



Faculty of Medical Sciences
University of Sri Jayewardenepura



ICM FMS USJ 2026

INTERNATIONAL CONFERENCE ON MEDICAL SCIENCES

“Spectrum of Medical Sciences: Integrating
Research, Innovation and Global Health”

BOOK OF PROCEEDINGS

9th & 10th September 2026

Golden Rose, Boralesgamuwa



9th & 10th September 2026

Golden Rose, Boralesgamuwa

Organized by
Research Committee,
Faculty of Medical Sciences,
University of Sri Jayewardenepura

“Spectrum of Medical Sciences: Integrating Research,
Innovation and Global Health”

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It is with great pleasure that I convey my greetings to the organizers, academics, researchers, speakers, and delegates participating in the **International Conference on Medical Sciences (ICM) 2026**, organized by the Research Committee of the Faculty of Medical Sciences, University of Sri Jayewardenepura.

Research and innovation are central to advancing medical sciences and addressing the healthcare challenges of our time. The theme of this year's conference, **“Spectrum of Medical Sciences: Integrating Research, Innovation and Global Health,”** reflects the importance of interdisciplinary collaboration and the translation of research into meaningful healthcare outcomes.

The Faculty of Medical Sciences continues to contribute to the University's research culture through scientific inquiry, collaboration, and engagement with national and international research communities. ICM 2026 provides an important platform for sharing knowledge, strengthening research partnerships, and encouraging innovation in medical sciences.

I commend the Dean, the Research Committee, the organizing committee, academic staff, speakers, presenters, and all contributors for their efforts in organizing this conference. I am confident that ICM 2026 will further strengthen the University's contribution to medical research and education.

I wish the **International Conference on Medical Sciences 2026** every success and all participants a productive and rewarding conference.

*Senior Professor Upul Subasinghe
Vice Chancellor
University of Sri Jayewardenepura*



It is a great pleasure and privilege to extend my warmest greetings to all distinguished speakers, delegates, researchers, healthcare professionals, students, and partners participating in this conference.

Scientific conferences provide an important platform not only for sharing new knowledge, but also for challenging established thinking, building professional networks, and translating scientific evidence into meaningful improvements in health and practice. At a time when obesity, diabetes, cardiovascular disease, and other metabolic conditions continue to place a substantial burden on individuals, families, and healthcare systems, opportunities for multidisciplinary scientific exchange have become increasingly important.

Nutrition and metabolism are inherently complex. Health outcomes are shaped by interactions among dietary patterns, physical activity, body composition, genetics, metabolic responses, behaviour, culture, environment, and socioeconomic circumstances. Advances in science are also moving us beyond broad population-level recommendations towards a better understanding of individual variability and the potential role of precision and personalised approaches. Nevertheless, innovation must remain firmly grounded in robust scientific evidence and ultimately be translated into practical, accessible, and culturally appropriate strategies for the communities we serve.

I particularly encourage our young researchers and students to take full advantage of this conference. Engage with established scientists, ask questions, exchange ideas, and develop collaborations beyond your own disciplines and institutions. The future of nutrition and metabolic health will depend on our ability to nurture the next generation of scientists and practitioners who are both scientifically rigorous and responsive to emerging public health challenges.

I commend the Organising and Scientific Committees for bringing together experts from diverse disciplines and creating a platform for meaningful scientific dialogue and collaboration. Such initiatives strengthen the bridge between research, clinical practice, public health, and policy.

I sincerely hope the discussions and connections established during this conference will extend well beyond the meeting itself and lead to new collaborations, innovative research, and improved approaches to metabolic health. I wish all participants a productive, stimulating, and memorable conference.

"May the science we share today shape the healthier communities of tomorrow."

Prof. Dr Mahenderan Appukutty

President, Nutrition Society of Malaysia (NSM)



The International Conference on Medical Sciences 2026 (ICM 2026), organised by the Research Committee of the Faculty of Medical Sciences, reflects our continued commitment to advancing research, innovation and academic excellence within the medical sciences.

Guided by the timely theme “Spectrum of Medical Sciences: Integrating Research, Innovation and Global Health,” this conference provides an excellent platform for academics, clinicians, researchers, postgraduate trainees and students to share scientific knowledge, showcase original research, and engage in meaningful academic dialogue with both national and international audiences. The theme reflects the increasingly interconnected nature of contemporary healthcare and highlights the importance of bringing together diverse disciplines to address emerging health challenges through research and innovation.

It is particularly noteworthy that this year’s conference features internationally renowned speakers, focused scientific symposia, oral and poster presentations, the Faculty of Medical Sciences Oration, and oral communications including rapid pitch thesis challenge. These initiatives provide valuable opportunities for participants to strengthen their scientific communication skills, promote multidisciplinary engagement and inspire the next generation of researchers.

ICM 2026 also reinforces our belief that research and innovation are fundamental to the advancement of medical education and healthcare. By facilitating the exchange of knowledge and ideas across disciplines and geographical boundaries, we hope to encourage meaningful collaborations and research that can be translated into improved health outcomes locally and globally.

I take this opportunity to acknowledge the dedication and commitment of the Research Committee in organising this international academic event. I also extend my sincere appreciation to the invited speakers, orator, and all the researchers whose expertise and contributions have made this conference possible.

I hope that ICM 2026 will inspire new ideas, foster lasting collaborations and further strengthen the culture of research and innovation within our faculty and beyond.

*Professor Manori Gamage
Dean, Faculty of Medical Sciences
University of Sri Jayewardenepura*



It is with great pleasure that I write this message to the book of proceedings of International Conference on Medical Sciences 2026 (ICM 2026), organised by the Research Committee of the Faculty of Medical Sciences, University of Sri Jayewardenepura.

This year's conference is held under the theme "Spectrum of Medical Sciences: Integrating Research, Innovation and Global Health," reflecting our commitment to advancing scientific discovery, promoting interdisciplinary collaboration, and translating research into improved health outcomes. ICM 2026 brings together researchers, clinicians, academics, postgraduate trainees, students and healthcare professionals from Sri Lanka and abroad to share innovative research, exchange ideas and establish lasting collaborations that address contemporary healthcare challenges.

The scientific programme has been carefully designed to provide a vibrant platform for academic exchange through keynote and plenary lectures by internationally renowned experts, focused symposia, oral and poster presentations and rapid thesis challenge.

This conference is the result of the dedication and collective effort of many individuals. I extend my sincere gratitude to the Vice Chancellor, Senior Professor Upul Subasinghe, and the Dean of the Faculty of Medical Sciences, Professor Manori Gamage, for their unwavering encouragement and support. My heartfelt appreciation also goes to our distinguished international and local speakers, reviewers, session chairs and judges, whose expertise and generous contributions have been invaluable in maintaining the high academic standards of the conference.

I am especially grateful to the members of the Research Committee and Organising Committee for their exceptional commitment and tireless efforts in planning and coordinating every aspect of this conference. A special note of thanks is also extended to our sponsors for their generous support, which has been instrumental in making ICM 2026 a reality.

I trust that ICM 2026 will inspire new ideas, foster enduring collaborations and further strengthen the role of research in improving healthcare and advancing medical science.

