postpartum woman with intervention group consumed 100% concentrated pineapple juice once a day for seven days. Fundal height of the intervention group decreased gradually by 8.15 cm while the control group’s decreased by 6.09 cm.

Conclusion
Bromelain in pineapple have effect on uterus and induce uterine contractions in-vitro. Consuming pineapple during antenatal might stimulate uterine contraction and reducing duration of labour. It also has impact on postpartum mothers with uterine involution.

Keyword: ananas comosus, pineapple, bromelain, pregnancy, miscarriage

7th USIM INTERNATIONAL HEALTH CONFERENCE
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ABSTRACT ID: A0092

Trend in the National Tracheal, Bronchus, and Lung Cancer Mortality among Older Adults in Malaysia: A Sex-Specific Analysis (2017-2023)

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Background

Tracheal, bronchus, and lung cancer (TBLC) is the leading cause of cancer death worldwide. Globally, men have seen a decline while women have experienced a rising trend. In Malaysia, TBLC remains the primary cause of cancer-related mortality. Despite this, longitudinal evidence on sex-specific TBLC mortality trends among older adults remains limited.

Objectives

This study aims to quantify national sex-specific trends in TBLC mortality counts specifically among older adults aged 65 years and above in Malaysia from 2017 to 2023.

Methods

A time-series analysis was conducted using national TBLC mortality data from the Department of Statistics Malaysia (2017-2023). Total mortality counts were estimated using the Malaysian Burden of Disease framework. Temporal trends were assessed using Joinpoint regression analysis to calculate the Average Annual Percent Change (AAPC) of older adults aged 65 years and above stratified by sex. Statistical significance was defined at p<0.05.

Results

Between 2017 and 2023, TBLC deaths among older adults aged 65 years and above increased from 2,630 to 3,267 (AAPC +4.00%; p=0.014). Although absolute TBLC mortality has risen in both sexes, the increase was driven almost exclusively by females, whose mortality rose from 806 to 1,206 deaths (AAPC +6.70%; p=0.001), whereas male mortality remained statistically stable, from 1,824 to 2,061 (AAPC +2.67%; p=0.109). Males continued to account for the majority of TBLC deaths, yet the more pronounced upward trend among females indicates a narrowing male-to-female gap.

Conclusion

Malaysia is witnessing a distinct epidemiological shift characterised by a significant rise in TBLC mortality among older adults, driven predominantly by females, aligning with global concern. Future work can further investigate the specific risk factors contributing to this surge among females. These findings highlight the need for public health initiatives tailored to this rapidly growing, high-burden older female demographic.

Keyword: lung cancer, mortality, Malaysia, sex differences, trends

ABSTRACT ID: A0094

Factors Associated with Never Having Undergone Immunochemical Faecal Occult Blood Test (iFOBT) Screening Among Adults Aged 50-75 Years in Malaysia: Findings From the National Health and Morbidity Survey 2023

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Background
Colorectal cancer (CRC) is a major cause of Malaysia's cancer-related morbidity and mortality. Immunochemical faecal occult blood test (iFOBT) screening enables early detection and improves CRC outcomes; however, the national screening uptake remains low.
Objectives
This study aimed to determine the factors associated with never having undergone iFOBT screening among Malaysian adults aged 50–75 years.
Methods
This secondary data analysis utilised data from the National Health and Morbidity Survey 2023. Of 13,616 respondents, 4,765 individuals aged 50–75 years who were eligible for the national CRC screening programme were included. Eleven independent variables were examined; sociodemographic characteristics, diabetes, hypercholesterolaemia, and body mass index. The outcome was self-reported history of iFOBT screening, categorised as 'yes' or 'no' based on whether respondents had ever undergone iFOBT screening. Complex sample logistic regression was performed to identify factors associated with never having undergone iFOBT screening.
Results
The prevalence of never having undergone iFOBT screening was 86.0% (n = 4,099). Multiple logistic regression analysis showed that adults aged 50–59 years had higher odds of never having undergone iFOBT screening than those aged ≥60 years (AOR = 1.580; 95% CI: 1.166–2.141). Chinese respondents had lower odds than Malays (AOR = 0.636; 95% CI: 0.448–0.903). Compared with tertiary education, primary (AOR = 2.307; 95% CI: 1.310–4.063), secondary (AOR = 1.726; 95% CI: 1.094–2.722), and no formal education (AOR = 1.914; 95% CI: 1.021–3.590) were associated with significantly higher odds of never having undergone iFOBT screening.
Conclusion
A high proportion of eligible Malaysian adults had never undergone iFOBT screening. Targeted health promotion and education strategies should prioritise younger adults within the eligible age group and those with lower educational attainment to improve CRC screening uptake and support earlier detection of colorectal cancer.

Keyword: Colorectal cancer, Immunochemical faecal occult blood test (iFOBT), Screening uptake

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ABSTRACT ID: A0097

PRODUCTIVITY IMPACT OF MALAYSIA'S CLUSTER HOSPITAL INITIATIVE: A TIME-SERIES DATA ENVELOPMENT ANALYSIS (DEA) STUDY

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Background
Globally, healthcare resource scarcity remains a critical concern, often leading to service maldistribution. In Malaysia, the Cluster Hospital Initiative (CHI) was introduced to address this challenge by optimizing healthcare service productivity through structured resource sharing and redistribution among public hospitals.

Objectives
This study measures the productivity of CHI and non-CHI public hospitals in Peninsular Malaysia before and after CHI implementation.

Methods
A quasi-experimental study was conducted involving 36 public district hospitals in Peninsular Malaysia. The analysis utilized retrospective data from 2011 to 2020, obtained from the Ministry of Health. The DEA-based Malmquist Productivity Index (DEA-MPI) under constant return to scale (CRS) assumption was applied to assess productivity components: total factor productivity change (TFPC), technical efficiency change (TEC), and technological change (TC). The Window Analysis Framework was employed to compare productivity across decision-making units (DMUs) during different implementation phases, covering both pre- and post-intervention periods.

Results
Under CRS assumption, the intervention group demonstrated overall productivity improvement across the study period with TFPC of 0.948, TEC of 1.023, and TC of 0.929 during the pre-intervention period. Post-intervention, TFPC increased to 0.989 (+4.1%), TC improved to 0.978 (+4.9%), while TEC slightly declined to 1.011 (−1.2%), indicating overall productivity gains driven by integrated services implemented under CHI. In contrast, the control group exhibited a declining trend over the study period. Pre-intervention scores were 1.004 (TFPC), 1.008 (TEC), and 0.996 (TC). In the post-intervention period, TFPC and TC both declined to 0.912 (−9.2% and −8.4%, respectively), while TEC decreased slightly to 1.000 (−0.8%). Paired t-tests indicated statistically significant differences in mean TFPC scores (p < 0.05) for both groups.

Conclusion
The Cluster Hospital Initiative (CHI) demonstrates significant potential to enhance total factor productivity. This highlights domestic resource mobilization as a viable strategy in low-resource healthcare settings, with the CHI notably improving resource allocation, service redistribution, and operational optimization.

Keyword: cluster hospital, productivity, data envelopment analysis, DEA, district hospitals

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ABSTRACT ID: A0098

Artificial Intelligence Applications For Predicting Mental Health Outcomes Among Aging Population: A Scoping Review

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Background
The rapid global demographic shift towards an ageing population is a defining trend of the 21st century and corresponds with a rising prevalence of mental health challenges such as depression, anxiety and dementia. While early detection is crucial for timely intervention, traditional screening tools face limitations regarding resources and accessibility. Artificial Intelligence (AI) offers a transformative opportunity to enhance early detection by integrating diverse data and identifying subtle risk patterns beyond traditional clinical methods. This scoping review aims to map AI applications for predicting mental health-related outcomes among older adults. It also explores the potential clinical uses and associations of using AI with ethical and Islamic considerations.

Methods (Search Strategy)
The review was conducted according to PRISMA-ScR guidelines. A systematic search was performed across PubMed, Cochrane Library and EBSCOhost for English-language studies published between 2020 and 2025, involving adults aged 60 years and above and using AI, machine learning, or deep learning for prediction, detection, classification, or risk assessment of mental health-related outcomes. Eligible studies were screened, extracted using a standardised form, and synthesised descriptively and thematically.

Findings / Synthesis
11 studies were included. AI applications have successfully predicted outcomes including Alzheimer's disease, depression, dementia, delirium, and suicidal ideation. These outcomes were derived from demographic characteristics, electronic health records, neuroimaging, genetics and lifestyle factors. Potential clinical uses include early identification, risk stratification and support for non-invasive screening. However, evidence was heterogeneous, real-world implementation was limited and concerns remained regarding privacy, informed consent, bias and equitable access. From an Islamic perspective, the use of AI aligns with Maqasid al-shariah related to preservation of life and intellect and responsible stewardship of patient data.

Conclusion
AI shows potential to augment conventional assessment of mental health-related risks in older adults, particularly through earlier identification and risk stratification. Future validated and clinically related studies across diverse populations are needed before routine use.

Keyword: Artifical Intelligence, Mental health, Aging, Scoping review

7th USIM INTERNATIONAL HEALTH CONFERENCE
TRANSFORMING HEALTH THROUGH INNOVATION

ABSTRACT ID: A0099

Promoting Safe and Appropriate Medicine Use Through Interactive Community Education in Kuala Pilah, Negeri Sembilan

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Background
Medication literacy is essential for safe and effective medicine use, particularly among older adults and individuals with chronic diseases. Misconceptions regarding self-medication, antibiotic use, medicine handling, and halal medicines may contribute to inappropriate practices in the community. Community-based health education offers a practical platform to improve public understanding and encourage safer medicine use.

Intervention / Innovation
A one-day community programme was conducted at Masjid Kampung Sungai Talan, Juasseh, Kuala Pilah, Negeri Sembilan, as part of Karnival Kampung Angkat MADANI. Educational posters and pamphlets covered diabetic medications, medication care and administration, responsible antibiotic use and halal medicines. Common household medicines were displayed, with facilitators explaining their indications, routes of administration, and expected side effects. Interactive activities included matching common medicines with their uses and quiz sessions facilitated by preclinical medical students. A pilot survey on self-medication practices was incorporated to identify common behaviours and medication-safety concerns among participants.

Outcome / Impact
Approximately 300 attendees of various age groups participated. The survey was completed by 24 participants, of whom 37.5% reported self-medication within the previous six months. Among self-medicating respondents, analgesics or antipyretics were the most commonly used medicines (55.6%), and pharmacies were the most common source (44.4%). Although most respondents reported reading medicine labels (95.8%) and checking expiry dates (91.7%), 75.0% agreed that they had shared medicines with family or friends with similar symptoms, while 58.3% considered keeping leftover medicines useful for future use. These findings highlighted important medication-safety gaps relevant to the educational content delivered.

Conclusion
This programme demonstrated the feasibility of an interactive, community-based approach to promoting medication literacy and safer medicine-use practices. The combination of visual education materials, interactive games, and direct engagement created an accessible and meaningful learning experience for the community members. Similar initiatives may help strengthen awareness of safe medicine use and support more responsible medication practices in the community.

Keyword: medicine literacy, health education, patient safety

7th USIM INTERNATIONAL HEALTH CONFERENCE
TRANSFORMING HEALTH THROUGH INNOVATION

ABSTRACT ID: A0101

BURNOUT AMONG HOUSEMEN: IMPACT ON FUTURE CAREER

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Background
Burnout among medical housemen is an important occupational and mental health concern that may affect well being, professional development, career satisfaction, and career retention. The transition from medical school to clinical practice places junior doctors in a high pressure environment characterised by long working hours, frequent on-call duties, heavy workloads, administrative demands, and variable workplace support. This review examined factors contributing to burnout among housemen and its implications for their future careers.

Methods (Search Strategy)
A literature review was conducted using PubMed, Scopus, and Google Scholar. Publications from 2021 to 2026 were searched using terms including “houseman,” “medical intern,” “burnout,” “occupational stress,” “career progression,” and “retention.” Eligible studies were peer reviewed English language original research articles, systematic reviews, or meta analyses involving housemen or medical interns and addressing burnout related factors or professional outcomes. Ten journal articles, one academic book, and five authoritative institutional websites were included. Findings were synthesized thematically.

Findings / Synthesis
The review identified long working hours and frequent on-call duties, high workload, inadequate supervision, bullying and blame oriented workplace cultures, poor work-life balance, and limited institutional support as contributors to burnout. Burnout was associated with reduced job satisfaction and motivation, impaired confidence and professional development, decreased interest in specialization or career advancement, and increased intention to medical profession. Coping strategies such as peer support and stress management, were beneficial but insufficient without organizational support. Mentorship, structured supervision, confidential counselling, protected duty hours, and policies promoting a supportive and psychologically safe workplace were identified as approaches.

Conclusion
Houseman burnout should be addressed as a systemic occupational and mental health issue rather than an individual failure of resilience. Protecting the well-being of junior doctors requires organizational accountability, sustainable working conditions, accessible mental health support, and supportive supervision. Such measures may promote career development, strengthen workforce retention, and contribute to safer and more sustainable care delivery.

Keyword: Burnout, housemen, mental health, career development, physician well-being

ABSTRACT ID: A0102

Awareness of PCOS among University Students: Perception and Health-Seeking Behaviour

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Background
Polycystic Ovary Syndrome (PCOS) is a common endocrine disorder among women of reproductive age, associated with reproductive, metabolic, and psychological complications. Despite its prevalence, many cases remain undiagnosed. University students represent an important population for early identification and health promotion. This study aimed to explore PCOS awareness, perceptions, and health-seeking behaviour among university students, including differences between health sciences and non-health sciences students.

Methods (Search Strategy)
A scoping review was conducted in accordance with the PRISMA-ScR guidelines. Literature published between 2020 and 2026 was searched manually using PubMed, ProQuest, and Google Scholar. Studies examining PCOS awareness, knowledge, perceptions, or health-seeking behaviour among university students were included. From 2,859 records identified, 296 full-text articles were assessed for eligibility and 10 studies were included in the review. Findings were charted and thematically synthesized.

Findings / Synthesis
The review demonstrated a clear knowledge–perception gap. Although recognition of the term PCOS was high, functional understanding of its clinical manifestations and long-term metabolic consequences remained limited. Awareness of associations with type 2 diabetes and cardiovascular disease was particularly low. Health sciences students generally demonstrated better knowledge and symptom recognition than non-health sciences students. However, awareness did not consistently translate into appropriate health-seeking behaviour. Many symptomatic students delayed professional consultation due to normalization of menstrual irregularities, shyness, stigma, fear of diagnosis, cost, and concerns regarding healthcare provider gender. Reliance on informal sources, particularly social media, also contributed to misconceptions.

Conclusion
High awareness of PCOS does not necessarily translate into adequate health literacy or timely healthcare utilisation. Universities should implement multidisciplinary reproductive health education across academic disciplines and provide confidential, culturally sensitive, and accessible referral pathways to facilitate early recognition, diagnosis, and management of PCOS.

Keyword: Polycystic Ovary Syndrome, health-seeking behaviour, university students, stigma, health literacy

7th USIM INTERNATIONAL HEALTH CONFERENCE
TRANSFORMING HEALTH THROUGH INNOVATION

ABSTRACT ID: A0105

Transforming Diabetic Retinopathy Screening through Mobile Non-Mydriatic Fundus Imaging: A 10-Year Experience of the KLiP Mobile Programme in Negeri Sembilan, Malaysia (2016–2025)

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Background
Diabetic retinopathy (DR) is a leading cause of preventable blindness, yet access to retinal screening remains limited in many primary healthcare settings due to manpower shortages, equipment downtime, and service accessibility. To address these challenges, the KLiP Mobile (Klinik Pakar Mata Bergerak) programme introduced a portable non-mydriatic fundus camera as an innovative approach to deliver community-based diabetic eye screening across Negeri Sembilan.