*Professor Chandima Kulathilake
Chairperson, Research Committee
Faculty of Medical Sciences
University of Sri Jayewardenepura*

INAUGURATION CEREMONY OF ICM 2026

Wednesday 9th September 2026

At Golden Rose, Boralesgamuwa, Sri Lanka

Time	Programme
5:30 pm	Invitees Take Their Seats
6:00 pm	Ceremonial Procession
6:05 pm	University Anthem and Lighting of the Oil Lamp
6:20 pm	Welcome Address Prof. Chandima Kulathilake <i>Chairperson, Research Committee, Faculty of Medical Sciences (FMS), University of Sri Jayewardenepura</i>
6:30 pm	Address by the Dean Prof. Manori Gamage <i>Dean, FMS, University of Sri Jayewardenepura</i>
6:40 pm	Address by the Guest of Honour Prof. Mahenderan Appukutty <i>President, Nutrition Society of Malaysia</i>
6:50 pm	Address by the Chief Guest Senior Professor Upul Subasinghe <i>Vice Chancellor, University of Sri Jayewardenepura</i>
7:00 pm	Faculty of Medical Sciences Oration 2026 Title: “Severe Leptospirosis in Sri Lanka: Unravelling Clinical Phenotypes, Improving Diagnosis and Exploring Disease Mechanisms” Prof. Nilanka Perera <i>Department of Medicine, FMS, University of Sri Jayewardenepura</i>
7:45 pm	Vote of Thanks Dr. Udara Senarathne <i>Secretary, Research Committee, FMS, University of Sri Jayewardenepura</i>
7:55 pm	Cultural Performance
8:15 pm	National Anthem
8:20 pm	Ceremonial Procession Leaves the Hall
8:25 pm	Reception

ICM 2026 SCIENTIFIC PROGRAMME

Thursday 10th September 2026
At Golden Rose, Boralesgamuwa, Sri Lanka

07.30 am	REGISTRATION	
08.15 am – 09.15 am	ORAL COMMUNICATIONS 1	
09.15 am – 10.00 am	KEYNOTE ADDRESS Treatment and Prevention of HIV Infection: A Modern-Day Medical Miracle <i>Prof. Abraham Ooriapadickal Cherian</i> <i>Christian Medical College, Vellore, India.</i>	
10.00 am – 10.30 am	TEA BREAK	POSTER VIEWING
10.30 am – 11.00 am	PLENARY LECTURE Themes of Defying Death <i>Dr. Mevan Wijetunga</i> <i>University of North Dakota School of Medicine, USA.</i>	
11.00 am – 12.30 pm	SYMPOSIUM 1: DERMATOLOGY IN PRIMARY CARE Cutaneous Leishmaniasis: Decoding the Clinical Puzzle <i>Prof. Susanne Alexander Pulimood</i> <i>Christian Medical College Vellore, India.</i> Leprosy: Lest We Forget <i>Dr. Indira Kahawita</i> <i>National Hospital of Sri Lanka.</i> Don't Miss the Fungus: Recognizing and Treating Superficial Mycoses in General Practice <i>Dr. Primali Jayasekera</i> <i>Department of Mycology, Medical Research Institute, Colombo, Sri Lanka.</i>	

12.30 pm – 01.30 pm	ORAL COMMUNICATIONS 2	
01.30 pm – 02.30 pm	LUNCH	POSTER VIEWING
02.30 pm – 04.00 pm	SYMPOSIUM 2: NUTRITION AND METABOLIC HEALTH IN PRACTICE From Vegetarian Dietary Patterns to Precision Nutrition: Malaysian Insights into Body Composition and Metabolic Health <i>Prof. Mahenderan Appukutty</i> <i>Faculty of Sports Science and Recreation, Universiti Teknologi MARA (UiTM), Malaysia.</i> Nutrition for Strength and Endurance: Facts vs Myths <i>Prof. Ranil Jayawardena</i> <i>Department of Physiology, Faculty of Medicine, University of Colombo, Sri Lanka.</i> Functional Foods for Optimal Health and Disease Prevention <i>Prof. Anoma Chandrasekara</i> <i>Department of Nutrition and Dietetics, Faculty of Livestock Fisheries and Nutrition, Wayamba University of Sri Lanka.</i>	
04.00 pm – 04.30 pm	RAPID PITCH THESIS CHALLENGE	
04.30 pm – 05.00 pm	CLOSING CEREMONY	

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Synthesis, characterisation, and evaluation of antibacterial potential of piperine-functionalised zinc oxide nanocomposites for biomedical applications

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Evaluation of bioactivity and mineralisation of zinc oxide-hydroxyapatite composites modified with *Aloe vera* in simulated body fluid

I.F. Zamhara, T.P. Gamagedera

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Silent suffering: self-stigma and psychological distress among caregivers of people with schizophrenia

R.B. Hapuarachchi, S. Suthakaran, H.M.U.G.A.S. Herath, C.M.C.A. Senevirathna

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R. Rathwita, I.U. Kumara, R.M.K.M.K. Rathnayaka, D. Chiranthika, D. Madegedara, D.N. Magana-Arachchi

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Combined action observation and motor imagery for upper extremity motor recovery during stroke rehabilitation: a gender-based analysis

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FACULTY OF MEDICAL SCIENCES ORATION 2026

SEVERE LEPTOSPIROSIS IN SRI LANKA: UNRAVELLING CLINICAL PHENOTYPES, IMPROVING DIAGNOSIS AND EXPLORING DISEASE MECHANISMS



Professor Nilanka Perera

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Leptospirosis remains one of the most important zoonotic infections in tropical regions and continues to cause substantial morbidity and mortality in Sri Lanka. Despite advances in supportive care, severe disease manifestations such as pulmonary haemorrhage and multi-organ failure are associated with mortality rates exceeding 30%, while limitations in rapid diagnosis and incomplete understanding of disease pathogenesis continue to hinder optimal patient management. This body of work represents a series of clinical and translational research studies conducted over the past five years aimed at improving the diagnosis, characterization and management of leptospirosis in Sri Lanka.

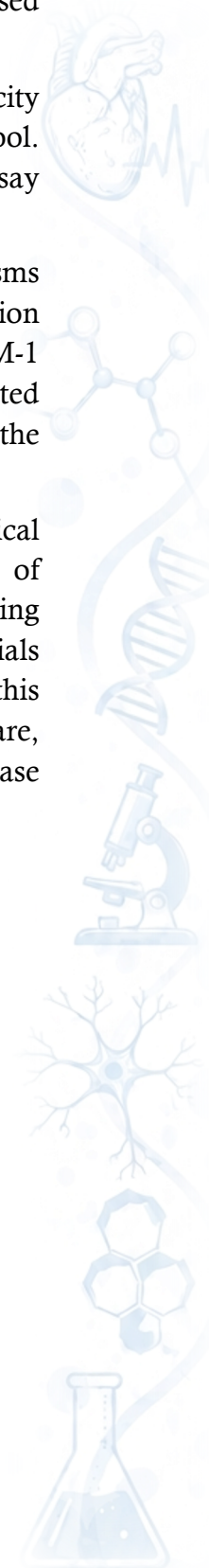
The first component of this research focused on defining the clinical spectrum and outcomes of severe leptospirosis. A prospective intensive care cohort study identified distinct clinical phenotypes of severe disease, demonstrating that patients with isolated pulmonary haemorrhage and those with multi-organ failure experienced the highest mortality. These findings highlight the heterogeneity of severe leptospirosis and support the adoption of phenotype-based approaches to patient management. Subsequent investigations explored neurological manifestations of leptospirosis. Through a multicentre study of patients presenting with meningitis, meningoencephalitis and encephalitis, leptospirosis was identified as an important and under-recognised cause of primary central nervous system infection in endemic regions. The study demonstrated that neuroleptospirosis may occur in the absence of classical systemic manifestations and should be routinely considered in the diagnostic evaluation of CNS infections in Sri Lanka.

Recognising the urgent need for accessible diagnostics, the second research theme evaluated rapid diagnostic tests for clinical use. A prospective validation study compared the performance of the STANDARD Q *Leptospira* IgM/IgG assay with the widely used Leptocheck-WB test.

The STANDARD Q assay demonstrated comparable sensitivity but superior specificity and positive predictive value, supporting its adoption as a useful bedside diagnostic tool. This work contributed to regulatory approval and subsequent availability of the assay within the state health sector.

The final research theme investigated disease pathogenesis, particularly mechanisms underlying severe pulmonary disease. Studies evaluating endothelial activation demonstrated significantly elevated concentrations of soluble E-selectin and ICAM-1 among patients with leptospirosis. Importantly, elevated E-selectin levels were associated with mortality, suggesting a potential role as a prognostic biomarker and supporting the hypothesis that endothelial dysfunction contributes to severe disease manifestations.

Collectively, these studies provide new insights into the clinical phenotypes, neurological manifestations, diagnostic approaches and pathophysiological mechanisms of leptospirosis. The findings establish a platform for future translational research, including ongoing investigations into endothelial injury and planned pragmatic clinical trials evaluating therapies for leptospirosis pulmonary haemorrhage syndrome. Ultimately, this work seeks to bridge the gap between bedside observation and evidence-based patient care, contributing to improved outcomes for patients affected by this neglected tropical disease in Sri Lanka and other endemic regions.



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Abstracts of Guest Lectures

TREATMENT AND PREVENTION OF HIV INFECTION: A MODERN-DAY MEDICAL MIRACLE

Prof. O.C. Abraham

Acquired Immunodeficiency Syndrome (AIDS) was described in 1981 among young men who developed unusual opportunistic infections. The causative agent, Human Immunodeficiency Virus (HIV) was discovered in 1983. The first licensed drug for treatment of HIV infection, azidothymidine (AZT) was introduced in 1987. However, the benefits from AZT were short-lived, and the drug had major side effects. The first major breakthrough in treatment of HIV infection came in 1996 when combination of different classes of anti-retroviral drugs, typically a protease inhibitor (PI) combined with two nucleoside reverse transcriptase inhibitors (NRTI), was shown to suppress viral replication to undetectable levels, and prolong survival among people living with HIV (PLWH). However, these regimens were plagued by problems of intolerable side effects, complicated dosing schedules and pill burden.

Currently available antiretroviral treatment (ART) regimens are potent (able to suppress HIV replication and avoid HIV-related morbidity and mortality), well-tolerated without major adverse effects, and are available as single-tablets. ART also eliminates both horizontal (sexual) and vertical (mother-to-child) transmission of HIV. The most widely used ART regimens today are a combination of integrase strand transfer inhibitors (integrase inhibitors) (dolutegravir or bictegravir) combined with two NRTIs, typically tenofovir with either emtricitabine or lamivudine.

Commitment by the UN General Assembly in 2006, improved funding (PEPFAR, Global Fund etc.), simplified ART regimens, and availability of inexpensive generic drugs ensured access to these miracle drugs even in resource-limited settings in Africa and Asia.

PLWH can look forward to a near-normal life expectancy with early diagnosis of HIV infection (before CD4 T-lymphocyte counts drop to low levels and symptoms on advanced immunodeficiency sets in), access to ART, remain adherent to ART and achieve suppression of HIV replication.

The challenges in eliminating the HIV epidemic include preventable new infections, AIDS-related deaths, and the lack of a permanent cure necessitating life-long treatment.

THEMES OF DEFYING DEATH

Dr. Mevan Wijetunga

Cardiovascular disease remains the leading cause of death worldwide, yet the history of modern cardiovascular medicine is also a remarkable story of lives prolonged and premature deaths prevented.

The evolution of cardiovascular prevention was founded on the recognition of major modifiable risk factors, including hypertension, dyslipidemia, smoking, diabetes, obesity, and physical inactivity. This understanding was followed by increasingly effective strategies for primary and secondary prevention and treatment. Advances in population science, pharmacotherapy, revascularization, heart failure management, electrophysiology, and sudden cardiac death prevention have contributed to substantial reductions in age-adjusted cardiovascular mortality in many parts of the world.

This progress must be considered alongside the contemporary cardiovascular burden in Sri Lanka and the vulnerability of South Asian populations to premature cardiometabolic disease. Emerging research into metabolic risk, visceral adiposity, lipoprotein(a), genetics, imaging, and other biomarkers offers opportunities to refine risk prediction beyond traditional models. At the same time, major gains remain possible through improved detection and control of established risk factors at the population level.

Sri Lanka is therefore well positioned to pursue both precision cardiovascular research and pragmatic public-health interventions, including prospective cohort studies, improved risk stratification, earlier detection of subclinical disease, and implementation research aimed at translating established therapies into broader and more effective prevention.

Framed by the enduring human impulse to resist mortality, a theme that has also found expression in Sri Lankan literature, the presentation considers the continuing effort of medicine to defy premature death. Medicine cannot abolish death, but through science, prevention, and discovery, it can continue to give life more time.

SYMPOSIUM 1: DERMATOLOGY IN PRIMARY CARE

CUTANEOUS LEISHMANIASIS: DECODING THE CLINICAL PUZZLE

Prof. Susanne Alexander Pulimood

WHO has termed cutaneous leishmaniasis an emerging, uncontrolled, and neglected tropical disease. Cutaneous leishmaniasis, a vector-borne infection caused by the protozoan parasite *Leishmania*, is transmitted by female sandflies (*Phlebotomus* and *Lutzomyia*), which usually bite at dusk or dawn.

Cutaneous leishmaniasis (CL) includes localised cutaneous leishmaniasis, characterised by crusted papules or cutaneous ulcers on exposed areas, sometimes accompanied by satellite lesions and, rarely, nodular lymphangitis resulting in a sporotrichoid distribution; mucocutaneous leishmaniasis (MCL) involves the mucosa and underlying connective tissues, including cartilage structures, in combination with CL. Diffuse CL and disseminated CL are rare presentations. Diffuse CL is caused by anergy to *Leishmania* and a lack of T-cell-mediated immunity, resulting in numerous papules or nodules and infiltrated lesions, typically non-ulcerating, whereas Disseminated CL is characterised by a strong T-cell hypersensitivity immune response; with inflammatory papules, nodules or ulcers, with at least ten lesions, in at least two non-contiguous areas.

Post-kala-azar dermal leishmaniasis results from an immune response to the parasite years after visceral leishmaniasis and can range from papules and nodules to plaques, hypopigmented macules, and, less commonly, mucosal involvement.

There is a wide range of differential diagnoses based on the presentation and geographical area, including tuberculous and atypical mycobacterial infections, leprosy, deep and subcutaneous fungal infections, syphilis, and carcinomas. Molecular diagnostics for *Leishmania* species determination is key to the clinical management of cutaneous leishmaniasis, but is unavailable in many resource-poor endemic settings. Diagnosis is usually made on clinical grounds in endemic areas. Direct parasitological diagnosis can be performed using tissue smears, histopathology, or in vitro parasite culture from specimens obtained from suspected lesions. The specimen should be taken after removing exudates and eschars, and these methods also help to rule in or out other differential diagnoses. Serology is not widely used to diagnose CL because the humoral response to the infection is poor, resulting in low test sensitivity.

Cutaneous leishmaniasis can self-heal, leaving scars. Treatment options vary from physical methods to topical and systemic therapy. Pentavalent antimonials (sodium stibogluconate or meglumine antimoniate) remain the first treatment option for CL in most countries. Alternative treatment regimens include miltefosine, pentamidine isethionate, amphotericin B, antifungal agents (ketoconazole, fluconazole, itraconazole), paromomycin, and heat therapy or cryotherapy.

Prevention of sandfly bites is key to reducing the incidence. Using insect repellents, protective clothing, and restricting outdoor activities during periods of risk are important, especially since no vaccine is available.

LEPROSY: LEST WE FORGET

Dr. Indira Kahawita

Sri Lanka continues to be listed among the WHO priority countries for leprosy, with approximately 1500 new cases being reported annually, over 10% of them being children below 15 years of age.

Active case finding activities like household contact examination, ring surveys and house to house surveys are being conducted in selected areas. However, the majority of new cases are still being diagnosed by passive case detection, when the patient presents to a health care facility. Hence, all first contact doctors need to be aware of the signs and symptoms of leprosy. The disability and stigma associated with leprosy is mainly due to the nerve damage caused by the bacillus. Early detection of cases is the best method to diagnose and treat early nerve involvement, preventing the establishment of irreversible nerve damage.

This talk aims to discuss the varying presentations of leprosy, both typical and atypical, with the aim of improving the diagnostic skills of doctors at first contact level. Cutaneous features of leprosy include few or many hypopigmented anaesthetic patches, skin coloured or reddish plaques and nodules with preserved sensation and facial change including the leonine facies. The nerve involvement of leprosy may range from a single nerve palsy to mononeuropathy multiplex of several peripheral nerves or glove and stocking type of sensory impairment. It must be borne in mind that central nervous system involvement is not a feature of leprosy.