Intervention / Innovation
Unlike conventional hospital-based screening, KLiP Mobile delivers retinal imaging directly to community locations using a portable non-mydriatic fundus camera that requires no pharmacological pupil dilation. This enables rapid, patient-friendly retinal assessment, immediate image review, and efficient referral of vision-threatening disease. The programme complements existing primary healthcare services and extends screening to underserved populations, optimising available healthcare resources.

Outcome / Impact
Between 2016 and 2025, 79 outreach programmes screened 6,196 individuals. Retinal grading identified 1,808 patients with no DR, 111 mild NPDR, 103 moderate NPDR, 13 severe NPDR, 21 proliferative DR, and 10 advanced diabetic eye disease. Additionally, 96 patients were diagnosed with diabetic maculopathy requiring ophthalmology referral. The programme demonstrated consistent detection of both early and sight-threatening diabetic eye disease, enabling timely intervention and reducing missed opportunities for treatment.

Conclusion
The KLiP Mobile programme demonstrates that portable non-mydriatic fundus imaging is a practical and scalable innovation for community diabetic retinopathy screening. By improving accessibility, facilitating early detection, and strengthening referral pathways, this model has the potential to reduce avoidable diabetes-related visual impairment and can be replicated in other resource-limited settings. Furthermore, the accumulated retinal image database provides a valuable foundation for future artificial intelligence-assisted diabetic retinopathy screening.

Keyword: Diabetic Retinopathy, Non-mydriatic Fundus Camera, Community-Based Screening, Mobile Eye Care, Diabetic Maculopathy

ABSTRACT ID: A0106

Does Digital Anatomy Learning Transfer to Clinical Practice? A Critical Narrative Review

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Background
Virtual reality, augmented reality, and three-dimensional digital anatomy platforms have transformed anatomy education through immersive visualization of complex structures. While these technologies can improve anatomical knowledge, spatial understanding, and engagement, whether digitally acquired spatial skills transfer to clinically relevant performance remains unclear. Digital platforms typically present idealized, colour-coded, anatomically intact models that differ from clinical environments, where anatomical application is challenged by variability, pathology, tissue deformation, and limited visualization. This review examined evidence for transfer of spatial skills from digital anatomy learning to clinical performance, how transfer was operationalized and assessed, and whether approaches demonstrate translation to clinical practice.

Methods (Search Strategy)
Literature search was conducted in PubMed, Scopus, and Web of Science for peer-reviewed studies published between 2015 and 2026. The search strategy incorporated terms related to medical students, virtual reality, augmented reality, 3D anatomy, and clinical application. Studies involving medical students across preclinical and clinical training were included when outcomes addressed spatial ability, anatomical application, procedural, or clinically relevant performance.

Findings / Synthesis
Digital anatomy technologies improved anatomical knowledge, three-dimensional orientation and spatial understanding; however, evidence of transfer beyond the digital environment was heterogeneous, with varied outcome measures. Some studies demonstrated transfer to clinically relevant procedural tasks, including ultrasound performance on live subjects and procedures using human cadaver models, while others assessed performance using virtual or 3D-printed models. Although cadaveric and physical-model assessments provide greater anatomical realism, they do not constitute clinical practice. Spatial ability was often assessed indirectly rather than using validated measures, limiting evidence linking spatial learning to procedural performance. Most assessments were short-term, with limited evidence of retention and performance in authentic clinical settings.

Conclusion
Digital anatomy shows emerging spatial and procedural benefits, but transfer to clinical practice remains limited and inconsistently assessed. Future research should distinguish spatial learning, procedural transfer, and clinical competence using longitudinal, objective, and clinically authentic assessment frameworks.

Keyword: Anatomy education, Medical students, Digital anatomy, Spatial ability, Clinical practice

7th USIM INTERNATIONAL HEALTH CONFERENCE
TRANSFORMING HEALTH THROUGH INNOVATION

ABSTRACT ID: A0107

In Vitro Cytotoxic Effect of Green-Synthesized Silver Nanoparticles Using Strobilanthes crispus Extract on 4T1 Murine Breast Cancer Cells

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Background
Silver nanoparticles (AgNPs) synthesized using medicinal plant extracts have gained significant attention as potential anticancer agents due to their diverse biological activities and enhanced biocompatibility. However, the cellular responses and therapeutic efficacy underlying the anticancer effects of Strobilanthes crispus-derived silver nanoparticles (AgNP-SC) in breast cancer cells remain poorly characterized.

Objectives
This study evaluated the cytotoxic and apoptotic potential of AgNP-SC, as well as its effects on cell cycle progression in 4T1 murine breast cancer cells.

Methods
AgNP-SC was green-synthesized via the reduction of aqueous silver nitrate AgNO3 using Strobilanthes crispus leaf aqueous extract as a bioreducing and capping agent. The cytotoxic effect of AgNP-SC was evaluated via MTT assay in 4T1 breast cancer cells and 3T3 normal fibroblasts. Apoptosis induction and cell cycle distribution were assessed using acridine orange/propidium iodide (AO/PI) dual staining and Annexin V-FITC/PI flow cytometry.

Results
AgNP-SC inhibited 4T1 cell viability in a concentration-dependent manner, exhibiting a half-maximal inhibitory concentration IC50 of 36 µg/mL and modest selective cytotoxicity toward 4T1 cells compared to normal 3T3 fibroblasts. AO/PI staining and Annexin V-FITC/PI analysis demonstrated that AgNP-SC significantly induced apoptotic cell death, marked by an increased proportion of late apoptotic and necrotic cells at elevated concentrations. Furthermore, cell cycle analysis revealed a significant accumulation of 4T1 cells in the G2/M phase, indicating G2/M cell cycle arrest.

Conclusion
AgNP-SC exerts significant cytotoxicity against 4T1 breast cancer cells through the induction of apoptosis and G2/M phase cell cycle arrest, demonstrating its potential as an alternative therapeutic agent for breast cancer treatment.

Keyword: 4T1 breast cancer, silver nanoparticles, Strobilanthes crispus

ABSTRACT ID: A0108

Development of the LPPKN–USIM Emotional Well-Being Support Module for Couples Undergoing Infertility Treatment in Malaysia

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Background

Infertility extends beyond reproductive difficulties and may adversely affect emotional well-being, coping, marital relationships, and quality of life. Despite these challenges, structured and culturally appropriate emotional support resources for couples undergoing infertility treatment in Malaysia remain limited. This project aimed to develop and evaluate an emotional well-being support module for couples receiving infertility treatment at LPPKN centres in Malaysia.

Intervention / Innovation

The LPPKN–USIM Emotional Well-Being Support Module was developed through a systematic, iterative process. Content was informed by a mixed-methods needs assessment involving 222 individuals (111 couples) from four LPPKN fertility centres. Quantitative assessments evaluated psychological distress, coping strategies, and fertility-related quality of life, while qualitative interviews with couples and healthcare professionals explored emotional experiences and support needs. Findings were integrated into separate but complementary components for husbands and wives. The initial module underwent multidisciplinary expert review involving psychiatry, reproductive medicine, nursing, and counselling. Recommendations were incorporated into a revised module, which subsequently underwent end-user evaluation among couples experiencing infertility.

Outcome / Impact

Expert review highlighted the module's comprehensiveness, relevance, simplicity, and potential clinical utility. Recommendations focused on improving content flow, clarification of psychological screening tools and coping strategies, cultural and spiritual inclusivity, referral guidance, language, and visual presentation. Following these revisions, end users generally considered the module clear, understandable, organised, relevant, and useful. Further suggestions primarily involved visual enhancement, practical examples, reflection activities, and improved readability.

Conclusion

The iterative development process produced an evidence-informed, multidisciplinary expert-reviewed, and end-user-evaluated emotional well-being support module for couples undergoing infertility treatment. The LPPKN–USIM module has potential to provide structured psychosocial support and complement existing infertility care within Malaysian healthcare settings.

Keyword: Infertility, Emotional well-being, Couples, Psychosocial support, Module development

7th USIM INTERNATIONAL HEALTH CONFERENCE
TRANSFORMING HEALTH THROUGH INNOVATION

ABSTRACT ID: A0109

Perceptions Of Palliative Care And Cultural Influence On Palliative Care Acceptance Among Malaysian Patients With Life-Limiting Illness: A Narrative Review

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Background
Palliative care addresses physical, psychosocial and spiritual needs in patients with life-limiting illnesses. In Malaysia, there are increasing needs for palliative care services. Despite the growing needs for palliative care services, the uptake of the service is low, due to various factors such as patient perceptions, cultural norms and religious beliefs. This narrative review aims to explore the perceptions of palliative care and identify cultural influence on palliative care acceptance among Malaysian patients with life-limiting illnesses.

Methods (Search Strategy)
The literature search was conducted using Google Scholar, PubMed, MEDLINE and Wiley Library. Literatures published between 2015 and 2026 were identified using search terms include “Malaysia”, “life-limiting illness”, “palliative care”, “cultural factors”, “religious views”, “acceptance” and “decision-making”. 42 articles were retrieved from the databases. The final of 33 articles was reviewed.

Findings / Synthesis
The perceptions about palliative care include both positive and negative views, and misconceptions. The positive view includes perceive palliative care as a source of support. The negative views relate palliative care as hopelessness and hardship. Those with misconceptions view palliative care is only for cancer, link to terminal state of the disease and discontinuation of curative or life-prolonging treatment. The cultural influence includes filial piety, indirect communication and taboo in discussion about death. Spiritual well-being has positive impact on healthcare decisions. The multireligious in Malaysia influence patient’s decision on medical care, suffering and death. Patients who involve family and friends in decision-making have more favourable attitude towards palliative care. Community education shapes the perceptions and acceptance of palliative care.

Conclusion
Patients with life-limiting illness in Malaysia have varying perceptions towards palliative care. The acceptance of palliative care is influenced by cultural, spirituality, family and community involvement. Adapting culturally sensitive communication while considering the religion background and appropriately involving families while respecting patient preferences may improve acceptance of palliative care.

Keyword: Palliative care, perception, acceptance, cultural factor

7th USIM INTERNATIONAL HEALTH CONFERENCE
TRANSFORMING HEALTH THROUGH INNOVATION

ABSTRACT ID: A0111

When Walking Become Impossible: Probable Guillain-Barre Syndrome Beyond The Usual Timeline

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Background
Progressive flaccid weakness threatens independence and respiration. Guillain-Barré syndrome is an important non-polio cause of acute flaccid paralysis in Malaysia, but atypical timelines complicate recognition. We describe the clinical features and challenges of managing a probable case without confirmatory diagnostic testing.

Case Description
A previously independent 56-year-old Malaysian woman developed progressive bilateral leg weakness over two months. When walking became unstable, she used a chair as support to move around her home. She deferred immediate care because she was too weak to leave home and her husband could not safely assist her. After a bathroom fall left her unable to stand, emergency services brought her to hospital. Examination showed flaccid quadriparesis, generalised areflexia and mild distal numbness, without cranial nerve, sphincter, autonomic or respiratory involvement. Mild hypokalemia (3.3-3.5 mmol/L) was noted, and creatine kinase was modestly elevated (491 U/L); other metabolic, endocrine, and autoimmune tests were normal. Clinical findings localised to the peripheral nervous system and favoured probable Guillain-Barré syndrome. The patientrefused cerebrospinal fluid analysis, and electrophysiological confirmation was unavailable. Care prioritised serial respiratory and autonomic monitoring, falls prevention and multidisciplinary rehabilitation.

Discussion
The two-month course exceeded the usual time for classical Guillain-Barré syndrome, prompting consideration of chronic inflammatory demyelinating polyradiculoneuropathy and other mimics. Generalised areflexia, minimal sensory loss and absence of upper motor neuron or sphincter signs nevertheless supported peripheral localisation. The case also reveals an access gap relevant to Malaysian practice: profound mobility loss can delay presentation, even in an urban setting, when families lack safe transfer support. Respecting refusal of invasive testing required transparent discussion of uncertainty, shared decision-making and safety-netting.

Conclusion
Subacute flaccid paralysis demands disciplined localisation, early surveillance for respiratory and autonomic deterioration, and continued review of competing diagnoses. Patient-centred neurological care should also anticipate transport and caregiving barriers that may delay assessment and rehabilitation.

Keyword: Acute flaccid paralysis, Guillain-Barre Syndrome, diagnostic uncertainty, access to care, patient-centred care

7th USIM INTERNATIONAL HEALTH CONFERENCE
TRANSFORMING HEALTH THROUGH INNOVATION

ABSTRACT ID: A0112

The Journey of Cervical Cancer Elimination in Malaysia: Progress, Challenges and Future Directions

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Background

Cervical cancer remains as critical public health burden, which ranks as the fourth most frequent malignancy among women. Globally, the 2022 statistics revealed a staggering 660,000 new infections and 350,000 deaths, with the greatest burden falling on developing regions where preventive infrastructure is limited. This literature review aims to evaluate Malaysia's progress across the epidemiology, HPV vaccination, screening programmes and future strategies. The review will also highlight achievements, ongoing gaps and key innovations needed for achieving a cervical cancer-free Malaysia within this generation.

In Malaysia, the risk extends to nearly 12.8 million women, with current incidence rates of 6 per 100,000 among Malaysian women. This translates to roughly 1,740 annual diagnoses and nearly 1,000 deaths. Since high-risk HPV variants, specifically types 16 and 18, are the primary oncogenic drivers, robust immunization and proactive screening remain the most effective defensive measures.

Methods (Search Strategy)

A literature review was conducted across PubMed, Scopus, ScienceDirect, and official government reports. The search was restricted to English-language publications from the last ten years, using targeted keywords such as "cervical cancer elimination" and "HPV vaccination."

Findings / Synthesis

The National HPV Immunisation Programme, introduced in 2010, initially recorded strong coverage rates but experienced a significant decline during the COVID-19 pandemic. Meanwhile, cervical smear screening remains inadequate, with almost 60% of women not being screened. Key challenges include sociocultural misconceptions, poor awareness, disparities between rural and urban areas, and limited healthcare system capacities. To meet the WHO 2030 elimination targets, it is essential to implement strengthened measures such as catch-up vaccination programmes, HPV DNA-based screening, self-sampling approaches, digital health registries, active community engagement, and improved health education.

Conclusion

Malaysia has made substantial progress towards cervical cancer elimination. However, persistent vaccination and screening gaps require equitable strategies to achieve the WHO 2030 targets.

Keyword: Cervical cancer elimination, Cervical cancer screening, HPV vaccination

7th USIM INTERNATIONAL HEALTH CONFERENCE
TRANSFORMING HEALTH THROUGH INNOVATION

ABSTRACT ID: A0113

Electrical Stimulation as a Treatment Modality in Bell's Palsy: A Scoping Review

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Background
Bell's palsy is an acute idiopathic mono-neuropathy of the facial nerve, characterized by sudden unilateral facial muscle weakness. About 80% of patients recover with standard steroid therapy and approximately 15-30% experienced incomplete recovery, leading to persistent facial asymmetry and significant psychosocial distress. This review evaluates the role of electrical stimulation (ES) as an adjunctive rehabilitation modality to enhance functional recovery.

Methods (Search Strategy)
A scoping review was conducted in databases including PubMed, ResearchGate, and Google Scholar. Inclusion criteria focused on clinical studies from 2015 to 2025 evaluating the efficacy and mechanisms of various ES modalities, including TENS, NMES, and electroacupuncture.