Leprosy is considered the “great masquerader”, with many atypical forms mimicking other skin diseases. Several such presentations will be discussed. The role of the first contact doctor in the diagnosis and the management of leprosy will also be discussed briefly.

DON'T MISS THE FUNGUS: RECOGNIZING AND TREATING SUPERFICIAL MYCOSES IN GENERAL PRACTICE

Dr. Primali Jayasekera

Superficial mycoses are fungal infections limited to the outermost layers of the skin, hair, and nails, which accounts for 20-25% of dermatology cases in general practice. Although these infections are highly prevalent, they are successfully managed in primary care.

Common infections include tinea infections, onychomycosis, superficial candidosis, etc.

New species, *Trichophyton indotineae* was largely responsible for the rapidly spreading treatment-resistant dermatophytosis.

A multi-centre study done in Sri Lanka concluded the high magnitude of the problem of emerging resistant dermatophytosis in Sri Lanka. Possible causative factors include the change of the predominant causative species and topical steroid misuse. Inadvertent use of topical steroids in dermatophytosis at the primary care level highlighted the need for continuous education of primary care physicians on this emerging threat. ([https://www.researchgate.net/publication/361286718 Characterization of Recalcitrant Dermatophytosis in a Multicenter Study in Sri Lanka#fullTextFileContent](https://www.researchgate.net/publication/361286718_Characterization_of_Recalcitrant_Dermatophytosis_in_a_Multicenter_Study_in_Sri_Lanka#fullTextFileContent)).



SYMPOSIUM 2: NUTRITION AND METABOLIC HEALTH IN PRACTICE

FROM VEGETARIAN DIETARY PATTERNS TO PRECISION NUTRITION: MALAYSIAN INSIGHTS INTO BODY COMPOSITION AND METABOLIC HEALTH

Prof. Mahenderan Appukutty

Vegetarian dietary patterns are increasingly adopted for health, religious, ethical and environmental reasons. Although vegetarian diets are often associated with favourable body composition and cardiometabolic outcomes, considerable heterogeneity exists within vegetarian populations. Dietary classification alone may therefore be insufficient to explain metabolic health, particularly in Malaysia, where ethnicity, culture, food choices and lifestyle behaviours contribute to substantial variation in dietary exposures.

This presentation synthesises findings from a programme of Malaysian research examining vegetarian dietary patterns, body composition, metabolic syndrome, dietary intake, genetic variation and circulating fatty-acid biomarkers. Initial work among 273 Malaysian vegetarians demonstrated that vegetarian status did not preclude metabolic risk: 24.2% had metabolic syndrome, 43.6% had elevated waist circumference and 48.7% had elevated blood pressure. Subsequent evaluation of anthropometric indices showed that central-adiposity measures discriminated metabolic syndrome, reinforcing the importance of assessing body composition beyond body weight and BMI. More recent comparisons of vegetarians and non-vegetarians showed that vegetarians had lower mean BMI, visceral fat level and body-fat mass, although lower fat-free mass was also observed. These findings highlight that apparently favourable adiposity profiles may coexist with other nutritional considerations, including preservation of lean mass. Dietary-pattern analyses further demonstrated substantial within-group variation, with different food combinations associated with metabolic syndrome among vegetarians and non-vegetarians. Adding genetic and biochemical information provides further insight into this heterogeneity.

Among Malaysian vegetarians, *FADS1* rs174547 interacted with dietary fatty acids and fibre in relation to metabolic syndrome components and abdominal obesity. Circulating polyunsaturated fatty-acid profiles also differed between vegetarians and non-vegetarians, while associations with abdominal obesity and hyperglycaemia varied according to dietary group.

Together, these observations demonstrate that individuals sharing the same broad dietary classification may nevertheless exhibit different metabolic phenotypes and responses. The Malaysian experience supports a transition from simple vegetarian/non-vegetarian classification towards precision nutrition. Dietary pattern and quality should be integrated with

body composition, lifestyle, metabolic biomarkers and, where appropriate, genetic information to improve individual risk profiling. This approach could enable more targeted, culturally relevant nutrition strategies to optimise body composition and metabolic health within Malaysia's diverse, multi-ethnic population.

NUTRITION FOR STRENGTH AND ENDURANCE: FACTS VS MYTHS

Prof. Ranil Jayawardena

Nutrition plays a fundamental role in supporting energy production, physical performance, recovery, and adaptation in individuals engaged in strength and endurance activities. Adequate energy intake and appropriate macronutrient distribution are essential for maintaining training capacity and optimizing performance. Carbohydrates are the primary fuel source for moderate- to high-intensity exercise and are particularly important for maintaining muscle glycogen stores during prolonged endurance exercise. Contrary to the myth that carbohydrates are unnecessary for athletes, sufficient carbohydrate intake can improve exercise performance and delay fatigue. Protein is also essential for muscle protein synthesis, repair, and adaptation to resistance and endurance training. However, excessive protein intake does not necessarily provide additional benefits when total protein and energy requirements are already met. Dietary fat should not be unnecessarily restricted, as it contributes to energy production, hormone synthesis, cell function, and the absorption of fat-soluble vitamins. An adequate energy intake is particularly important in preventing Relative Energy Deficiency in Sport (REDs), a condition that can occur when energy availability is insufficient to support both physiological functions and exercise demands. REDs may negatively affect metabolic, reproductive, bone, immune, cardiovascular, and psychological health, as well as athletic performance.

Improving nutritional status also requires adequate intake of micronutrients, including iron, calcium, vitamin D, B vitamins, magnesium, and other vitamins and minerals involved in oxygen transport, energy metabolism, bone health, and recovery. Micronutrient deficiencies may impair physical performance and increase the risk of fatigue, illness, and injury; therefore, nutritional assessment and individualized dietary strategies are important, particularly for athletes with increased requirements or restricted dietary patterns. Although a well-balanced diet should remain the foundation of sports nutrition, approved ergogenic supplements may provide additional performance benefits when used appropriately and based on scientific evidence. Supplements such as caffeine, creatine, nitrate/beetroot products, and carbohydrate-electrolyte formulations may enhance aspects of strength, endurance, high-intensity performance, or recovery in specific circumstances. Nevertheless, supplement use should consider effectiveness, dosage, individual needs, and safety. Overall, distinguishing evidence-based nutritional strategies

from common myths is essential for promoting optimal performance, recovery, long-term health, and sustainable athletic development.

FUNCTIONAL FOODS FOR OPTIMAL HEALTH AND DISEASE PREVENTION

Prof. Anoma Chandrasekara

Functional foods are recognized as an important area in nutrition research as they provide a number of physiological and health benefits beyond basic nutrition. In addition to provision of micro and macro nutrients needed for growth and development and maintenance of body, functional food provides natural or added bioactive components which positively influence biological functions of the body contributing to prevention of non-communicable diseases (NCDs) and overall wellness. There is a renewed interest in non-nutritive bioactive compounds of foods and beverages as ‘lifespan nutrients’ in the reduction of NCDs. Excessive generation of reactive oxygen species (ROS) in the body causes oxidative stress, an injurious process leading to the oxidation of biomolecules such as proteins, lipids, carbohydrates and DNA. Oxidative stress is well known for its pivotal role in the etiology of several NCDs such as cardiovascular diseases, arthritis, diabetes, different types of cancer, autoimmune diseases and neurodegenerative disorders, among others.

Functional foods, consumed as part of a balanced diet, improve the antioxidant status and enhance the overall health status. Plant foods are rich with phytochemicals such as carotenoids, phenolic acids, flavonoids, coumarins, alkaloids, polyacetylenes, saponins and terpenoids, among others. Furthermore, probiotics, bioactive peptides, and omega 3 fatty acids, among others added through animal food sources exert numerous physiological benefits. A wealth of available scientific evidence demonstrates that natural bioactive compounds render a number of diversified biological effects, through several mechanisms such as antioxidant, antibacterial, antiviral, anti-inflammatory, antiallergic, antithrombotic and vasodilatory actions, modulation of lipid and glucose metabolism, as well as antimutagenicity, anti-carcinogenicity and antiaging effects. Furthermore, modification of gut microbial composition, regulation of gene expression and cellular signalling pathways, highlight the complex interactions between food components, and human physiology. Changing of food matrix and losses and additions of bioactive components after processing and preparation of food influence the bio-accessibility and their bioavailability. Therefore, continued research is essential to strengthen the scientific evidences to establish mode of action, and intake levels considering food habits. The evidence-based recommendations would enable the effective integration of functional foods into the whole dietary pattern of the population.

Abstracts of Oral Communications

OP01

Synthesis, characterisation, and evaluation of antibacterial potential of piperine-functionalised zinc oxide nanocomposites for biomedical applications

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Background: The fast emergence of antimicrobial resistance has increased the need for alternative antimicrobial agents with enhanced efficacy and fewer side effects. Zinc oxide nanoparticles (ZnO-NPs) have attracted much attention due to their broad-spectrum antibacterial properties and biocompatibility. Therapeutic applications of ZnO-NPs can be further improved by functionalising them with bioactive compounds such as piperine. Piperine is the major alkaloid of black pepper, which possesses significant antioxidant and antimicrobial properties. This study aimed to synthesise and evaluate piperine-functionalised ZnO nanocomposites (ZnO-piperine NCs) as potential antibacterial agents.

Methods: A laboratory-based experimental study was performed for the synthesis of ZnO-NPs by room-temperature chemical precipitation and piperine functionalisation by surface adsorption. Nanocomposites were characterised by UV-Visible spectroscopy, FTIR, XRD, and SEM. The antibacterial activities of pure ZnO-NPs, pure piperine, and ZnO-piperine NCs were evaluated against *E. coli*, *S. aureus*, and *S. typhimurium* by disc diffusion method and minimum inhibitory concentration (MIC) analysis. Test samples were applied in six independent replicates with cephalexin as positive control. Statistical analysis was performed using one-way ANOVA and Tukey's HSD post-hoc tests, with a significance level of $p < 0.05$.

Results: Characterisation confirmed successful synthesis of phase-pure hexagonal ZnO-NPs with average particle sizes around 45-48nm and verified piperine loading capacity of 56.5mg/g. ZnO-piperine NCs exhibited enhanced antibacterial activity compared with ZnO-NPs and piperine alone, especially against *S. aureus* (ZOI: 11.4mm; MIC: 32µg/mL) and *E. coli* (ZOI: 11.0mm; MIC: 64µg/mL). All three samples showed no observable inhibition against *S. typhimurium*. Statistical analysis revealed significant differences in antibacterial efficacy among the different treatment formulations ($p < 0.05$).

Conclusion: The synthesised ZnO-piperine NCs showed enhanced antibacterial activity and can be used as sustainable antimicrobial nanomaterials for topical wound dressings or infectious disease management. However, further studies of cytotoxicity, stability, and in vivo studies are required to validate their therapeutic applicability.

OP02

Evaluation of bioactivity and mineralisation of zinc oxide-hydroxyapatite composites modified with *Aloe vera* in simulated body fluid

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Background: Hydroxyapatite (HA) is a widely used bone substitute owing to its compositional similarity to natural bone mineral; however, its limited in vitro bioactivity constrains clinical efficacy. Zinc oxide (ZnO) nanoparticles and *Aloe vera* extract have individually demonstrated osteogenic and antimicrobial properties, yet their combined effect on HA bioactivity and mineralisation remains unexplored. This study aimed to evaluate the in vitro bioactivity and mineralisation potential of ZnO-HA composites modified with *Aloe vera* extract using simulated body fluid (SBF).

Methods: HA was synthesised by wet chemical precipitation, and ZnO nanoparticles were synthesised via green synthesis using *Aloe vera* extract and calcined at 500 °C. Composite pellets were prepared by incorporating *Aloe vera* (0-10%) and ZnO (0-15%) into HA at varying concentrations. Pellets were immersed in SBF for four weeks with weekly renewals. Outcome variables included absorbance and pH as markers of mineralisation, characterised using ATR-FTIR, particle size analysis, SEM, and optical microscopy. Data were analysed using factorial ANOVA and non-parametric Kruskal-Wallis tests.

Results: ZnO concentration was the primary determinant of mineralisation, with a statistically significant effect ($F=5.09$, $p<0.001$). *Aloe vera* demonstrated a moderate but significant modulatory effect ($F=3.04$, $p=0.015$). Progressive time-dependent mineralisation was confirmed ($F=3.04$, $p=0.031$), with significant synergistic interaction between ZnO and *Aloe vera* ($p<0.001$). Non-parametric analysis corroborated these findings. ZnO was the dominant regulator of pH variation across all composite groups. Optical microscopic images confirmed apatite formation on composite surfaces before and after immersion in SBF.

Conclusion: ZnO-HA composites modified with *Aloe vera* demonstrated significantly enhanced in vitro bioactivity, with ZnO as the primary driver and *Aloe vera* as a secondary modulator of mineralisation. These findings support the potential of ZnO-modified HA composites for bone tissue engineering applications. Future in vivo studies are warranted to confirm clinical translation.

OP03

Silent suffering: self-stigma and psychological distress among caregivers of people with schizophreniaR.B. Hapuarachchi¹, S. Suthakaran¹, H.M.U.G.A.S. Herath¹, C.M.C.A. Senevirathna²¹*Department of Psychiatry, Faculty of Medical Sciences, University of Sri Jayewardenepura, Sri Lanka*, ²*Colombo South Teaching Hospital, Kalubowila, Sri Lanka*

Background: Stigma remains one of the greatest psychosocial challenges experienced by caregivers of people with schizophrenia (CPWS) and is linked to considerable psychological distress. Despite its significant impact on caregivers, research on caregiver self-stigma in Sri Lanka remains limited. This study aimed to describe perceived stigma and psychological distress among CPWS attending outpatient clinics (OPCs) of Colombo South Teaching Hospital (CSTH).

Methods: A descriptive cross-sectional study was conducted among 124 CPWS attending the outpatient clinics of CSTH. Sociodemographic data and information related to stigma were collected using a semi-structured questionnaire. Perceived stigma was assessed using a specifically designed self-administered 10-item questionnaire adapted from the WHO Family Interview Schedule stigma items (not formally validated locally). Psychological distress was assessed using the validated Kessler Psychological Distress Scale (K10). Details regarding relapses and duration of illness were obtained from clinical records.

Results: The majority were female (70%). The mean age was 59.9 years (SD=11.9), with 85% over 50 years. Fifty-one percent were parents, 72.5% had an education level of O/L or above, and 40% were employed. Seventy-eight percent avoided attending social events with the patient, 39.5% felt the need to conceal the patient's illness, and 36.3% worried that others would discover the illness. Reduced social interactions with friends were reported by 44.5%, while 40% worried that friends would avoid them. Thirty-seven percent felt they were treated differently by friends, and 17% avoided making new friends. Concerns about being treated differently, being avoided, and the need to hide the patient's illness showed statistically significant associations with duration of illness ($p<0.05$), with no association with the number of episodes. Based on K10 scores, 46% of caregivers experienced moderate to severe psychological distress.

Conclusion: Self-stigma and psychological distress among CPWS were significant and had a considerable impact on their social life. These findings highlight the need for caregiver-focused psychosocial support.

OP04

Anatomical variations of the nose and paranasal sinuses on CT scans in patients with chronic rhinosinusitis (CRS) and normal individuals at a tertiary care hospital in Sri Lanka over one year

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Background: Anatomical variations of the nose and paranasal sinuses can significantly influence the pathogenesis and surgical management of CRS. While these variations are thoroughly documented globally, baseline data specific to the Sri Lankan population remain limited. This study aims to characterise sinonasal anatomical variations via CT in local CRS patients and compare their frequencies against normal individuals.

Methods: A preliminary cross-sectional study was conducted over a one-year period on adults (≥ 18 years) who underwent paranasal sinus CT at Colombo South Teaching Hospital. The study comprised a CRS group (clinically and radiologically confirmed; excluding patients with prior sinonasal surgery/trauma, malignancies, or craniofacial anomalies) and a normal group (reported as normal). Data were evaluated using descriptive and comparative statistical analyses. Ethical approval was obtained from the Research Ethics Committee of the Faculty of Medical Sciences, University of Sri Jayewardenepura (ERC 12/25).