Findings / Synthesis
Clinical evidence suggests that ES facilitates recovery through axonal growth, prevention of muscle atrophy, and cortical remapping. In acute cases, sub-threshold continuous ES and TENS were found to significantly accelerate the rate of recovery compared to conventional therapy alone (2.5 weeks versus 5.2 weeks). For chronic cases, ES and electroacupuncture demonstrated efficacy in reanimating dormant muscles and improving facial symmetry even years after onset. Recent meta-analyses indicate no statistically significant increase in synkinesis risk with controlled ES application. ES does not significantly alter final physiological outcomes in all acute cases, its ability to shorten the duration of paralysis reduces the risk of corneal complications and mitigates the psychological burden of facial disfigurement. However, the absence of standard protocols regarding frequency and duration remains a significant challenge.

Conclusion
Electrical stimulation is a safe and effective adjunctive therapy for both acute and chronic Bell's palsy. Future research should focus on large-scale randomized controlled trials to establish standardized clinical guidelines.

Keyword: Bell's palsy, facial nerve palsy, electrical stimulation, neuromuscular electrical stimulation, rehabilitation

7th USIM INTERNATIONAL HEALTH CONFERENCE
TRANSFORMING HEALTH THROUGH INNOVATION

ABSTRACT ID: A0114

Unravelling Motion Sickness: From Vestibular-sensory Integration to Individual Susceptibility and Management Strategies.

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Background
Motion sickness, or kinetosis, is a common physiological response to actual or perceived motion which significantly impacting quality of life. While the sensory conflict theory is widely accepted, the specific role of the vestibular system in triggering individual susceptibility remains partially understood. This review explores the vestibular system's contribution to motion sickness and evaluates targeted management strategies.

Methods (Search Strategy)
A scoping review was conducted using electronic databases, including PubMed and Google Scholar. Inclusion criteria encompassed English-language literatures published between 2015 and 2025 focusing on vestibular involvement in motion sickness and management.

Findings / Synthesis
An intact vestibular system is essential for motion sickness. Sensory conflicts arise from mismatches between visual, vestibular (semicircular canals and otolith organs), and proprioceptive inputs. The susceptibility is influenced by "traits" (genetics, age, sex) and "states" (hormonal cycles, sleep, anxiety). Research highlights that morphological asymmetry in vestibular organs and hormonal changes in females increased the vulnerability. Its management involves pharmacological agents and non-pharmacological behavioral adjustments. Medications can effectively suppressed symptoms like nausea which often can cause significant side effects such as sedation. Behavioral strategies, including gaze fixation and habituation, offer sustainable long-term relief by allowing the brain to recalibrate sensory expectations without drug-induced adverse effects.

Conclusion
The vestibular system is the primary mediator of motion sickness through sensory integration. Effective management requires a combination of behavioral adaptation and targeted pharmacology. Further research is needed to develop more precise treatments that address individual susceptibility factors.

Keyword: motion sickness, vestibular disorder, sensory conflict, motion sickness management

ABSTRACT ID: A0115

Needle Stick Injuries Among Healthcare Students During Clinical Training: Prevalence, Risk Factors and Safety Practices

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Background

Needle stick injuries (NSIs) are an important occupational hazard among healthcare students during clinical training, exposing them to blood-borne pathogens including hepatitis B virus, hepatitis C virus and human immunodeficiency virus. Students may be particularly vulnerable because of limited clinical experience, inadequate technical skills, insufficienct supervision and inconsistent adherence to safety practices. The aim of the study was to determine the prevalence of NSIs among healthcare students during clinical training, identify factors contributing to NSIs, and evaluate the students' compliance with safety practices for NSI prevention.

Methods (Search Strategy)

A narrative literature review was conducted using PubMed, Scopus and Google Scholar. Search terms included "needle stick injury", "sharps injury", "healthcare students", "medical students", "nursing students" and "clinical training", combined using Boolean operators. English-language studies relevant to the prevalence, risk factors and safety practices associated with NSIs were reviewed. Reference lists of relevant articles were also screened to identify additional studies.

Findings / Synthesis

Reported prevalence of NSIs among healthcare students varied substantially across settings, ranging from 18.2% to 67%. A systemic review reported a pooled prevalence of approximately 35% among nursing students, with a higher prevalence of 39.7% in Asian countries. Frequently reported risk factors included needle recapping, improper sharps handling and disposal, limited clinical experience, inadequate training and supervision, fatigue, heavy workload and unexpected patient movement. Safety practice compliance was inconsistent and suboptimal, particularly regarding injury reporting and post-exposure management. Implementing recommended safety practices, along with consistent monitoring and reinforcement during clinical training, may help minimize accidental exposure.

Conclusion

NSIs remain a significant occupational concern among healthcare students. Strengthening practical training, supervision, accessible sharps-disposal facilities and non-punitive reporting systems may improve adherence to safety practices and reduce preventable occupational exposures. Further research among Malysian healthcare students is warranted to establish local prevalence and associated factors.

Keyword: Needle stick injury, healthcare students, clinical training, occupational safety, sharps injury

7th USIM INTERNATIONAL HEALTH CONFERENCE
TRANSFORMING HEALTH THROUGH INNOVATION

ABSTRACT ID: A0116

Persistent Cerebral Abscess in Unrepaired Tetralogy of Fallot: Suspected Relapse of Coxiella burnetii Endocarditis

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Background
Unrepaired cyanotic congenital heart disease predisposes to cerebral abscess through right-to-left shunting, chronic hypoxaemia and hyperviscosity. *Coxiella burnetii* endocarditis is an uncommon cause of culture-negative endocarditis that may persist or relapse and requires prolonged targeted therapy.

Case Description
A 30-year-old woman with unrepaired Tetralogy of Fallot, secondary polycythaemia and a baseline oxygen saturation of approximately 80% presented with two weeks of progressive right-sided morning headache, vomiting, lethargy and functional decline. During an admission in April 2025, she had multiple tricuspid vegetations measuring up to 8 mm and *C. burnetii* seropositivity, complicated by a right occipital abscess and ventriculitis. She declined surgery and received prolonged antimicrobial therapy. During the current admission, her Glasgow Coma Scale score deteriorated abruptly from 15/15 to 6/15. Computed tomography showed a residual right parieto-occipital abscess, ventriculitis and worsening hydrocephalus. Repeat transthoracic echocardiography showed no vegetation, and no current microbiological test definitively established relapse. Neurosurgical drainage was not pursued in accordance with her previously expressed wishes. Broad-spectrum antimicrobials were initiated and later rationalised; doxycycline and hydroxychloroquine were added for suspected relapsing *C. burnetii* endocarditis. Her consciousness returned fully within four days. She remained stable for two weeks and was discharged on prolonged antimicrobial therapy.

Discussion
The recurrent neurological syndrome and persistent intracranial focus raised concern for inadequately eradicated infection. However, the absence of current phase-specific *C. burnetii* serology, polymerase chain reaction testing or tissue confirmation limits a definitive diagnosis of endocarditis relapse. This case demonstrates the interaction between right-to-left shunting, culture-negative infection, difficult source control and patient preference.

Conclusion
In unrepaired Tetralogy of Fallot, recurrent headache or altered consciousness warrants urgent investigation for intracranial infection. Diagnostic certainty, prolonged targeted therapy and shared decision-making are central when definitive source control is declined.

Keyword: Coxiella burnetii, infective endocarditis, Tetralogy of Fallot, cerebral abscess, hydrocephalus

7th USIM INTERNATIONAL HEALTH CONFERENCE
TRANSFORMING HEALTH THROUGH INNOVATION

ABSTRACT ID: A0117

Innovating Ethnicity Identification Through CT-Based 3D Geometric Morphometrics: A Canonical Variate Analysis of Malay, Chinese, and Indian Maxillary Bone.

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Background
Ethnicity estimation plays an important role in human identification in forensic and human identification

Objectives
To evaluate maxillary bone variation among Malay, Chinese, and Indian populations in Malaysia using canonical variate analysis (CVA).

Methods
Computed tomography (CT) scans of the head and neck from 300 individuals aged 20–35 years were included, comprising equal numbers of Malay, Chinese, and Indian individuals (n = 100 per group). A total of forty-five anatomical three-dimensional (3D) were placed on the digitalized CT images. Canonical variate analysis was performed to assess patterns of shape variation of the bone among the three ethnic groups.

Results
Two canonical variates (CV) were generated with CV1 explaining 57.49% and CV2 explaining 42.51% of the total maxillary shape variation among the three ethnic groups. CV1 demonstrated the greatest variation at the zygomatic process and lower lateral alveolar process, whereas CV2 showed more moderate landmark deviations, suggesting greater overlap and possible influence of individual rather than ethnicity-related variation. The distribution of individuals along the canonical variate axes indicated ethnicity-related patterns of craniofacial shape variation, with CV1 providing the primary separation and CV2 contributing additional differentiation among the groups.

Conclusion
Maxillary bone variation could be manifested by CVA. These findings demonstrated potential application of CVA as an approach for assessing population-specific maxillary bone variation to assess ethnicity estimation in forensic human identification.

Keyword: Etnicity, CT, Geometric Morphometrics, Canonical Variate

7th USIM INTERNATIONAL HEALTH CONFERENCE
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ABSTRACT ID: A0118

A Shift-Based Cross-Sectional Multifactorial Analysis of Chronotype, Chrononutrition, And Beverage Intake of Adult Shift Workers with Sleep Health

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Background
Healthcare shift workers are frequently exposed to circadian disruption, which may affect eating patterns, beverage consumption behaviours, chronotype, and sleep health.

Objectives
This study aimed to examine chronotype, chrononutrition behaviours, beverage intake patterns, and their associations with sleep health among adult rotating healthcare shift workers.

Methods
A cross-sectional study was conducted among 442 healthcare shift workers. Data were collected using self-administered questionnaires, including the Chrononutrition Profile Questionnaire (CPQ), Pittsburgh Sleep Quality Index (PSQI), Munich Chronotype Questionnaire for Shift Workers (MCTQShift), and Beverage Intake Questionnaire (BEVQ).

Results
Participants had a mean age of 33.57 ± 7.07 years, and most were female (96.6%). Poor sleep quality was reported by 57.2% of participants, with a mean global PSQI score of 5.51 ± 2.22. Intermediate chronotype was the most prevalent chronotype (63.1%), followed by morning type (33.5%) and evening type (3.4%). Most participants reported good breakfast consumption (61.8%) and consumed their evening meals before 20:00 hours (69.5%). Significant associations were observed between sleep quality and chronotype (p=0.003), evening eating behaviour (p=0.001), and coffee/tea intake (p=0.038). However, after adjustment for potential confounders, only evening eating behaviour remained significantly associated with sleep quality (p=0.007).

Conclusion
These findings suggest that chrononutrition behaviours, particularly evening eating practices, may play an important role in sleep health among adult shift workers. Targeted interventions focusing on meal timing may help improve sleep health in this population.

Keyword: Chrononutrition, Chronotype, Sleep Quality, Shift Workers, Beverage Intake

7th USIM INTERNATIONAL HEALTH CONFERENCE
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ABSTRACT ID: A0119

A Narrative Review: Outcome of Transoral Robotic Surgery in HPV Related OPSCC

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Background
The prevalence of human papillomavirus (HPV)- related oropharyngeal squamous cell carcinoma (OPSCC) has increased over the last decade. Due to the evolution of current technology, some centers have treated HPV-related OPSCC via transoral robotic surgery (TORS). This review aims to look for outcome of TORS in patients with HPV related OPSCC.

Methods (Search Strategy)
Relevant articles were searched using online databases such as PubMed, Scopus, and Google Scholar. The keywords used for searching included combinations of terms such as HPV-positive, HPV related, oropharyngeal carcinoma, OPSCC, transoral robotic surgery and TORS. All original articles published in English from 2016-2026 were reviewed. Studies involving HPV-negative OPSCC only were excluded in this review.

Findings / Synthesis
Studies showed that five-year overall survival (OS) for HPV-related OPSCC patient underwent TORS was 78%-95%. Patients with early-stage disease (pT1-2, N0-1) had significantly improved OS compared to patients with advanced T- or N-stage disease. TORS survival rates were 91.0% at 1 year, 94.9% at 3 years, and 89.8% at 5 years. Studies also showed that surgical treatment with TORS had positive margin rate on final histopathology analysis range about 8-10.9%. Adjuvant therapy was indicated in 46% of the patients. The local recurrence rate was reported between 2-10% with the majority (80%) of patients recurring in the first 3 years since treatment. Subsite analysis showed TORS was correlated with improved survival in base of tongue primaries. Advanced comorbidities, lymphovascular invasion, and regional recurrence were associated with worse overall survival.

Conclusion
In summary, TORS gives good outcomes for HPV-related OPSCC surgical treatment. However, some factors influence the overall survival rate that need to be considered during the choice of candidates for TORS.

Keyword: HPV-related, OPSCC, oropharyngeal carcinoma, transoral robotic surgery

ABSTRACT ID: A0120

Narrative Review of CPR Training on Knowledge, Attitude and Practice Among Community Members.

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Background
Out-of-hospital cardiac arrest (OHCA) is a global health problem associated with low survival rates and high mortality. Early cardiopulmonary resuscitation (CPR) by bystanders is proven improve the survival outcomes, unfortunately, the participation is remains low especially in Asian countries. This narrative review aims to identify the knowledge, attitude, and practice (KAP) of CPR among community members and discuss the barriers influencing willingness to perform CPR pre and post-training.

Methods (Search Strategy)
Relevant articles were identified through PubMed, Scopus, and Google Scholar using keywords related to cardiopulmonary resuscitation, basic life support, knowledge, attitude, and practice. Original studies published from 2018–2026 involving university, community, and public populations were included, while studies involving healthcare workers were excluded. A total of 18 studies were selected.

Findings / Synthesis
The findings suggest that baseline CPR knowledge and skills are low but improve after receiving training .Studies reported about 4% of participants had prior knowledge of CPR which improve to 87% post training. Western countries reported higher CPR training exposure (52%) compared with ASEAN countries. Along with the improving knowledge of CPR, the practice and effectiveness of CPR training was improving as well. Practical skills showed impressive improvement with correct hand positioning improved from 15% to 89% when demonstrating CPR. The maintenance of compression depth and rhythm also rising from 12% to 85%. However, studies showed that present of barriers influenced the willingness of individual to perform emergency CPR such as fear of performing CPR incorrectly, legal concerns, fear of harming victim, concerns regarding personal safety and the risk of disease transmission and lack of confidence.

Conclusion
In summary, knowledge, attitudes, and practices were generally low but improved following CPR training. However, skill retention remains a challenge, highlighting the need for regular refresher training and continued public awareness to build a more prepared and responsive community.

Keyword: Cardiopulmonary resuscitation, basic life support, knowledge, attitude, practice

7th USIM INTERNATIONAL HEALTH CONFERENCE
TRANSFORMING HEALTH THROUGH INNOVATION

ABSTRACT ID: A0121

Neurotrophic Marvels: Orchestrating Cognitive Modulation Through Neuroplasticity

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Background
Neurotrophins are traditionally recognised for their essential roles in neuronal survival, development, differentiation, and repair. Increasing evidence, however, suggests that their functions extend beyond neuronal maintenance to the dynamic regulation of cognition and neuroplasticity.

Methods (Search Strategy)
This review explores how the four major mammalian neurotrophins: nerve growth factor (NGF), brain-derived neurotrophic factor (BDNF), neurotrophin-3 (NT-3), and neurotrophin-4 (NT-4) may contribute to cognitive modulation through their distribution across brain regions and interactions with specific tropomyosin receptor kinase (Trk) signalling pathways.

Findings / Synthesis
The review examines their associations with key cognitive domains, including learning and memory, attention and executive function, social cognition and mood, and perceptual-motor function. Particular emphasis is placed on the mechanisms through which neurotrophins influence synaptic plasticity, dendritic remodelling, neurogenesis, neuronal network adaptation, and interactions with neurotransmitter systems. A preliminary bibliometric analysis further highlights the unequal representation of neurotrophins within cognitive research, with BDNF and NGF dominating the literature, while NT-3 and NT-4 remain comparatively underexplored. Emerging evidence also links dysregulated neurotrophic signalling with cognitive impairment across neurodegenerative and neuropsychiatric disorders, including Alzheimer's disease, Parkinson's disease, depression, schizophrenia, autism spectrum disorder, and traumatic brain injury. Understanding these relationships may provide opportunities for therapeutic strategies involving exercise, lifestyle modification, pharmacological modulation, neurotrophin mimetics, and gene-based approaches.