Results: The study evaluated 60 patients (42 CRS, 18 normal individuals). No statistically significant differences were observed between the groups regarding mean age (CRS: 51.55 ± 16.37 years vs. normal: 48.61 ± 16.09 years; $p=0.525$) or gender distribution ($p=0.859$). Within the CRS cohort, the most prevalent variations identified were Keros type II, right: 28/42 (66.7%), left: 24/42 (57.1%), sellar-type sphenoid sinus pneumatization 28/42 (66.7%), agger nasi cells 24/42 (57.1%), and deviated nasal septum 22/42 (52.4%). Least common variations included septal hypoplasia 1/42 (2.4%), Haller cells 2/42 (4.8%), and paradoxical middle turbinates 2/42 (4.8%). While selected sinonasal variations occurred at a higher frequency within the CRS cohort, comparative analysis revealed no statistically significant differences between the two groups for any individual variation (all $p>0.05$).

Conclusion: CT evaluation demonstrates a diverse spectrum of sinonasal anatomical variations among Sri Lankan CRS patients. This baseline data underlines that a larger sample size is essential to establish population values and potential associations to better guide safe surgical planning.

OP05

Variation in serum-based host biomarker detection among individuals with active and latent tuberculosis infection using real-time quantitative PCR

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Background: Accurate differentiation between latent tuberculosis infection (LTBI) and active tuberculosis (ATB) infection remains challenging with current diagnostic tests, and 5–10% of LTBI individuals develop ATB during their lifetime. Serum biomarkers offer a minimally invasive approach to exploring disease-associated molecular signatures. This study aimed to investigate the detection profiles of selected host biomarkers, identified through previous RNA sequencing studies in individuals with ATB and LTBI.

Methods: Blood samples were collected from 74 participants attending the National Hospital, Kandy: 20 with ATB and 54 with LTBI. Serum was separated for downstream RNA extraction. Complementary DNA was synthesised, and real-time qPCR was performed using gene-specific primers for the detection of selected host genes (*CXCL10*, *L6 (RPL6)*, *CVIL*, *LIMD2*, and *ARSA1*). Fisher's exact test was used to analyse detection frequencies and compare between groups, with $p < 0.05$ as the significance level.

Results: The detection frequencies of the *CXCL10*, *L6*, *CVIL*, *LIMD2*, and *ARSA1* genes in LTBI patients were 92.6%, 96.3%, 85.2%, 20.4%, and 16.7%, respectively, and those in ATB patients were 100%, 15%, 20%, 5%, and 15%, respectively. Although *CXCL10*, *LIMD2*, and *ARSA1* did not differ significantly from the ATB groups, the *L6* and *CVIL* genes showed significant differences ($p < 0.05$), with higher detection frequencies in the LTBI group.

Conclusion: The findings of this study demonstrate distinct, gene-specific differences in serum host transcript detection patterns between active disease and LTBI. Among the investigated biomarkers, the *CVIL* and *L6* genes demonstrated a notable differential detection pattern and may be useful for further investigation of transcript-level differences in understanding tuberculosis pathophysiology.

OP06

Combined action observation and motor imagery for upper extremity motor recovery during stroke rehabilitation: a gender-based analysisS. Gul*Quaid-e-Azam International Hospital and District Headquarter Hospital, Rawalpindi, Pakistan*

Background: Gender differences have been shown across many domains, and motor skills are no exception. Males and females with stroke have equal access to core rehabilitation services. Studies have suggested that female stroke patients experience poorer functional outcomes than male stroke patients following inpatient rehabilitation. Based on this vast discrepancy between male and female motor function recovery after stroke, this study aimed to examine gender-based differences in motor function recovery in the upper extremity, hand dexterity, daily living performance (ADL), post-stroke depression status, and quality of life of male and female stroke patients undergoing rehabilitation via combined action observation and motor imagery training.

Methods: The study was conducted at Quaid-e-Azam International Hospital and District Headquarter Hospital, Rawalpindi. A sample of 36 stroke patients was selected and divided into two groups based on gender: Group A (males) and Group B (females). Post-stroke patients having ischemic or hemorrhagic score >24 on the Standardised Mini-Mental State Examination were included, while patients with severe dementia and those who were neglected were excluded from this study. The participants received combined action observation and motor imagery training for 6 weeks, four times a week, with each session lasting 50 minutes. Participants were assessed at baseline, after 3 weeks, and at the end of the 6-week intervention using the Fugl-Meyer Assessment Scale, Barthel Index, Box and Block Test, Beck's Depression Inventory, and Stroke-Specific Quality of Life Scale as outcome measures of the study.

Results: There was a significant improvement between baseline, after 3 weeks, and after 6 weeks of post-intervention in motor recovery, hand dexterity, ADL, and post-stroke depression among study participants ($p < 0.05$). Between-group comparisons revealed no significant difference in quality-of-life improvement ($p > 0.05$). However, significant gender-based differences were observed in motor recovery, hand dexterity, post-stroke depression, and ADL ($p < 0.001$).

Conclusion: Combined action observation and motor imagery intervention improved motor recovery, hand dexterity, ADLs, and depression status in both groups. Gender-based differences were observed in motor recovery, hand dexterity, post-stroke depression, and ADL.

OP07

Dietary diversity and dietary adequacy among healthy adults in a rural agricultural community of Sri Lanka: evidence of poor dietary quality

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Background: Poor dietary quality is a major determinant of nutrient deficiencies and contributes significantly to the burden of chronic diseases in developing countries, including Sri Lanka. We assessed the dietary diversity score (DDS), food variety score (FVS), dietary diversity score with portions (DDSP), and dietary serving score (DSS) among healthy adults living in a rural agricultural community in Sri Lanka.

Methods: A community-based cross-sectional study was conducted among 72 adults (aged 18-60 years) living in Wilgamuwa Divisional Secretariat Division, a predominantly agricultural community, for at least ten years. They were recruited using stratified random sampling. Individuals with chronic kidney disease, diabetes mellitus, long-standing hypertension, glomerulonephritis, urolithiasis, congenital kidney diseases, a history of snakebite or leptospirosis, other chronic diseases, physical impairments, pregnancy, or undergoing cancer treatment were excluded. Socio-demographic and dietary data were collected through household visits using a pre-tested questionnaire and 24-hour recall. Diet scores were calculated using standard methods. Data were assessed for normality, and appropriate statistical tests were applied.

Results: The mean age of participants was 42.6 ± 7.9 years, with an equal male-to-female ratio. Only 9 (12.5%) participants achieved an adequate dietary intake. The mean DDS, DDSP, and DSS were 6.36 ± 1.3 (maximum attainable score 12), 3.89 ± 1.05 (maximum attainable score 8), and 2.33 ± 1.04 (maximum attainable score 7). The mean FVS was 8.76 ± 2.17 (no maximum attainable score is set). Among food groups, legumes/pulses showed the lowest level of adequate consumption (8.3%), while the starch/cereal food group met the recommended serving levels. Those with a higher level of education reported a significantly higher FVS value ($p=0.026$), while older people reported a higher DSS value ($p=0.021$).

Conclusion: The prevalence of adequate dietary intake was markedly low among participants. Dietary patterns were predominantly driven by starch and cereal consumption, with limited intake of nutrient-dense food groups. There is a need for targeted nutritional interventions among vulnerable rural communities.

OP08

Clinicopathological and habit-related factors in oral submucous fibrosis: a retrospective analytical study

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Background: Oral submucous fibrosis (OSMF) is a chronic, progressive, potentially malignant disorder, predominantly affecting areca nut users. Recent evidence indicates increasing disease severity among younger individuals. This study aimed to evaluate the associations between clinicopathological characteristics and habit-related risk factors among patients with OSMF.

Methods: A retrospective analysis was conducted using records of 582 patients diagnosed with OSMF attending the Dental Teaching Hospital, Peradeniya, Sri Lanka. Data on age, gender, risk habits, habit duration, betel quid (BQ) consumption, presence of *Candida*, dysplasia status, and maximum mouth opening (MMO in mm) were extracted and analysed using descriptive and inferential statistics, with $p < 0.05$ considered significant.

Results: The mean age of participants was 43.58 ± 13.30 years, with a male predominance (78.3%). BQ chewing alone was the most common habit (71.8%). Dysplasia was identified in 36.8% of OSMF patients, while *Candida* colonisation was observed in 3.4%. Sex showed a significant association with habits ($p < 0.001$), with males predominantly using combined habits (BQ, alcohol, smoking) and females chewing BQ alone. Habit duration > 5 years and *Candida* colonisation showed significant associations with the presence of dysplasia ($p = 0.008$ and $p = 0.001$, respectively). Mean MMO showed significant variation across age groups ($p < 0.001$), increasing from 27.72 ± 9.22 mm in participants aged < 40 years to 37.46 ± 11.02 mm in those aged ≥ 60 years. Age demonstrated a weak positive correlation with MMO ($r = 0.280$, $p < 0.001$), and regression analysis identified age as a significant predictor of MMO ($p < 0.001$). No significant associations were observed between MMO and sex, habit characteristics, or dysplasia status.

Conclusion: OSMF in younger patients shows greater MMO restriction, indicating more severe disease. Longer habit duration and *Candida* colonisation significantly increase the risk of dysplasia. The study emphasises preventive strategies, habit cessation, and microbiological surveillance as key components in OSMF management and control, highlighting the need for early identification in young areca nut users.

OP09

Development of a tannic acid-based spectrophotometric assay for iron detection: preliminary analytical performance evaluation

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Background: Measurement of iron is clinically important for the diagnosis of iron deficiency anaemia and monitoring of iron overload disorders such as transfusion-dependent thalassaemia. Conventional laboratory methods for iron analysis rely on specialised chromogenic reagents and automated instrumentation, which may limit accessibility in low-resource settings. This study aimed at the development and preliminary analytical performance evaluation of an iron detection assay using tannic acid (TA), a naturally occurring polyphenolic compound, as a low-cost alternative chromogenic reagent for iron detection.

Methods: This was an experimental, laboratory-based analytical method development and validation study that focused on the properties of the Fe²⁺-TA complex. Reaction conditions such as pH, TA concentration, Fe²⁺:TA ratio, ascorbic acid concentration, and incubation time were optimised. Calibration curves were developed, and linearity was determined using duplicate Fe²⁺ standards (25-700µmol/L) with and without ascorbic acid. Limit of blank (LoB), limit of detection (LoD), and selectivity against five cations (Mg²⁺, K⁺, Ca²⁺, Na⁺, Zn²⁺) at 1000µmol/L were evaluated during validation.

Results: The Fe-TA complex demonstrated a maximum absorbance wavelength ($\lambda_{\max}$) at 541nm. Optimised assay conditions included acetate buffer at pH 4.7 with 50µL of 0.1M TA. Stable colour complex formation and consistent absorbance readings were achieved at Fe²⁺ concentrations of 50-100µmol/L, with an Fe²⁺:TA ratio of 20:1 (at [TA] = 1000µmol/L). A 30-min pre-incubation with ascorbic acid ensured reliable color development and measurements. Calibration curves exhibited good linearity with ascorbic acid ($y=1.9257x-0.0620$, $R^2=0.9933$). The LoB and LoD were 33µmol/L and 35µmol/L, respectively. Selectivity testing demonstrated that Mg²⁺, K⁺, Ca²⁺, Na⁺ and Zn²⁺ produced no detectable colour interference.

Conclusion: Tannic acid showed potential as a selective, low-cost chromogenic reagent for spectrophotometric iron detection, with strong linearity ($R^2=0.9933$), a LoD of 35µmol/L, and high selectivity in aqueous media.

OP10

Associations between learning styles and preferred learning modalities among undergraduates: towards personalised medical education

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Background: Medical education increasingly emphasises student-centred learning approaches to enhance educational outcomes. Understanding students' preferred learning styles and modes is essential for designing teaching strategies that better meet their needs. The objectives were to determine medical students' perceptions regarding the usefulness of different learning modes and styles, ascertain the preferred learning style, and evaluate associations between learning styles and modes.

Methods: A descriptive cross-sectional study was conducted among the 1st to 4th year medical students at the Faculty of Medical Sciences, University of Sri Jayewardenepura, using the convenience sampling method. A total of 427 students participated, achieving a 100% response rate. Data were collected using an online self-administered questionnaire based on the MEMLETIC inventory. Statistical analysis was performed using appropriate methods. Categorical variables were analysed using the Chi-square test, with statistical significance set at $p < 0.05$.

Results: The solitary learning style was the most commonly preferred style among the students ($n=137$, 32.1%), while only 71 (16.6%) preferred the verbal learning style. Most participants showed a preference for unimodal learning (280, 65.6%), compared with bimodal (91, 21.3%) and multimodal (56, 13.1%) styles. Across all learning styles, active and interactive learning modes such as Case-Based Discussion and Problem-Based Learning were perceived as highly useful (>95%), whereas live lectures were rated as the least useful. Active and interactive modalities were significantly associated with learning styles ($p < 0.001$).

Conclusion: The findings highlight the importance of encouraging student-centred, active, and interactive teaching strategies within undergraduate medical education. Awareness of the predominance of unimodal and solitary learning preferences can help the development of more effective academic modalities. This study provides useful insight for more effective future educational strategies, curriculum planning, and policy development.

OP11

Genomic characterisation and phylogenetic analysis of *Pseudomonas* sp. isolated from a transplant unit of a national hospital

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Background: *Pseudomonas aeruginosa* is a major cause of life-threatening, hospital-acquired infections in immunocompromised post-transplant patients, particularly due to its intrinsic virulence and extensive antimicrobial resistance. This study aimed to perform a comprehensive genomic characterisation and phylogenetic analysis of *Pseudomonas* sp. isolates obtained from three post-kidney transplant patients with bloodstream infections at the transplant unit of the National Hospital, Colombo, Sri Lanka.

Methods: Genomic DNA was extracted, barcoded, and sequenced using Oxford Nanopore sequencing, followed by basecalling and de novo assembly. Antimicrobial resistance (AMR) and virulence profiling were performed using the abriTAMR tool. Multilocus sequence typing, distance matrix calculation, and phylogenetic tree construction were performed to evaluate the evolutionary relationships among isolates to support infection control within the transplant unit.

Results: All screened patients were colonised with *Pseudomonas aeruginosa* and displayed multidrug-resistant genomic profiles. Two patients showed nearly identical AMR and virulence gene patterns and shared the same sequence type (ST308), indicating a close evolutionary relationship and possible localised transmission source. The other patient exhibited a distinct resistance profile, biocide resistance genes, and a different sequence type (ST111), suggesting a separate source of infection. The constructed phylogenetic tree supported these relationships, with two samples clustering tightly while the other one formed a divergent lineage.

Conclusion: All bacterial isolates were classified as multidrug-resistant to routine antimicrobial agents. Intrinsic virulence mechanisms are likely to drive severe disease outcomes in immunocompromised post-transplant patients. Therefore, rapid consultation of alternative treatments is vital to prevent life-threatening complications. Phylogenetic analysis reveals that two samples are closely related, likely originating from a common source or a recent transmission chain. In contrast, the third sample's genetic distance suggests a separate introduction or reservoir. These insights are critical for refining infection control and prevention strategies within the transplant unit.

OP12

The effectiveness of a tailored educational intervention in minimising the factors associated with occupational exposure to Systemic Anticancer Therapy (SACT) among nurses at a tertiary care cancer hospital, Sri Lanka

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Background: Occupational exposure to Systemic Anticancer Therapy (SACT) and related adverse effects (AEs) is well documented among oncology nurses. Tailored educational interventions are essential for improving adherence to safety precautions and reducing occupational exposure. Therefore, the study aimed to evaluate the effectiveness of a tailored educational intervention in reducing occupational exposure to SACT among nurses.