Conclusion
Collectively, this review positions neurotrophins as potential molecular orchestrators linking environmental stimuli, neural plasticity, and cognitive function, while highlighting important gaps and opportunities for future research and clinical translation.

Keyword: neurotrophin, cognition, neuroplasticity

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TRANSFORMING HEALTH THROUGH INNOVATION

ABSTRACT ID: A0124

Antibacterial Efficacy of Kelulut and Tualang Honey Against Porphyromonas gingivalis: An In Vitro Study.

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Background
Periodontal diseases are strongly linked to pathogenic oral bacteria, specifically the key periopathogen, Porphyromonas gingivalis. Rising antibiotic resistance necessitates exploring natural antimicrobial alternatives, such as Kelulut Honey (KH) and Tualang honey (TH).

Objectives
1. To investigate the antimicrobial effect of Kelulut Honey (KH) and Tualang honey (TH) at various concentrations against Porphyromonas gingivalis. 2. To determine the minimum inhibitory concentration (MIC) and minimum bactericidal concentration (MBC) of KH and TH against P. gingivalis. 3. To compare the antimicrobial effects between KH and TH.

Methods
P. gingivalis (ATCC 33277) was verified via DNA barcoding and 16S rRNA sequencing, then cultured anaerobically. Serial concentrations of locally sourced KH and TH were evaluated using disc diffusion, MIC, and MBC assays. Chlorhexidine (0.12%) and sterile distilled water served as positive and negative controls, respectively.

Results
Both honeys exhibited antibacterial activity. However, KH demonstrated greater potency with a lower MIC (3.12%) and MBC (6.25%) compared to TH (MIC: 12.5%, MBC: 25%).

Conclusion
While limited to a single strain, the findings indicate that both honeys inhibit P. gingivalis, with KH showing great potential as a natural alternative for managing periodontal infections.

Keyword: Honey, Porphyromonas gingivalis, Anti-bacterial agents, Microbial Sensitivity Tests, Periodontitis.

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ABSTRACT ID: A0125

Formaldehyde Safety in Cadaveric Teaching: Monitoring, Control, and Preservation Alternatives

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Background
Health complaints associated with formaldehyde (FA) are commonly reported in anatomy laboratories. However, the presence of symptoms alone does not establish whether exposure levels are being adequately monitored or whether existing controls provide sufficient protection. This review examined the relationship between exposure measurement, reported health effects, and the effectiveness of control measures in anatomy teaching environments.
Methods (Search Strategy)
A systematic review was conducted following PRISMA 2020 guidelines. Google Scholar, PubMed, and JSTOR were searched for quantitative primary studies published between 2015 and 2025. Eligible studies were organised according to three questions: whether airborne FA was measured and compared with occupational limits, what health effects were reported among exposed individuals, and whether control measures or alternative preservation methods reduced exposure. Study quality was evaluated using adapted Joanna Briggs Institute critical appraisal tools.
Findings / Synthesis
Seventeen of the 201 identified studies met the eligibility criteria. A clear imbalance was observed between health reporting and environmental monitoring. Although several studies described symptoms among students and staff, only five directly measured airborne FA. Four provided measurements suitable for comparison with occupational exposure limits, and three recorded at least one exceedance. Acute complaints included eye watering, upper respiratory tract irritation, headache, dizziness, and breathing discomfort. Dermatitis, respiratory disorders, and haematological problems were reported among personnel exposed over longer periods. Evidence on the effectiveness of control measures was limited. One engineering intervention reduced breathing-zone and environmental concentrations by approximately 64% and 70%, respectively, but some post-intervention values remained above the NIOSH recommended exposure limit. Studies of alternative preservation methods generally reported lower exposure without a substantial loss of teaching suitability.
Conclusion
Limited exposure monitoring prevents reliable assessment of existing control measures. Routine air monitoring, effective exposure controls, and lower-FA preservation methods are needed to improve safety in anatomy facilities.

Keyword: formaldehyde monitoring, exposure control, anatomy laboratories, cadaver preservation, occupational health

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ABSTRACT ID: A00126

Cytotoxic and Radiosensitizing Effects of Auranofin and Luteolin in HCT116 Colorectal Cancer Cells

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Background

Colorectal cancer (CRC) is the third most common cancer and the second leading cause of cancer-related death worldwide. Enhanced antioxidant defense in cancer cells may reduce the effectiveness of radiotherapy. Auranofin inhibits thioredoxin reductase (TrxR), but this inhibition may activate nuclear factor erythroid 2-related factor 2 (Nrf2) as a compensatory antioxidant response. Luteolin inhibits Nrf2 and may enhance the effects of auranofin.

Objectives

This study evaluated the cytotoxic interaction and radiosensitizing effects of auranofin and luteolin in HCT116 CRC cells.

Methods

Cells were treated with different concentrations of auranofin and luteolin for 24 hours. Cell viability was assessed using the MTT assay, followed by determination of the IC_{20}, IC_{50} and combination index. For clonogenic analysis, cells were treated with 2 μM auranofin and 5 μM luteolin, individually or in combination, for 24 hours before irradiation with 2 Gy using a Caesium-137 source. Intracellular reactive oxygen species (ROS) levels were measured using the 2′,7′-dichlorodihydrofluorescein diacetate assay.

Results

Auranofin and luteolin reduced HCT116 cell viability, while combination index analysis showed a synergistic interaction between the two agents. Auranofin alone and in combination with luteolin significantly reduced colony formation without irradiation. Irradiation alone also significantly decreased clonogenic survival. When combined with irradiation, auranofin alone and the auranofin–luteolin combination further reduced clonogenic survival compared with irradiation alone. In contrast, luteolin did not significantly enhance radiosensitivity. As these effects were not accompanied by a corresponding increase in intracellular ROS, auranofin-induced radiosensitization may occur through an ROS-independent pathway, although further validation is required.

Conclusion

Auranofin demonstrated cytotoxic and radiosensitizing effects in HCT116 cells. Its combination with luteolin produced synergistic cytotoxicity but did not further improve radiosensitization compared with auranofin alone.

Keyword: cancer, combination treatment, auranofin, luteolin, radiosensitization

7th USIM INTERNATIONAL HEALTH CONFERENCE
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ABSTRACT ID: A0128

"Masked by Uremia: Intradialytic Vomiting as the Primary Manifestation of a Central Line-Associated Bloodstream Infection in End-Stage Renal Disease"

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Background
Central line-associated bloodstream infections (CLABSI) are a significant and potentially life-threatening complication for patients with end-stage renal disease (ESRD) receiving maintenance hemodialysis. Because patients with ESRD are often immunocompromised, they can present with atypical symptoms that lack hallmark signs of sepsis like fever, complicating early diagnostic efforts.

Case Description
A 53-year-old woman with poorly controlled type 2 diabetes mellitus and ESRD presented with sudden-onset vomiting, chills, and rigours during a hemodialysis session. She received regular dialysis via a right internal jugular catheter, which showed no overt signs of local infection. She remained afebrile and hemodynamically stable. Laboratory investigations revealed leukocytosis with neutrophilia and elevated inflammatory markers. The diagnosis of CLABSI was confirmed via paired blood cultures, where central lumen cultures grew gram-negative rods while peripheral cultures remained negative. The patient was successfully managed with symptomatic treatment and broad-spectrum intravenous antibiotics, specifically ceftazidime and cefazolin.

Discussion
In hemodialysis patients, intradialytic vomiting is frequently attributed to common complications like intradialytic hypotension or dialysis disequilibrium syndrome. However, the presence of rigours—even without a fever—should immediately raise clinical suspicion for bacteremia. This case highlights how impaired immunity in diabetic and ESRF patients can mask typical systemic inflammatory responses. The use of paired blood cultures was crucial in establishing the definitive diagnosis and ruling out other differential diagnoses such as acute coronary syndrome and gastrointestinal pathologies.

Conclusion
Clinicians must maintain a high index of suspicion for bloodstream infections when hemodialysis patients develop systemic intradialytic symptoms, even without fever or catheter-site inflammation. Prompt recognition and early initiation of targeted antimicrobial therapy are essential to prevent severe sepsis and minimise mortality.

Keyword: Central Line-Associated Bloodstream Infection (CLABSI), End-Stage Renal disease (ESRD), Hemodialysis, Intradialytic Vomiting, Bacteremia

7th USIM INTERNATIONAL HEALTH CONFERENCE
TRANSFORMING HEALTH THROUGH INNOVATION

ABSTRACT ID: A0129

Gamifying Clinical Anatomy Education: A Pilot Study Using a Clinical Board Game

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Background
Clinical anatomy is fundamental to medical education, providing the structural foundation for clinical examination, diagnosis, and management. However, students may find it challenging to retain anatomical knowledge and integrate structural relationships into clinical reasoning when taught predominantly through conventional didactic approaches. Gamification offers an alternative strategy to promote active participation, collaborative learning, and higher-order thinking. An innovative clinical anatomy board game was developed to transform anatomical learning into an engaging and clinically oriented experience.

Intervention / Innovation
The board game was designed using gamification principles, including competition, collaboration, problem-solving and immediate peer interaction. Players work in teams to navigate a quest-style game board while solving clinical case scenarios through anatomical clues. Each case requires players to identify relevant anatomical structures, establish anatomical relationships, interpret clinical manifestations, and formulate possible diagnoses. Learner engagement, participation, peer discussion, and perceived educational value were observed during gameplay.

Outcome / Impact
The board game demonstrated positive perceived educational value across the assessed domains. Participants agreed that the game helped them apply anatomical knowledge to identify diagnoses, understand structure–function relationships, and localise anatomical lesions from clinical clues. Team-based gameplay was particularly well received, with strong agreement that the charades format encouraged active participation, enhanced understanding of clinical anatomy, and reinforced learning through peer discussion. The game mechanics were perceived to promote focus and engagement. However, responses indicated some areas for refinement, particularly clarity of gameplay instructions. Qualitative feedback further supported curriculum integration, with the game perceived as making anatomical recall more enjoyable and memorable.

Conclusion
Gamification is an innovative approach to clinical anatomy education. This approach may complement conventional teaching and provide a scalable tool for reinforcing clinically relevant anatomical knowledge.

Keyword: Clinical Anatomy, Gamification, Medical Education, Collaborative Learning

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ABSTRACT ID: A0130

Serological evidence for a decline in human malaria transmission among indigenous Semai Orang Asli communities in Pahang

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Background
As Malaysia maintains zero endogenous human malaria cases, sensitive tools are required to detect residual, transmission missed by conventional surveillance methods.

Objectives
This study combined serological and parasitological approaches to assess Plasmodium falciparum and Plasmodium vivax transmission among vulnerable Orang Asli communities in Pos Lenjang, Pahang.

Methods
A cross-sectional survey of 337 Semai Orang Asli across five settlements collected demographic data and blood spots in September 2025. Indirect ELISA measured PfMSP-119 and PvMSP-119 antibody responses, while microscopy and molecular testing assessed parasite carriage. Reversible catalytic models fitted age-adjusted antibody responses to estimate seroconversion rates (SCR).

Results
There was no evidence of recent transmission in the study area, as indicated by the absence of parasite infections in all ages and low or absent serological responses to either species in young children. Seropositivity to PfMSP-119 was significantly higher (p < 0.001) than to PvMSP-119, with seroprevalence 32.3% (95% CI 27.4–37.6) and 4.2% (95% CI 2.3–6.9), respectively. Across age groups, seroprevalence ranged from 18.2% to 81% for P. falciparum and 0.8% to 14.3% for P. vivax. Notably, no seropositive individuals under 7 years of age were identified for either species (0/45). SCR estimates across villages ranged for P. falciparum from 0.0171 year^{-1} to 0.0205 year^{-1} and from 0.0012 year^{-1} to 0.0033 year^{-1} for P. vivax. These estimates also revealed significant evidence of a recent decline in P. falciparum transmission occurring approximately seven years ago (p = 0.015), with SCR dropping from 0.0255 year^{-1} to 0.0068 year^{-1} among those born since 2018. In contrast, no significant difference in SCR was found for P. vivax transmission between individuals aged under and over 7 years (p = 0.061).

Conclusion
These findings suggest that age-stratified serology helps track past malaria exposure in areas with no active cases. This approach helps national programs rapidly track transmission trends and efficiently target elimination efforts.

Keyword: Malaria, Epidemiology, Antibody Response, Orang Asli, Malaysia

7th USIM INTERNATIONAL HEALTH CONFERENCE
TRANSFORMING HEALTH THROUGH INNOVATION

ABSTRACT ID: A0131

AI-assisted Automated Detection of Scratching Behaviour in a Mouse Model of Chronic Itch

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Background

Manual quantification of scratching behaviour in animal models of itch is labour-intensive, time-consuming and susceptible to observer bias. Artificial intelligence-based behavioural analysis may provide a practical approach for automated and objective quantification of scratching behaviour.

Objectives

To develop and validate an artificial intelligence-assisted system for automated detection of scratching behaviour in a mouse model of chronic itch and evaluate its application in pharmacological assessment.

Methods

Twenty-four male ICR mice were used in an acetone–ether–water-induced chronic itch model. Scratching behaviour was analysed using a custom system combining MobileNetV2 feature extraction with Random Forest classification. Models trained under different dataset and recording conditions were evaluated for repeatability and agreement with manual scoring. Top- and side-view recording orientations were compared. The validated system was subsequently applied to assess scratching behaviour following methylene blue treatment.

Results

The model trained using approximately 1,000 scratch and 1,000 neutral images demonstrated the best overall scratch-bout performance, with a coefficient of variation of 24.74% and mean absolute error of 6.95 bouts. Scratch-bout frequency was more reliable than scratch duration. Top-view recordings showed significantly lower detection error than side-view recordings (median absolute error: 13.5 versus 46.0; $p=0.037$) and correlated significantly with manual scoring (Spearman's $\rho=0.638$; $p=0.047$). Application of the system to methylene blue-treated mice detected changes in scratching behaviour; however, treatment effects were inconsistent and not statistically significant.

Conclusion

Artificial intelligence-assisted analysis can provide practical automated quantification of scratching behaviour using standard video recordings. Adequate training data and recording orientation were important determinants of performance, supporting the potential of this approach for scalable behavioural analysis and preclinical pharmacological screening.

Keyword: Artificial intelligence, machine learning, pruritus, behavioural analysis, animal model

7th USIM INTERNATIONAL HEALTH CONFERENCE
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ABSTRACT ID: 10132

Photodynamic Suppression of Oral Biofilm Pathogens: Evaluating Red-LED-Activated Methylene Blue as a Novel Antimicrobial Strategy

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Background
Oral biofilms are complex microbial communities that contribute to chronic periodontitis and are linked to systemic diseases such as infective endocarditis, diabetes, and adverse pregnancy outcomes. Their resistance to conventional antimicrobials highlights the need for alternative therapies. Antimicrobial photodynamic therapy (aPDT), using methylene blue (MB) activated by red LED light, has emerged as a novel approach to disrupt biofilm integrity and reduce microbial viability. This review aims to evaluate the efficacy, mechanisms, and clinical potential of MB-mediated aPDT in managing biofilm-mediated periodontal infections.

Methods (Search Strategy)
A narrative literature review was conducted across electronic databases using published studies in English and Malay that investigated MB as the primary photosensitizer with red LED light sources. Inclusion criteria focused on experimental studies targeting oral pathogens such as Porphyromonas gingivalis, Streptococcus mutans, and Candida albicans. Data on bacterial viability, biofilm metabolic activity, and structural integrity were extracted and analysed.

Findings / Synthesis
Most studies demonstrated that MB-mediated aPDT significantly reduced colony-forming units (CFU/mL), impaired metabolic activity, and disrupted biofilm architecture. The therapy showed broad-spectrum antimicrobial activity, with notable reduction in periodontal pathogens and cariogenic bacteria. Advantages include safety, cost-effectiveness, and reduced risk of antimicrobial resistance. However, limitations such as incomplete eradication of mature biofilms and variability in dosimetry protocols were reported.

Conclusion
MB-activated red LED therapy represents a promising, non-invasive adjunctive modality against oral biofilm infections. While current evidence supports its antimicrobial potential, further standardized clinical trials are required to optimize treatment parameters and confirm long-term outcomes.

Keyword: Methylene blue, photodynamic therapy, red LED, oral biofilm, antimicrobial resistances

7th USIM INTERNATIONAL HEALTH CONFERENCE
TRANSFORMING HEALTH THROUGH INNOVATION

ABSTRACT ID: A0133

AI-assisted Automated Quantification of Pain-related Behaviour in a Mouse Model of Inflammatory Pain

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Background
Traditional assessment of pain-related behaviour in preclinical models relies heavily on manual observation, which is labour-intensive and susceptible to observer bias. Artificial intelligence (AI)-assisted video analysis may provide a more objective and efficient approach to behavioural quantification.

Objectives
To evaluate an AI-assisted system for automated detection and quantification of nociceptive paw-licking behaviour and apply the system to assess methylene blue in a formalin-induced mouse model of inflammatory pain.

Methods
Twenty male ICR mice were divided into five groups (n=4/group) receiving positive control, negative control, or methylene blue at 2.5, 5.0, or 10.0 mg/kg intraperitoneally before formalin injection. Pain-related paw-licking behaviour was video-recorded and analysed using a hybrid computer-vision pipeline combining MobileNetV2 feature extraction with Random Forest classification. The system was validated against manual scoring across 10,982 video frames.

Results
The AI model achieved 82.13% frame-level classification accuracy, with 93.82% precision, demonstrating good discrimination of paw-licking behaviour. However, individual-level chronological agreement with manual scoring was poor (ICC=-0.075), indicating limitations in temporal behavioural tracking. No significant differences among treatment groups were observed for total licking bouts [$F(4,15)=1.204$, $p=0.350$] or cumulative licking duration [$F(4,15)=0.987$, $p=0.444$].

Conclusion
The AI-assisted pipeline demonstrated promising frame-level detection of nociceptive paw-licking behaviour, although temporal and individual-level agreement with manual scoring requires further optimisation. Under the experimental conditions tested, low-dose methylene blue did not produce significant analgesic effects in the formalin-induced inflammatory pain model.

Keyword: Artificial intelligence, nociception, inflammatory pain, behavioural analysis, formalin test

7th USIM INTERNATIONAL HEALTH CONFERENCE
TRANSFORMING HEALTH THROUGH INNOVATION

ABSTRACT ID: A0134

From Cardioprotection to Cardiac Regeneration: Therapeutic Potential of Phoenix dactylifera

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Background
Cardiovascular disease remains the leading cause of mortality worldwide, while the limited regenerative capacity of adult cardiomyocytes continues to impede recovery following myocardial injury. Although current therapies primarily focus on reducing disease progression, natural products with multifunctional biological properties have gained increasing attention as potential regenerative interventions. Phoeniz dactilifera L. (date palm), rich in polyphenols, flavonoids, carotenoids, and phenolic acids, has demonstrated cardioprotective effects that may extend to cardiac repair and regeneration.

Methods (Search Strategy)
A narrative review was conducted using PubMed, Scopus, and Web of Science to identify English-language, peer reviewed studies investigating the cardioprotective, angiogenic, antioxidant, anti-inflammatory, and regenerative effects of Phoenix dactylifera L. Experimental, preclinical, mechanistic, and relevant in vitro studies were included. Studies unrelated to cardiovascular outcomes, non-English publications, conference abstracts, duplicate records, and articles lacking original data or relevant mechanistic evidence were excluded. The selected studies were critically synthesised to evaluate the regenerative potential of Phoenix dactylifera L.

Findings / Synthesis
The reviewed evidence indicates that Phoenix dactylifera L. attenuates oxidative stress, suppresses inflammatory signalling, reduces apoptosis, preserves mitochondrial function, and enhances endothelial integrity. Several preclinical studies also reported improved angiogenesis, increased cellular viability, and enhanced functional recovery following myocardial injury. However, evidence directly demonstrating cardiomyocyte proliferation and complete cardiac tissue regeneration remains limited.

Conclusion
Current evidence suggests that Phoenix dactylifera L. creates a favourable biological environment for myocardial repair through complementary cardioprotective and pro-regenerative mechanisms. Nevertheless, methodological heterogeneity and the predominance of preclinical studies limit clinical translational. Future standardised mechanistic investigations and well-designed translational and clinical studies are essential to establish its therapeutic role in cardiac regeneration.

Keyword: Phoenix dactylifera L., cardiac regeneration, cardioprotection, myocardial repair, angiogenesis.

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ABSTRACT ID: A0135

Effect of Postpartum Depression on Children's cognitive, physical and emotional development

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Background
Mental illness is listed as a maternal risk factor that affects the fetus and the infant's development but the complication listed were only in utero complication which was pre-term birth and low birth weight showing lack of evidence on how infant's development is affected from PPD.

Methods (Search Strategy)
A narrative literature review was conducted to identify wether PPD affects children development emotionally, physically or cognitively. Electronic databases including PubMed, Google Scholar, and ScienceDirect were searched for articles.

Findings / Synthesis
This review shows that exposure of PPD affects children's physical, emotional and cognitive development no matter the timing or severity of PPD. Physically , children become overweight and stunted that may contribute to early childhood obesity. Emotionally, children affected have delayed emotional development that contribute to having tantrum as externalising symptoms or isolating oneself as internalising symptoms. In cognitive development that have multiple domain, most domain are shown to be negatively affected , thus affecting a child holistic development to be delayed and need to be managed to ensure the development of mentioned parameters can be put back on track of normal development pace.

Conclusion
The findings of this literature review have several implications towards the current understanding of PPD and its effect emphasising on children's development. The review highlights the importance of a mentally healthy mother on the holistic development of a child, as well as describing on how PPD affects children . Understanding the current finding is crucial for future study specifically Malaysia as next study would be the pioneer study to this country. Result from the study may contribute to the health sector on management on affected mother and children by helping the public health sector to increase public awareness on PPD that affects the life of both the mother and the children just by exposure to it .

Keyword: Postpartum Depression, Children physical development, Children Emotional development, Children Cognitive Development

7th USIM INTERNATIONAL HEALTH CONFERENCE
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ABSTRACT ID: A0136

Wearable Accelerometry Combined with Machine Learning for Predicting Frailty and Functional Decline in Older Adults: A Scoping Review

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Background
Frailty prediction using machine learning (ML) has expanded rapidly, but most reviews pool heterogeneous data sources — biomarkers, questionnaires, electronic health records — obscuring the specific contribution of wearable accelerometry, a scalable and objective monitoring approach. To map the extent and nature of evidence on wearable accelerometry combined with ML for predicting frailty and functional decline in older adults, and to identify device characteristics predictive performance, and evidence gaps.

Methods (Search Strategy)
Following JBI methodology, PubMed and Scopus were searched using the terms “accelerometer” and “frailty,” yielding 186 and 309 records respectively (495 total). After removing 120 duplicates, 375 unique records were screened by title and abstract, with full texts assessed for eligibility against criteria requiring accelerometer-derived data as the primary input to a machine learning/predictive model forecasting frailty-related outcomes in adults aged ≥60.

Findings / Synthesis
Sixteen studies met inclusion criteria, spanning nine countries. Devices were predominantly wrist-worn or pendant/chest-worn accelerometers, with fewer studies using multi-sensor IMU arrays; analytic approaches ranged from classical ML to deep learning (CNNs, InceptionTime) applied to raw signals or engineered gait features. Accelerometer-driven ML models discriminated frailty status with reasonable accuracy (63–98%; AUC 0.64–0.92), supporting the premise that wearable-derived movement data captures meaningful, population-relevant signals of physiological decline. From a public health standpoint, however, this evidence remains almost entirely confined to proof-of-concept and validation-stage research. Only three studies linked predictions to downstream outcomes relevant to prevention — hospitalisation, mortality, or cognitive decline — and none reported whether earlier identification changed clinical decision-making, triggered intervention, or altered outcomes. The evidence supports accelerometer-based ML as a promising detection technology, but its effectiveness as a preventive public health tool remains untested.

Conclusion
Wearable accelerometry shows consistent promise for objective frailty screening, but larger, externally validated, longitudinal studies are needed before accelerometer-based ML tools can be considered for real-world clinical or home-based frailty screening.

Keyword: Frailty, Accelerometry, Machine learning, Wearable devices, Older adults

7th USIM INTERNATIONAL HEALTH CONFERENCE
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ABSTRACT ID: A0138

Unmasking the Thin–Fat (TOFI) Phenotype in Asian Populations: Pathophysiology, Diagnostic Limitations, and Management Strategies

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Background
The thin-fat (TOFI) phenotype characterised by normal body mass index (BMI) alongside disproportionately elevated intra-abdominal adipose tissue (IAAT) poses significant cardiometabolic risks, particularly in Asian populations. Despite a phenotypically lean appearance, affected individuals exhibit high vulnerability to insulin resistance, atherogenic dyslipidemia, and type 2 diabetes. However, standard anthropometric measures like BMI consistently fail to detect visceral adiposity in this population. The aim of this review is to synthesise current evidence on the definition, underlying pathophysiological mechanisms, diagnostic challenges, and targeted management strategies for the TOFI phenotype in Asian cohorts.

Methods (Search Strategy)
A comprehensive literature search was conducted across PubMed, ScienceDirect, and Google Scholar for English-language articles published from 2010 onwards. Search terms focused on the TOFI phenotype, intra-abdominal adipose tissue (IAAT), abdominal subcutaneous adipose tissue (ASAT), insulin resistance, ectopic fat, anthropometric indices, and lifestyle interventions.

Findings / Synthesis
Evidence demonstrates that disproportionate IAAT accumulation driven by limited subcutaneous adipose tissue expandability and early-life factors like low birth weight exerts a substantially stronger lipotoxic and inflammatory effect than subcutaneous fat. Standard BMI exhibits poor sensitivity for detecting this ectopic risk profile. Alternative surrogate metrics, such as waist-to-height ratio (WHtR) and sagittal abdominal diameter (SAD), show superior correlation with visceral adiposity and insulin resistance. Regarding management, targeted exercise modalities including high-intensity interval training (HIIT) and moderate-intensity aerobic exercise significantly reduce IAAT and improve metabolic parameters independent of total weight loss.

Conclusion
The TOFI phenotype represents an underdiagnosed driver of metabolic disease in Asian populations. Transitioning from traditional BMI reliance to sensitive visceral surrogate markers (SAD, WHtR) is crucial for early clinical detection. Targeted lifestyle modifications, particularly exercise, remain the primary therapeutic pillar to prevent cardiometabolic disease in normal-BMI individuals.

Keyword: TOFI phenotype, Intra-abdominal adipose tissue (IAAT), Insulin resistance, Normal-BMI obesity, Asian population

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ABSTRACT ID: A0139

Posterior Reversible Encephalopathy Syndrome Presenting with Generalised Weakness in a Hypertensive Emergency

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Background
Posterior reversible encephalopathy syndrome (PRES) is a clinico-radiological condition most commonly associated with severe hypertension. While it classically presents with headaches, seizures, visual disturbances, and an altered mental status, motor deficits are less frequently emphasised and may lead to diagnostic uncertainty.

Case Description
A 39-year-old Malay man with no previously diagnosed medical illness presented with a sudden onset of generalised body weakness and a severe bilateral occipital headache. Upon presentation, his blood pressure was markedly elevated at 198/112 mmHg, consistent with a hypertensive crisis. A non-contrast computed tomography (CT) scan of the brain revealed symmetrical ill-defined hypodensities in the bilateral occipital lobes, consistent with vasogenic oedema and supportive of a PRES diagnosis. The patient was managed with intravenous labetalol to carefully control and reduce his blood pressure, leading to a complete resolution of his neurological deficits.

Discussion
Symmetrical generalised weakness in PRES poses a diagnostic challenge, as it mimics metabolic disturbances, acute neuromuscular disorders, or an acute ischemic stroke. In this context, the generalised weakness likely reflects widespread cortical and subcortical dysfunction secondary to vasogenic oedema rather than isolated damage to a specific motor pathway. The presence of a severe headache alongside untreated hypertension provided critical diagnostic clues, and the rapid, complete neurological recovery following controlled blood pressure reduction further confirmed the diagnosis.

Conclusion
PRES should be considered in any patient presenting with acute neurological symptoms and severe hypertension, even when the presentation atypically features generalized weakness rather than focal neurological deficits. Early recognition, appropriate neuroimaging, and controlled blood pressure reduction are vital to prevent irreversible neurological injury.

Keyword: Posterior Reversible Encephalopathy Syndrome (PRES), Hypertensive Emergency, Generalised Weakness, Vasogenic Oedema, Atypical Presentation

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ABSTRACT ID: A0140

Micro- and Nanoplastics in the Brain: Emerging Evidence of Neurotoxicity

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Background
Micro- and nanoplastics (MNPs) are emerging environmental contaminants increasingly detected in human tissues, including the brain. Growing evidence has raised concerns regarding their ability to enter the central nervous system and potentially disrupt neurological function. This narrative review examines the pathways of MNP entry into the brain, their neurotoxic effects, and associated neurological and behavioural consequences.

Methods (Search Strategy)
A narrative literature review was conducted using PubMed, Google Scholar, Elsevier, and Web of Science. Relevant studies published within the past five years were identified using combinations of the terms “microplastic,” “nanoplastic,” “neurotoxicity,” and “brain.” Studies investigating MNP exposure and effects on the central nervous system were included, while studies unrelated to the central nervous system were excluded.

Findings / Synthesis
Current evidence suggests that MNPs may enter the brain through vascular, olfactory, and transplacental routes. Following entry into neural tissue, MNP exposure has been associated with oxidative stress, neuroinflammation, mitochondrial dysfunction, impaired autophagy-lysosomal pathways, and abnormal protein aggregation. Experimental studies have reported cognitive and memory impairment, anxiety- and depression-like behaviours, motor dysfunction resembling Parkinsonian features, and neurodevelopmental abnormalities. Human studies have also detected MNPs in brain tissue, although current evidence remains largely associative and does not establish direct causality.

Conclusion
MNP exposure represents an emerging concern for neurological health. However, current evidence is predominantly derived from experimental models and relatively high exposure doses. Long-term human studies using environmentally relevant exposure levels are needed to clarify neurological risks and establish safe exposure thresholds.

Keyword: Microplastics, Nanoplastics, Neurotoxicity, Blood-brain barrier, Neuroinflammation

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ABSTRACT ID: A0141

Antenatal Nutrition Guidelines: Translating Cohort Evidence on Omega-3 Intake and Gestational Probiotic Milestones into Clinical Practice – A Review

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Background
Gestational nutrition is a critical, modifiable determinant of maternal health and offspring development. This abstract synthesizes a professional clinical brief examining the distinct impacts of maternal fish, omega-3, and probiotic milk consumption on child neurodevelopment and major obstetric complications.

Methods (Search Strategy)
High-impact data were extracted from two landmark prospective pregnancy cohorts: the 32-cohort Environmental influences on Child Health Outcomes (ECHO) Consortium (analyzing up to 4,537 mother-child pairs) and the Norwegian Mother and Child Cohort Study (MoBa) (evaluating 70,149 singleton pregnancies).

Findings / Synthesis
Bivariate and multivariable regression models from the ECHO Consortium demonstrated that maternal fish consumption during pregnancy (compared to no fish intake) was significantly associated with a 16% reduction in the odds of offspring autism spectrum disorder (ASD) diagnosis (OR: 0.84; 95% CI: 0.77, 0.92). Fish consumption was also linked to a modest reduction in raw total Social Responsiveness Scale (SRS) scores (β: -1.69; 95% CI: -3.3, -0.08), with protective effects remaining consistent regardless of the weekly intake frequency. Conversely, prenatal omega-3 supplement use was not associated with reduced autism odds and suggested a modest adverse association with raw SRS scores (β: 1.98; 95% CI: 0.33, 3.64). Within the MoBa cohort, probiotic milk intake demonstrated highly timing-dependent systemic protection. Consuming probiotic milk during late pregnancy was significantly associated with a 20% lower risk of preeclampsia among nulliparous women (adjusted OR: 0.80; 95% CI: 0.68 to 0.94). Conversely, probiotic milk intake restricted to early pregnancy was uniquely associated with a 21% lower risk of spontaneous preterm delivery (adjusted OR: 0.79; 95% CI: 0.64 to 0.97).

Conclusion
Whole-dietary interventions during pregnancy, rather than isolated supplement protocols, are vital for minimizing adverse gestational and neurodevelopmental outcomes. Actionable public health guidelines and antenatal care counseling must prioritize timing-specific probiotic milk intake and safe, low-mercury fish consumption.

Keyword: antenatal nutrition, omega-3, probiotic, autism

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ABSTRACT ID: A0142

The Gut-Skin Axis and Skin Health: Current Evidence on the Therapeutic Role of Probiotics

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Background
The skin functions as a primary interface between the internal environment and the external world, with its health increasingly linked to the gastrointestinal microbiome via the "gut-skin axis". Dysbiosis in the gut is hypothesized to compromise the intestinal barrier, leading to systemic inflammation that exacerbates dermatological conditions. This review aims to evaluate the mechanisms by which probiotics improve skin health, assess their efficacy in treating acne vulgaris, atopic dermatitis (eczema), and psoriasis, and identify critical safety risks associated with their use.

Methods (Search Strategy)
A literature review was conducted using electronic databases including PubMed, Cochrane Library, and ScienceDirect. The search focused on randomized controlled trials (RCTs) and systematic reviews published between 2010 and 2025 regarding probiotics, postbiotics, and skin health.

Findings / Synthesis
The review confirms that probiotics improve skin health primarily by restoring the intestinal barrier and modulating systemic immunity. Clinical evidence supports the use of oral probiotics as an effective adjuvant therapy for acne vulgaris, showing significant reductions in inflammatory lesions. For atopic dermatitis, probiotics effectively reduce disease severity (SCORAD) by modulating the Th2 immune response. However, efficacy in psoriasis remains strain-dependent. Safety analysis highlights potential risks regarding antibiotic resistance transfer and the importance of monitoring in immunocompromised populations.

Conclusion
Probiotics represent a promising, holistic therapeutic strategy for inflammatory skin diseases. Future research should focus on establishing standardized, strain-specific dosing guidelines to maximize clinical benefits.

Keyword: Skin health, probiotic, acne, psoriasis, atopic dermatitis

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ABSTRACT ID: A0144

The Evaluation Of Relationship Between Pre-Pregnancy Body Mass Index And Gestational Weight Gain With Maternal And Infant Health Outcomes In Jordan: A Cohort Study

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Background
Maternal obesity and abnormal gestational weight gain (GWG) are increasingly recognized as major public health concerns due to their association with adverse maternal and neonatal outcomes.
Objectives
This study aimed to evaluate the relationship between pre-pregnancy body mass index (BMI) and gestational weight gain with maternal and infant health outcomes among pregnant women in Jordan.
Methods
A retrospective cohort study was conducted using data collected from 313 pregnant women who delivered at Jordan University Hospital and King Abdullah University Hospital between June 2023 and June 2024. Sociodemographic, obstetric, and clinical data were extracted from electronic medical records and analyzed using SPSS software. Pre-pregnancy BMI was categorized according to standard WHO classifications, and gestational weight gain was assessed according to the Institute of Medicine (IOM) recommendations. Maternal outcomes included gestational diabetes mellitus (GDM), gestational hypertension (GHT), preeclampsia, anemia, and mode of delivery. Infant outcomes included birth weight categories (small for gestational age and large for gestational age), Apgar score at five minutes, and neonatal intensive care unit (NICU) admission.
Results
The results showed that overweight and obese women had higher rates of pregnancy complications compared with women with normal BMI. Excessive gestational weight gain was also associated with increased risks of adverse maternal and neonatal outcomes, including higher rates of cesarean birth and large-for-gestational-age infants. Conversely, inadequate gestational weight gain was associated with an increased risk of small-for-gestational-age infants.
Conclusion
In conclusion, pre-pregnancy BMI and gestational weight gain are significant predictors of maternal and infant health outcomes. These findings highlight the importance of optimizing maternal weight before and during pregnancy through appropriate nutritional counseling, weight monitoring, and targeted public health interventions to improve pregnancy outcomes in Jordan.

Keyword: Pre-pregnancy Body Mass Index, Gestational weight gain, Maternal Health Outcomes, Infant Health Outcomes

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ABSTRACT ID: A0145

Geometric Morphometric Shape Analysis of Malay Clavicles for Sex Estimation

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Background
In forensic anthropology, the skull and other post cranial bones are utilized for identification of skeletal remains. Multiple bones have been shown to be sexual dimorphic and can therefore assist in sex identification. The accuracy and reliability of the identification process however, is population-specific, which leads to the need for regional skeletal databases. The clavicle is a post cranial bone that is known to be sexually dimorphic, yet it is understudied in the forensic field. Studies on sexual dimorphism of the clavicle have focused on linear measurements of the bone. Geometric morphometrics (GM) is an advanced 3-dimensional (3D) shape analysis method to assess bone morphology. To date, GM analysis of the shape of Malay adults have not been done.

Objectives
The aim of the study was to investigate sexual dimorphism of the Malay adult clavicle by applying geometric morphometrics and to assess the classification accuracy.

Methods
This was a cross-sectional study involving 100 specimens with an equal proportion of males and females of the adult age groups. A total of 18 landmarks were placed on the 3D reconstructed clavicle images from computed tomography (CT) scans. Landmarks underwent generalized Procrustes analysis, and the resulting centroid size and Procrustes coordinates were further statistically analysed.

Results
Procrustes ANOVA revealed significant differences in centroid size of the bone between males and females. There were 47 principal components (PC) responsible for the shape variations, with 6 PCs accounting for more than 5% of variances. Discriminant function analysis (DFA) demonstrated classification accuracy of 94% and 68% after cross-validation.

Conclusion
There was significant sexual dimorphism of the clavicle between adult Malay males and females with high classification accuracy. By applying this method to the clavicle, identification of local Malays could be assisted and become more precise.

Keyword: forensic anthropology, geometric morphometrics, clavicle

7th USIM INTERNATIONAL HEALTH CONFERENCE
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ABSTRACT ID: A0146

When weakness reveals thyrotoxicosis: recurrent hypokalaemic periodic paralysis in Graves' disease

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Background
Thyrotoxic hypokalaemic periodic paralysis is a rare endocrine emergency caused by a rapid intracellular potassium shift. Neuromuscular weakness may dominate over subtle thyrotoxic features, delaying diagnosis and exposing patients to arrhythmia, respiratory compromise and excessive potassium replacement.

Case Description
A 26-year-old Malay man with Graves' disease presented with recurrent, rapidly progressive, painless symmetrical limb weakness after more than five months of poor adherence to antithyroid therapy. He was tachycardic at 105 beats/min with fine tremor, mild goitre and exophthalmos. Examination showed flaccid weakness (lower limbs 0/5; upper limbs 3/5), preserved sensation and no cranial nerve deficits. Laboratory results showed severe hypokalemia at 2.1 mmol/L and hypophosphatemia at 0.38 mmol/L, with normal magnesium, renal function and acid-base status. Electrocardiography showed sinus tachycardia, flattened T waves and prominent U waves (typical hypokalemia features). Thyroid-stimulating hormone was suppressed at <0.01 mIU/L, and free thyroxine was elevated at 37.90 pmol/L, consistent with uncontrolled thyrotoxicosis. Recurrent thyrotoxic hypokalaemic periodic paralysis secondary to uncontrolled Graves' disease was diagnosed. Cautious intravenous potassium replacement under cardiac monitoring restored potassium to 4.1 mmol/L, and he walked independently within 24 hours. Carbimazole and propranolol were restarted with adherence counselling and follow-up.

Discussion
The characteristic combination of acute flaccid motor weakness, hypokalaemia, intact sensation, normal acid-base status and biochemical thyrotoxicosis distinguishes this reversible endocrine emergency from primary neurological disease and potassium-depletion states. Because total-body potassium is usually preserved, cautious replacement is essential to avoid rebound hyperkalaemia. Recurrence in this patient identified uncontrolled thyrotoxicosis from treatment non-adherence as a preventable risk.

Conclusion
In young Asian men with sudden painless weakness, serum electrolytes and thyroid function should be assessed early, even when thyrotoxic symptoms are mild. High suspicion leads to rapid diagnosis; monitored potassium correction and sustained restoration of euthyroidism can reverse paralysis and prevent recurrence.

Keyword: Thyrotoxic hypokalaemic periodic paralysis, Graves' disease, hypokalaemia, medication adherence

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ABSTRACT ID: A0147

The Thromboinflammatory Legacy of COVID-19: Platelet–Endothelial Crosstalk Across Respiratory Viruses

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Background
COVID-19 transformed the understanding of respiratory viral infection from a predominantly airway-centred illness to a systemic thromboinflammatory syndrome involving platelets, endothelial cells, leukocytes, complement, and coagulation. This has raised an important question: whether platelet–endothelial crosstalk is unique to SARS-CoV-2 or represents a broader, under-recognised feature of respiratory viruses associated with upper and acute respiratory tract infections.

Methods (Search Strategy)
A structured scoping review approach was used to map evidence from PubMed/MEDLINE, Scopus, Web of Science, ClinicalKey, UpToDate, Google Scholar, and reference lists. Search terms captured three core concepts: platelet function (e.g., activation, aggregation, platelet-leukocyte aggregates, P-selectin, CD62P, PAC-1, platelet factor 4, extracellular vesicles); endothelial response (e.g., endotheliopathy, von Willebrand factor, thrombomodulin, E-selectin, ICAM-1, VCAM-1, tissue factor); and respiratory viral infection terms, including COVID-19, SARS-CoV-2, influenza, respiratory syncytial virus, rhinovirus, adenovirus, seasonal coronaviruses, parainfluenza virus, human metapneumovirus, bocavirus, enterovirus, and acute respiratory tract infection. The synthesis was guided by the Scale for the Assessment of Narrative Review Articles (SANRA) to support clarity of aims, literature-search description, referencing, scientific reasoning, and balanced presentation of evidence.

Findings / Synthesis
Current evidence indicates that COVID-19 is associated with enhanced platelet reactivity, increased platelet–leukocyte interactions, endothelial activation, von Willebrand factor release, complement stimulation, extracellular vesicle production, NETosis, and thrombotic complications. Outside of SARS-CoV-2, influenza provides the most robust comparative data, demonstrating direct viral recognition by platelets and parallel platelet–endothelial-driven pulmonary inflammation. While mechanistic evidence for RSV and adenovirus is emerging, the thromboinflammatory profiles of other common respiratory viruses remain severely under-characterized.

Conclusion
COVID-19 has exposed a neglected thromboinflammatory dimension of respiratory virology. Mapping platelet–endothelial crosstalk across respiratory viruses associated with upper and acute respiratory tract infections may identify biomarkers, mechanisms, and therapeutic targets relevant to viral severity, thrombosis, bleeding, and post-viral vascular inflammation.

Keyword: thromboinflammatory, platelets, endothelial cells, respiratory infection, COVID-19

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ABSTRACT ID: A0148

Mitigating Osmotic Demyelination Risk During Urgent CRRT: Circuit-Based Sodium Regulation in Coexisting Severe HAGMA and Profound Hyponatremia

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Background
Managing severe high anion gap metabolic acidosis (HAGMA) alongside profound chronic hyponatremia presents a complex clinical dilemma during continuous renal replacement therapy (CRRT). Standard commercially available dialysate sodium concentrations (140 mmol/L) introduce a substantial risk of rapid sodium overcorrection, exposing patients to osmotic demyelination syndrome (ODS).

Case Description
A 69-year-old female presented in profound shock with altered mental status (GCS 3), severe HAGMA (pH 6.89, bicarbonate 5.5 mmol/L, lactate 14.6 mmol/L), oliguric acute kidney injury (creatinine 497 µmol/L), and chronic hyponatremia (114 mmol/L). Urgent continuous venovenous hemodialysis (CVVHD) was indicated, but only standard 140 mmol/L sodium dialysate was available. To restrict sodium correction to a safe threshold of <6 mmol/L per 24 hours, a concurrent systemic 5% Dextrose (D5%) infusion was initiated at a mathematically modeled rate of 257 mL/h. To prevent hypervolemia in this anuric, euvolemic patient, ultrafiltration on the CVVHD circuit was maintained in a 1:1 volumetric match with the D5% infusion.

Discussion
Over 48 hours, the protocol successfully normalized acid-base parameters (pH 7.42, lactate 2.3 mmol/L, bicarbonate 22.9 mmol/L) while constraining serum sodium elevation to a controlled 5–6 mmol/L per 24-hour period (reaching 124–126 mmol/L). Despite complete metabolic stabilization without neurological injury, the patient succumbed to a non-ST-elevation myocardial infarction complicated by refractory cardiogenic shock.

Conclusion
Combining continuous D5% co-infusion with matched ultrafiltration provides a scalable, bedside-manageable strategy to regulate sodium kinetics during CRRT. This approach mitigates ODS risk in hyper-acute settings without requiring delay-prone dialysate compounding.

Keyword: Continuous Renal Replacement Therapy, Hyponatremia, Osmotic Demyelination Syndrome, Metabolic Acidosis, Acute Kidney Injury

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ABSTRACT ID: A0149

Epidemiological Burden and Demographic Disparities in Primary Care Diagnostic Presentations: A Multi-Centre Electronic Medical Record Analysis

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Background
Primary care electronic medical record (EMR) provides critical real-world evidence for population health management and health service planning.
Objectives
To evaluate sociodemographic disparities in diagnostic presentations and determine adjusted demographic risks for major diagnostic categories among primary care attenders.
Methods
A retrospective cross-sectional study analysed Teleprimary Care and Oral Health Clinic Information System (TPC-OCHIS) data (February 2022–March 2023) across 14 Malaysian public health clinics. Diagnoses were categorized by ICD-10 chapters and ranked. Chi-Square tests assessed sociodemographic associations with diagnostic categories. Modified Poisson regression estimated adjusted risk ratios (aRR) for top diagnostic category, adjusting for age, gender, and ethnicity.
Results
Analysis included 194,130 visits across 143,571 unique patients (mean age 39.0, SD = 22.1 years; 54.6% female). Ethnicity comprised Malay (51.8%), Chinese (19.3%), Indian (17.5%), and others (11.4%). Respiratory diseases (19.5%) and endocrine, nutritional, and metabolic diseases (11.3%) were the leading diagnostic chapters. Heatmaps demonstrated distinct ethnic clustering: Chinese attenders had the highest relative proportion of endocrine disorders (20.5%), whereas respiratory diseases predominated in Indian (25.5%) and Malay (21.3%) attenders. Multivariable modified Poisson regression revealed Chinese attenders had significantly higher risk of presenting with endocrine disorders relative to Malay attenders (aRR = 1.15, p < 0.001). Age was the dominant predictor (aRR = 45.97 for ages 40–59; aRR = 64.97 for ages 60+ vs <18 years, p < 0.001). Females had elevated risk of endocrine conditions compared to males (aRR = 1.13, p < 0.001).
Conclusion
Demographic stratification reveals significant ethnic variations in primary care diagnostic presentation. Targeted health interventions should account for demographic risk profiles and age structure vriations.

Keyword: Primary Health Care, Electronic Medical Record, Epidemiology, Health Disparities, Malaysia

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ABSTRACT ID: A0153

Nutritional Composition and Bioactivity of Durio zibethinus: Potential Implications for Metabolic Health

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Background
Durio zibethinus (durian) is widely consumed in Southeast Asia and has attracted increasing scientific interest because of its nutritional composition and potential bioactive properties. Despite its nutritional value, its relatively high energy and sugar content has raised concerns regarding its potential effects on metabolic health. Therefore, this study aimed to evaluate the potential role of Durio zibethinus in metabolic health by examining its nutritional composition and bioactivities.

Methods (Search Strategy)
A narrative literature review was conducted using selected published sources from PubMed, Ebscohost, Scopus and ScienceDirect. The reviewed literature focused on the nutritional composition, bioactive compounds, antioxidant and anti-inflammatory activities, and potential metabolic effects of Durio zibethinus. The findings were thematically synthesised to identify potential relationships between the nutritional and bioactive characteristics of durian and its metabolic health outcomes.

Findings / Synthesis
The review indicated that Durio zibethinus contains carbohydrates, dietary fibre, protein, lipids, vitamins, minerals, and various bioactive compounds, including phenolic compounds and flavonoids. The fruit has demonstrated antioxidant and anti-inflammatory activities, which have been associated with its phenolic and other bioactive constituents. Available evidence suggests that durian may elicit a moderate glycaemic response, while experimental findings indicate potential effects on glucose regulation and lipid metabolism. However, much of the available evidence is derived from experimental or preclinical studies, and human clinical evidence remains limited.

Conclusion
Durio zibethinus exhibits promising nutritional and bioactive characteristics that may contribute to metabolic health. Nevertheless, its relatively high energy content highlights the importance of moderate consumption. Further well-designed clinical studies are required to establish its effects on metabolic health and to support evidence-based dietary recommendations.

Keyword: Durio zibethinus, metabolic health, nutritional composition, bioactive compounds, antioxidant activity

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ABSTRACT ID: A0154

Effects Of Zerumbone On Hypoxia-Induced Spheroid Formation of HCT 116 Colorectal Cancer Cells

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Background
Colorectal cancer (CRC) remains a major cause of cancer-related deaths, largely due to metastasis driven by cancer cell migration. Hypoxia in tumors may increase invasiveness of the cancer cells leading to metastasis. Zerumbone (ZER), derived from Zingiber zerumbet, has been shown to possess anticancer properties such as antiproliferative, pro-apoptotic and anti-metastatic characteristics including inhibition of cell migration and invasion. However, its effects under hypoxic conditions in 3D models remain unclear.

Objectives
This study evaluated the cytotoxic effects of ZER and its potential to suppress HCT116 colorectal cancer spheroid formation and invasion under normoxic and hypoxic conditions by assessing cell viability, spheroid size, and percentage of spheroid invasion.

Methods
Cells were seeded at the optimised density and treated with 25, 50, or 100 µM ZER for 24 or 48 hours under normoxic and hypoxic conditions. Cell viability was assessed using the trypan blue exclusion assay to determine the 20% and 50% inhibitory concentrations (IC_{20} and IC_{50}, respectively). Spheroid formation will be established with and without Matrigel. The effects of ZER on spheroid size between normoxic and hypoxic conditions were evaluated using Image J. Statistical analysis was performed using two-way ANOVA followed by Tukey's post hoc test.

Results
At 72 hours, ZER at both IC_{20} (p < 0.01) and IC_{50} (p < 0.05) significantly reduced spheroid size under normoxic conditions in the presence of Matrigel. In the absence of Matrigel, a significant reduction in spheroid size was observed only at IC_{20} (p < 0.05). ZER also significantly reduced spheroid invasion at both 48 and 72 hours, with reductions observed at IC_{20} (p < 0.001 and p < 0.0001, respectively) and IC_{50} (p < 0.01 and p < 0.001, respectively) compared with untreated spheroids.

Conclusion
ZER significantly inhibited HCT116 spheroid growth under normoxic conditions; however, no significant inhibitory effects were observed under DMOG-induced hypoxic conditions.

Keyword: Zerumbone (ZER), Colorectal Cancer(CRC), HCT 116 cells, Hypoxia, Spheroid formation

ABSTRACT ID: A0155

Anticancer Potential of Typhonium flagelliforme (Keladi Tikus): A Scoping Review of Preclinical Evidence, Molecular Mechanisms, Cancer Models, and Safety

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Background
Typhonium flagelliforme (Keladi Tikus), a medicinal plant widely used in Southeast Asia, has been investigated as a complementary therapy for cancer. Preclinical findings have been reported across different cancer models, plant preparations, experimental systems, and outcome measures, making the evidence difficult to interpret as a whole.
Methods (Search Strategy)
A scoping review approach was used to identify and map published evidence concerning T. flagelliforme and cancer. PubMed, Scopus, Google Scholar, and ResearchGate were searched for studies published between 2005 and 2025 using combinations of the terms “Typhonium flagelliforme”, “Keladi Tikus”, “anticancer”, “apoptosis”, “cytotoxicity”, and “cancer cell line”. Studies investigating T. flagelliforme or its isolated compounds using in vitro, in vivo, or in silico models and reporting anticancer activity, molecular mechanisms, or toxicity were eligible. Study selection and reporting were structured in accordance with the PRISMA Extension for Scoping Reviews (PRISMA-ScR).
Findings / Synthesis
The search identified 92 records. After removal of 40 duplicates, 52 records were screened, 18 full-text articles were assessed, and 6 studies were included. The mapped evidence covered breast, colon, cervical, leukemia, lymphoma, and breast cancer stem-cell models, as well as a chemically induced breast cancer animal model. Reported activities included induction of apoptosis, suppression of proliferation and telomerase activity, modulation of survival-related proteins, and chemo preventive effects. Available toxicity evidence suggested favourable short-term safety, although long-term toxicity, pharmacokinetics, bioavailability, optimal dosing, and clinical efficacy remain insufficiently characterized.
Conclusion
The existing literature indicates a broad but predominantly preclinical evidence base supporting investigation of T. flagelliforme as a source of anticancer bioactive compounds. The evidence is heterogeneous in plant preparation, experimental model, and outcome assessment. Future research should prioritize standardisation of extracts, identification and validation of active constituents and molecular targets, systematic safety assessment, and appropriately designed translational and clinical studies.

Keyword: Typhonium flagelliforme, Keladi Tikus, anticancer

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ABSTRACT ID: A0156

FIB-4 and APRI Show Limited Discrimination For Elevated Liver Stiffness in Chronic Hepatitis B: A Single-Centre Audit

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Background
Transient elastography (TE) and blood-based fibrosis scores may classify liver fibrosis differently in chronic hepatitis B (CHB), potentially affecting treatment decisions.
Aim / Objectives
To assess this discordance and identify untreated patients meeting 2025 European Association for the Study of the Liver (EASL) treatment indications.
Methods
We retrospectively audited 40 consecutive HBsAg-positive adults with reliable TE at a single centre from August 2025 to July 2026. Elevated liver stiffness was defined as liver stiffness measurement (LSM) >8 kPa, the 2025 EASL threshold corresponding to advanced liver disease. Discrimination of fibrosis-4 (FIB-4) and aspartate aminotransferase-to-platelet ratio index (APRI) for elevated LSM was evaluated using area under the receiver operating characteristic curve (AUROC) with 10,000-replicate bootstrap 95% confidence intervals (CIs); conventional FIB-4 thresholds were examined descriptively. Treatment eligibility was evaluated only among untreated patients because therapy alters HBV DNA and alanine aminotransferase.
Results
Median age was 56.5 years (IQR 46.5-66.3); 23 (57.5%) were women and 27 (67.5%) were receiving nucleos(t)ide analogue therapy. Elevated LSM was present in 17 (42.5%). FIB-4 and APRI had limited discrimination: AUROC 0.64 (95% CI 0.45-0.81) and 0.64 (95% CI 0.44-0.82), respectively. Of 17 patients with elevated LSM, 8 (47.1%) had FIB-4 3.25. Among 13 untreated patients, 2 (15.4%) met EASL treatment indications; both were HBeAg-positive, with HBV DNA 86.1×10^6 and 1.0×10^9 IU/mL.
Conclusion
In this FibroScan-referred cohort, FIB-4 and APRI had limited discrimination for elevated LSM, and nearly half above the EASL fibrosis threshold had FIB-4 <1.45. These findings caution against using blood-based scores alone when fibrosis staging guides treatment. Confirmation in larger, multicentre cohorts using pretreatment values is required.

Keyword: Chronic hepatitis B, transient elastography, liver fibrosis, treatment gap, non-invasive fibrosis

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ABSTRACT ID: A0157

Artificial amniotic fluid for obstetric simulation training: A systematic review on substance and simulation feasibility

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Background
Amniotic fluid is a vital in utero components to ensure the viability of the fetus and plays a role as a diagnostic and predictive marker of any fetal abnormalities. The benefit of artificial amniotic fluid have been demonstrated over the years for amnioinfusion treatment in certain obstetrics diagnosis. In addition, amniotic fluid also involved in many procedures such artificial or premature rupture of membrane, obstetric physical examination and amniocentesis which require hands on practices and precision by the healthcare workers in obstetric department. Hence this study focused on identifying and evaluating the most suitable substance used for making the artificial amniotic fluid and its feasibility for simulation training in obstetric clinical practices specifically for healthcare workers and medical students.

Methods (Search Strategy)
A database search was conducted on Scopus, PubMed, Cochrane and Ebsco. Specific search terms and keywords were applied across the database to identify all related and existing studies. The articles were screened thoroughly, and inclusion and exclusion criteria were implemented.

Findings / Synthesis
Around 30-40 studies included and key themes were extracted which consist of types of substances, the properties, indications or procedure for usage, advantages and disadvantages of the substances in the study.

Conclusion
This study serve as important marker in improving medical education and innovation and at the same time it highlights the importance and benefits of hands on clinical practice in developing clinical skill competencies.

Keyword: artificial amniotic fluid, substance, obstetric simulation, medical education

7th USIM INTERNATIONAL HEALTH CONFERENCE
TRANSFORMING HEALTH THROUGH INNOVATION

ABSTRACT ID: A0158

Integrative Transcriptomic Analysis Reveals Chemokine-Driven Immune Dysregulation in Pure Hypertension

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Background
Hypertensive disorders of pregnancy can impair placental function and contribute to adverse maternal and fetal outcomes. However, the molecular mechanisms underlying pure hypertension (HPT) in pregnancy remain less well characterized.

Objectives
This study aims to compare the differential gene expression profiles between Pure Hypertension patients and normotensive controls to identify potential biomarkers and molecular pathways involved in disease pathogenesis.

Methods
RNA sequencing and transcriptomic analysis was performed on placental samples from 3 HPT cases and 3 gestational age-matched normotensive controls. Differentially expressed genes (DEGs) were analyzed ($log_2FC > 1$, FDR < 0.05), followed by Gene Ontology (GO) and KEGG pathway enrichment GSEA in R package.

Results
Transcriptomic analysis revealed significant dysregulation of immune pathways and inflammatory process. The most prominent hypertension-associated signal was coordinated upregulation of Th1-type chemokines (CXCL9, CXCL10, CXCL11, CXCL13) and their receptor CXCR6, with GSEA confirming significant enrichment of CXCR3 chemokine receptor binding, chemokine-mediated signalling, and cytokine-mediated signalling pathways (p.adjust < 0.05). Immune receptor activity was significantly enriched, driven by upregulation of MHC class II genes (HLA-DRB6, HLA-DQA2, HLA-DPA1, HLA-DRA). Positive regulation of T cell and leukocyte activation, alongside lymphocyte mediated immunity, were enriched, reflecting heightened immune responses. Conversely, negative regulation of immune system process was also observed, suggesting a paradoxical immune activation and suppression state due to the upregulation of PD-L1 (CD274). Natural killer cell mediated immunity was enriched, driven by GNLY dysregulation. KEGG pathway enrichment confirmed activation chemokine signaling, antigen processing and presentation, cytokine-cytokine receptor interaction and cell adhesion molecules.

Conclusion
These findings suggest that HPT is associated with distinct placental gene expression changes characterized by a dominant vascular inflammatory signature driven by CXCR3-chemokine signaling and T cell activation, alongside paradoxical immune suppression. Identifying these molecular signatures could enhance early diagnostic strategies and therapeutic interventions.

Keyword: pure hypertension, pregnancy, gene expression, chemokine signaling, immune regulation

ABSTRACT ID: A0159

Exploring the Bone-Protective Effects of Ficus carica: From Molecular Regulation to Bone Biomechanics in Ovariectomized Rats.

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Background
Osteoporosis is a major skeletal disorder associated with increased fracture risk, particularly among postmenopausal women. Although current pharmacological treatments are effective, concerns regarding adverse effects associated with long-term use have prompted interest in alternative therapeutic approaches. Ficus carica (FC), commonly known as fig or 'buah tin', contains various bioactive compounds and essential minerals which may contribute to bone health.

Objectives
This study evaluated the bone-protective effects of FC by examining bone-related gene expression and biomechanical properties in a postmenopausal osteoporotic rat model.

Methods
Forty female Sprague Dawley rats were divided into five groups. Group I consisted of sham-operated rats, while Groups II–V were ovariectomized to induce a postmenopausal osteoporotic model. Groups I and II received distilled water (0.2 ml/100 g), Group III received estrogen replacement therapy (ERT; 64.5 µg/kg), and Groups IV and V received dried and raw figs, respectively, at 1000 mg/kg. All treatments were administered daily via oral gavage for 10 weeks. Following treatment, bone samples were harvested for analysis of bone-related gene expression and biomechanical properties.

Results
FC treatment significantly increased the expression of bone resorption-related genes, including RANKL, OPG, and CSF1, while showing an upward trend in bone formation-related genes, including Alp1, Col1a1, and Runx2. Biomechanical analysis demonstrated a significant increase in Young's modulus in FC-treated groups compared with the control group (p<0.05), whereas flexure strain was significantly lower in the treated groups. Both raw and dried FC demonstrated bone-protective potential, with FC supplementation showing potential to attenuate ovariectomy-induced alterations in bone biomechanical properties.

Conclusion
Ficus carica may exert bone-protective effects through modulation of bone-related gene expression and improvement of selected biomechanical properties in postmenopausal osteoporotic bone. The combined molecular and biomechanical findings support the potential of FC as a complementary natural approach for maintaining bone health, although further studies are warranted to elucidate its underlying mechanisms.

Keyword: Ficus carica, postmenopausal osteoporosis, bone biomechanics, gene expression

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ABSTRACT ID: A0160

The Users' Feedback on Ecocaldent Product (an Artificial Dental Calculus) Training Kit for Undergraduate Dental Students: A Preliminary Study

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Background

Root surface debridement (RSD) training using extracted teeth with natural dental calculus presents challenges, including difficulty obtaining suitable teeth, tooth mounting, infection-control concerns, and variability in calculus characteristics. Eco-Caldent, an artificial dental calculus training kit, was developed as an alternative for RSD training.

Objectives

This study aimed to evaluate dental students' experiences using Eco-Caldent in terms of application, root debridement, hardness, and resemblance to natural dental calculus; to compare their handling experience during RSD with natural dental calculus; and to identify areas for product improvement based on user feedback.

Methods

A cross-sectional study was conducted among 36 undergraduate dental students following practical exposure to Eco-Caldent. A structured questionnaire assessed hardness, adhesion, application, tactile feedback, ease of removal, comparison with natural dental calculus, perceived effectiveness, and recommendation. Descriptive statistics, reliability analysis, and Spearman's rank correlation were performed. Open-ended responses were reviewed to identify recurring areas for improvement.

Results

The mean overall realism/usability score was 3.89 ± 0.68. Most participants agreed or strongly agreed that Eco-Caldent provided straightforward application (94.4%), realistic tactile feedback (72.2%), appropriate hardness (63.9%), and adhesion (61.1%). Compared with natural dental calculus, 77.8% considered Eco-Caldent easier to remove and 55.6% reported better tactile feedback. Overall, 63.9% rated Eco-Caldent as moderately or very effective, while 80.6% recommended it for pre-clinical training. Realism/usability showed a strong positive correlation with perceived effectiveness (Spearman's ρ = 0.742, p < 0.001). Qualitative feedback highlighted ease of application and tactile characteristics as strengths, while hardness, adhesion, and curing consistency were identified for improvement. The questionnaire demonstrated acceptable internal consistency (Cronbach's α = 0.795).

Conclusion

Eco-Caldent demonstrated promising potential as an RSD training aid. Refinement of hardness, adhesion, and curing consistency may improve its resemblance to natural dental calculus and educational utility.

Keyword: artificial dental calculus, root surface debridement, dental education, innovation

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ABSTRACT ID: A0161

From Asymptomatic Transaminitis To Hy's Law: Severe Anti-Tuberculosis Drug-Induced Liver Injury During Latent Tuberculosis Treatment

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Background
Drug-induced liver injury (DILI) is a potentially severe complication of anti-tuberculosis therapy and an important cause of treatment interruption. In preventive treatment for latent tuberculosis infection, early recognition of hepatotoxicity is particularly important because treatment is given to otherwise asymptomatic individuals.

Case Description
A 46-year-old woman with latent tuberculosis infection developed mild liver enzyme derangement after initiation of a fixed-dose anti-tuberculosis (AKURIT) regimen, but treatment was continued. She later presented with progressive jaundice, markedly elevated aminotransferases and direct hyperbilirubinaemia, fulfilling biochemical criteria for Hy's Law. Concurrent Klebsiella pneumoniae urinary tract infection was identified. Coagulation parameters remained preserved, with no evidence of acute liver failure, and alternative causes of hepatitis were systematically excluded. Hepatotoxic anti-tuberculosis agents were promptly withdrawn, and she received intravenous N-acetylcysteine, supportive care and targeted antibiotic therapy, followed by marked clinical and biochemical improvement.

Discussion
This case demonstrates how early biochemical abnormalities may precede clinically significant anti-tuberculosis drug-induced liver injury. Continuing therapy despite evolving liver enzyme abnormalities may allow progression to severe hepatocellular injury. Fulfilment of Hy's Law signalled increased risk of a serious outcome, although timely drug withdrawal prevented progression to acute liver failure. The case is especially relevant to latent tuberculosis treatment, where the benefit-risk threshold for tolerating treatment-related toxicity should be conservative.

Conclusion
Vigilant biochemical monitoring, prompt recognition of early hepatotoxicity and timely interruption of suspected offending agents are essential during preventive tuberculosis therapy. Individualised benefit-risk assessment and adherence to monitoring thresholds may prevent progression from asymptomatic transaminitis to severe liver injury.

Keyword: Drug-induced liver injury, latent tuberculosis infection, anti-tuberculosis therapy, Hy's Law, pharmacovigilance

ABSTRACT ID: A0166

Chromatographic Characterisation and Analytical Profiling of Ethanolic Nigella sativa Extract From Makassar, Indonesia Using RP-HPLC

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Background
Nigella sativa is a medicinal plant containing diverse bioactive phytochemicals, particularly thymoquinone. Establishing its chromatographic profile is important for phytochemical characterisation and analytical quality assessment. Reversed-phase high-performance liquid chromatography (RP-HPLC) is widely used chromatographic technique forcharacterising compounds in complex plant extracts. This allows for comparison of chromatographic patterns and retention characteristics.

Objectives
This study aimed to characterise the chromatographic profile of ethanolic Nigella sativa extract using RP-HPLC and to evaluate the presence of a major chromatographic peak tentatively attributable to thymoquinone based on its retention characteristics and published HPLC data.

Methods
Ground N. sativa extract was obtained from a local market in Makassar, Indonesia. Ethanolic N. sativa extract was prepared from 200 g of seeds. For HPLC analysis, 10 mg of extract was dissolved in HPLC-grade methanol and made up to 10 mL to obtain a 1000 ppm stock solution, followed by dilution to 100 ppm. The solutions were sonicated for 20 minutes and filtered. Chromatographic separation was performed using a C18 column with methanol: water (70:30, v/v) at 1.0 mL/min under isocratic conditions. The column temperature was maintained at 30 °C, with an injection volume of 20 uL and UV detection at 254 nm.

Results
A prominent peak was detected at 9.885 minutes in the 100 ppm sample, with an area of 1.2915 mAU-min and height of 5.65 mAU. At 1000 ppm, the corresponding peak appeared at 9.917 minutes, with an area of 11.8740 mAU-min and height of 52.92 mAU. The peak was tentatively attributed to thymoquinone based on its chromatographic characteristics and published data.

Conclusion
Ethanolic N. sativa extract demonstrated a consistent and concentration-responsive chromatographic profile, with a prominent peak at approximately 9.9 minutes, providing preliminary evidence for the presence of thymoquinone and a basis for further confirmatory and quantitative analysis.

Keyword: Nigella sativa, thymoquinone, RP-HPLC, chromatographic profile, phytochemical characterisation

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ABSTRACT ID: A0167

Isolation and Identification of Germs from Tilapia at the Koi Comet Pearl Business, Balang Baru Village, Tamalate District, Makassar City 2024

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Background
Bacterial infections are a significant problem in tilapia cultivation and can have an impact on fish health and production. Identification of bacteria associated with the digestive tract is essential to understand the bacterial profile of cultivated tilapia and support appropriate disease prevention strategies.

Objective
Therefore, this study aims to isolate and identify bacteria from the intestines of tilapia that have the potential to be disease-causing germs in tilapia cultivated at the Komet Koi Mutiara Business, Balang Baru Village, Tamalate District, Makassar City.

Methods
A total of 27 tilapia intestinal samples were examined using culture and biochemical identification methods. Samples were cultured on Nutrient Agar and MacConkey Agar and incubated at 37°C for 24 hours. Bacterial isolates were characterized based on colony morphology, Gram staining, and biochemical tests, including Triple Sugar Iron Agar (TSIA), catalase, and mannitol tests.

Results
Bacterial growth was detected in 22 of 27 samples (81.5%), while 5 samples (18.5%) showed no growth. No contamination was observed. Among the 22 positive samples, 14 yielded Gram-negative bacilli and 8 yielded Gram-positive cocci. Gram-negative bacteria identified included *Aeromonas hydrophila, Klebsiella sp., Proteus mirabilis, Proteus vulgaris, Enterobacter sp.,* and *Pseudomonas sp. Aeromonas hydrophila* was the most common Gram-negative isolate (6/14; 42.9%), followed by *Pseudomonas sp.* (3/14; 21.4%), *Proteus vulgaris* (2/14; 14.3%), and *Klebsiella sp., Proteus mirabilis,* and *Enterobacter sp.* (1/14; 7.1% each). Gram-positive isolates included *Staphylococcus sp., Corynebacterium sp., Listeria sp.,* and *Streptococcus sp.*

Conclusion
Tilapia intestines harboured diverse bacterial species, including potentially opportunistic or pathogenic bacteria such as Aeromonas hydrophila. These findings highlight the importance of bacterial monitoring in tilapia farming to support fish health and disease prevention.

Keyword: Bacterial Isolation, Tilapia Intestine, Pathogenic Bacteria, *Streptococcus agalactie,* Bacterial isolation

ABSTRACT ID: A0168

Anthelmintic Potential of Nigella sativa and Thymoquinone Against Soil-Transmitted Helminths: A Scoping Review of Preclinical and Clinical Evidence

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Background

Soil-transmitted helminth (STH) infections, including ascariasis, trichuriasis, and hookworm disease, remain among the most prevalent neglected tropical diseases worldwide. Current control strategies rely primarily on benzimidazole anthelmintics, particularly albendazole and mebendazole; however, variable efficacy against some helminth species and concerns regarding emerging drug resistance have increased interest in alternative therapies. Some investigators explore ethno-religious knowledge for natural compounds with potential anthelmintic activity. One such plant is Nigella sativa where its black seed is purported to be a cure for all diseases. With its principle bioactive compound thymoquinone identified as being responsible for its nutraceutical effects, its antihelmintic effect remain anecdotal

Methods (Search Strategy)

A scoping review was conducted following the Arksey and O'Malley framework and reported according to the PRISMA-ScR guidelines. Literature was searched in PubMed/MEDLINE, ScienceDirect, PLOS, Cambridge Core, SciELO, and additional publisher databases, with citation tracking performed without restricting study design

Findings / Synthesis

No controlled clinical study directly evaluated Nigella sativaor thymoquinone against human STH infections. Available evidence comprised in vitro studies assessing worm motility, mortality, and lethal concentrations, in vivo animal studies measuring egg-per-gram and faecal egg count reduction, one historical clinical study involving cestode infection, and mechanistic studies indicating oxidative stress induction, neuromuscular dysfunction, and cuticular disruption as potential mechanisms

Conclusion

Preclinical findings support the anthelmintic potential of Nigella sativa and thymoquinone; however, direct clinical evidence for human STH infections is lacking. Well-designed translational studies are needed to establish their efficacy, safety, and mechanisms of action.

Keyword: Nigella sativa, thymoquinone, anthelmintic, soil-transmitted helminths, scoping review

ABSTRACT ID: A0169

Recurrent larva currens: A case report

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Background
Larva currens is a characteristic cutaneous manifestation of Strongyloides stercoralis infection caused by the rapid migration of autoinfective larvae through the skin. It typically presents as intensely pruritic, erythematous, serpiginous or urticarial lesions that characteristically advance rapidly, and may be mistaken for other inflammatory or parasitic dermatoses.

Case Description
We report a case of recurrent larva currens in a 44-year-old oil palm plantation worker who presented with severe pruritic skin lesions of six days duration. The patient had experienced a similar episode approximately three months earlier which was casually treated symptomatically by GPs. Examination revealed extensive erythematous, serpiginous and irregularly configured lesions involving the left upper chest, shoulder and back . His occupation involved frequent exposure to soil in an oil palm plantation often resting/ sleeping on the ground during breaks. providing a potential source of S. stercoralis infection. The rapidly migrating, severely pruritic, characteristic serpiginous morphology and extensive distribution of the lesions should raise clinical suspicion of larva currens where delay in correct diagnosis may result in severe complications such as larval hyperinfection syndrome which is fatal.

Discussion
His occupation involved frequent exposure to soil in an oil palm plantation often resting/ sleeping on the ground during breaks. providing a potential source of S. stercoralis infection. The rapidly migrating, severely pruritic, characteristic serpiginous morphology and extensive distribution of the lesions should raise clinical suspicion of larva currens where delay in correct diagnosis may result in severe complications such as larval hyperinfection syndrome which is fatal. This case highlights the importance of recognising larva currens as a distinct cutaneous manifestation of strongyloidiasis and differentiating it from cutaneous larva migrans and other pruritic dermatoses.

Conclusion
In tropical and rural settings, recurrent rapidly migrating serpiginous skin lesions in individuals with significant soil exposure should prompt consideration of S. stercoralis infection with appropriate management and referral.

Keyword: larva currens, Strongyloides stercoralis, strongyloidiasis, serpiginous rash

ABSTRACT ID: A0170

Atypical cutaneous larva migrans

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Background
Cutaneous larva migrans (CLM) is a common zoonotic dermatosis in tropical regions, typically caused by the percutaneous penetration and migration of animal hookworm larvae, particularly Ancylostoma braziliense and Ancylostoma caninum. Although lesions commonly occur on the feet and lower limbs, atypical presentations may result in diagnostic challenges.

Case Description
We report a case of CLM complicated by secondary skin infection following extensive scratching in a 34-year-old Malay man from Dabong, Kelantan. The patient was regularly involved in clearing agricultural land. He presented with a four-day history of severe pruritic rashes involving both upper limbs and the left lower hypochondrium. Clinical examination demonstrated pruritic serpiginous lesions with excoriation and features of secondary skin infection attributed to vigorous scratching. A clinical diagnosis of CLM with secondary infection was made. He was treated with oral albendazole 800 mg twice daily for three days, amoxicillin-clavulanate 625 mg twice daily for five days and dexchlorpheniramine 2 mg three times daily for four days.

Discussion
This case highlights the importance of recognising CLM in individuals with occupational soil exposure, even when lesions occur at atypical anatomical sites. Severe pruritus may result in significant excoriation and secondary bacterial infection, further obscuring the characteristic morphology and complicating diagnosis.

Conclusion
A careful occupational history and recognition of the characteristic clinical features are essential for timely diagnosis and appropriate management of atypical cases of CLM.

Keyword: cutaneous larva migrans, atypical, secondary infection

ABSTRACT ID: A0171

The Role of Lavender Aromatherapy in Preoperative Anxiety: A Structured Narrative Review

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Background

Preoperative anxiety can cause physiological instability and affect postoperative recovery. Lavender aromatherapy is a non-pharmacological intervention, but clinical evidence remains heterogeneous. This review aims to examine lavender aromatherapy for preoperative anxiety by summarising its proposed mechanisms, clinical outcomes and evidence gaps.

Methods (Search Strategy)

PubMed, Scopus and Google Scholar were searched for English-language clinical studies published from 2020 to 2025 that evaluated inhaled lavender for preoperative or preprocedural anxiety using a measurable anxiety scale. Case reports and studies that did not meet these criteria were excluded. Following title and abstract screening and full-text assessment, eight studies were included in this structured narrative review.

Findings / Synthesis

The studies covered cataract, urological, ear and orthopaedic surgery, endoscopic retrograde cholangiopancreatography, image-guided biopsy and interventional spine procedures. Six were randomised controlled trials, one quasi-experimental study and one pre-experimental study. Anxiety was assessed using the State-Trait Anxiety Inventory, Visual Analogue Scale or Hamilton Anxiety Rating Scale. Seven studies reported reductions in anxiety across these measures. However, in the image-guided biopsy study, anxiety improved in both multi-aroma patch and placebo groups, preventing attribution to lavender. Physiological findings were inconsistent: some studies reported improvements in respiratory rate, pulse, blood pressure, pain or oxygen saturation, whereas others found no between-group differences in vital signs. Studies also reported fewer vasovagal episodes, aborted procedures and reduced propofol requirements. Proposed mechanisms involve olfactory-limbic, GABAergic and autonomic pathways, although they were not directly tested in the included trials. Interpretation was limited by heterogeneity in lavender preparation, dose, exposure time, comparator, procedure type, outcome measures, and study design, as well as by difficulty in blinding participants to odour.

Conclusion

Lavender aromatherapy is a promising complementary approach for preoperative anxiety, but the heterogeneous and limited evidence preclude firm conclusions. Well-designed, adequately powered trials using standardised preparations, administration protocols and outcome measures are required to establish its clinical benefit and safety.

Keyword: Lavender, preoperative anxiety, aromatherapy

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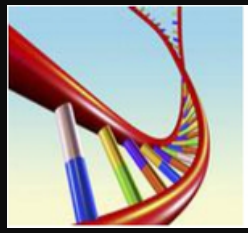

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