Methods: The study used a single-group pre-test and post-test design. Fifty oncology nurses handling SACT at the National Cancer Institute, Sri Lanka, were enrolled. The intervention consisted of an educational workshop, website, and an e-module. The validated Hazardous Drug Handling Questionnaire (HDHQ) and a questionnaire on AEs, accidental exposure frequency, and knowledge of safety precautions were administered pre- and post-intervention. Intervention effectiveness was determined using paired-samples t-tests at a 95% confidence interval (SPSS 25.0). Ethical approval was obtained.

Results: Participants' mean age and mean SACT-handling experience were 30.72±7.4 years and 1.73±2.23 years, respectively. The majority (94%) were female. Workshop quality was rated at 8.79±0.89 on a 0-10 scale. Adherence to safety precautions improved significantly in preparation ($p=0.005$), administration ($p<0.001$), disposal ($p=0.007$), and handling excreta ($p=0.013$). Among HDHQ variables, chemotherapy exposure knowledge ($p<0.001$), self-efficacy ($p=0.006$), interpersonal influences ($p=0.001$), conflict of interest ($p=0.003$), and workplace safety climate ($p<0.001$) improved significantly. However, perceived barriers and perceived risk did not change. AE frequency ($p=0.046$) and distress ($p=0.025$) decreased significantly; prevalence and severity remained unchanged. Moreover, accidental exposure events decreased significantly ($p=0.001$), and knowledge of safety precautions increased significantly ($p=0.002$).

Conclusion: The tailored educational intervention improved adherence to safety precautions, key contributing factors, and knowledge, and reduced exposure events and related outcomes during SACT handling among oncology nurses.

Abstracts of Poster Presentations



PP01

Perceptions and determinants of abortion legalisation among outpatients attending a teaching hospital amid ongoing legal discourse in Sri Lanka: a cross-sectional study

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Background: Abortion is legally restricted in Sri Lanka, permitted only to save the mother's life. Expanding legal indications remains a significant policy challenge. This study aimed to describe perceptions towards the legalisation of abortion and to determine associated factors among adults at an outpatient department of a tertiary care hospital in Sri Lanka.

Methods: A descriptive cross-sectional study was conducted among 371 systematically sampled adult outpatients attending Colombo South Teaching Hospital. Data were collected using a pre-tested, structured, interviewer-administered questionnaire. Perception was assessed using a 12-item questionnaire. Scores were transformed to a percentage scale and dichotomised using the cut-off value 50%. Data were analysed using SPSS v26 with Chi-square test for statistical significance ($p < 0.05$).

Results: The majority were females (62.8%), married (60.9%), Buddhists (75.7%) and educated up to A/Ls (63.6%). Overall, 86.5% showed a supportive, though conditional perception towards legalisation of abortion. The highest agreement was for maternal life risk (70.1%), foetal abnormalities (57.4%) and rape/incest (50.1%). Lowest support was for unwanted pregnancy (15.9%) and socio-economic reasons (10.8%). Supportive perceptions were significantly associated with younger age ($\chi^2 = 10.27$, $p = 0.005$), Buddhist faith ($\chi^2 = 12.26$, $p < 0.001$), being employed ($\chi^2 = 4.52$, $p = 0.033$) and higher education ($\chi^2 = 13.92$, $p < 0.001$).

Conclusion: Strong conditional support for legalisation of abortion for medical reasons was observed. Evidence from this study suggests the need for informed policy dialogue and improved public awareness regarding unsafe abortion to reduce maternal morbidity and mortality.

PP02

Barriers and determinants of glaucoma medication adherence among patients attending the university hospital Kotelawala Defence University ophthalmology clinic

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Background: Glaucoma is a chronic progressive optic neuropathy and a leading cause of irreversible blindness. Adherence to intraocular pressure-lowering medications is essential to prevent vision loss, yet non-adherence remains a major challenge. In Sri Lanka, data on adherence and patient barriers are limited, making it important to identify these factors to guide effective interventions.

Methods: A descriptive cross-sectional study was conducted from March to September 2025 at the UHKDU Ophthalmology Clinic among 119 glaucoma patients aged ≥ 18 years on treatment for at least six months. Participants were recruited via convenience sampling and interviewed using a pre-tested questionnaire. Medication adherence was assessed using the Morisky Medication Adherence Scale

(MMAS-8). Data were analysed using descriptive and inferential statistics, with Chi-square tests for associations ($p < 0.05$).

Results: 58.0% were adherent and 42.0% were non-adherent. No socio-demographic or economic factors were significantly associated with adherence except regular clinic attendance. Main barriers were forgetfulness (38.7%) and cost (16.9%). A clear knowledge gap existed, with 76.5% believing glaucoma causes only temporary vision changes and 56.3% not using reminder systems.

Conclusion: Regular clinic attendance was the only factor significantly associated with better adherence, emphasising patient engagement, while forgetfulness is not significantly associated and, along with limited reminder use and poor knowledge of glaucoma's risk of permanent blindness, highlights key gaps.

PP03

Comorbidities and medication utilisation patterns in allergic rhinitis patients in Sri Lanka

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Background: Allergic rhinitis (AR) is a chronic IgE-mediated inflammatory condition with significant symptom burden and comorbidities requiring long-term pharmacotherapy. Despite geographical variations in AR presentation and treatment, real-world data on medication use and symptom severity in Sri Lanka are limited.

Methods: This cross-sectional study used data from questionnaire and clinical records to examine the association of demographics, drug therapy, and existing comorbidities among 50 patients (>18 years) with AR from two teaching hospitals in Colombo. The severity of symptoms was assessed based on the Total Nasal Symptom Score (TNSS).

Results: Most participants were female (34/50; 68%), in the middle age (45-59 years: 21/50; 42%), non-smokers (42/50; 84%), and non-users of alcohol (42/50; 84%). Common symptoms were headache (48/50; 96%), sneezing (45/50; 90%), nasal congestion (39/50; 78%), and runny nose (37/50; 74%). Asthma was the leading comorbidity (23/50; 46%), followed by hyperlipidaemia (16/50; 32%), hypertension (14/50; 28%), peptic ulcer disease (11/50; 22%), and diabetes mellitus (9/50; 18%). Asthmatic patients had higher median TNSS values (8 vs. 6; $p = 0.113$). No significant differences in TNSS values were observed with respect to other comorbid conditions. The antihistamines were the leading drugs used. Cetirizine was used in 41/50 patients (82%). Intranasal betamethasone was used in 34/50 patients (68%), fluticasone in 5/50 patients (10%), and prednisolone in 4/50 patients (8%). Montelukast, an antagonist of leukotrienes, was used in 23/50 (46%) of the patients. Antibiotics prescribed to 18/50 (36%) of the patients, mainly co-amoxiclav. Oxymetazoline was used in 8/50 (16%), while saline was used in 30/50 (60%) of the patients.

Conclusion: Sri Lankan AR patients have a high symptom burden, with asthma as the predominant comorbidity. Antihistamines with intranasal steroids remain the primary treatment approach. A larger multicentre study is recommended to optimise long-term management of AR in Sri Lanka.

PP04

Knowledge, perception, accessibility and usage of contraceptives among women aged 18-49 years in an estate community, Thalawakele, Nuwara Eliya District

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Background: Women in Sri Lanka's estate communities face significant barriers to contraceptive use, including limited knowledge, cultural norms and restricted access to services. Evidence regarding contraceptive use and sexual and reproductive health practices in these communities remains limited. This study aimed to address these gaps and support efforts to strengthen reproductive autonomy and maternal health outcomes.

Methods: A descriptive cross-sectional study was conducted among 128 married women aged 18-49 years, residing in four selected tea estates (Galkanda-Bearwell, Mattekelle, Waltrim and Lindula) within Thalawakele MOH area using multistage sampling. Data were collected via a structured interviewer-administered questionnaire and analysed using SPSS with descriptive and inferential statistics. Knowledge was assessed across awareness, hormonal and factual domains using scored responses based on Bloom's cut-offs. Perceptions were evaluated using Contraceptive Acceptance Score, and reliability was assessed using Cronbach's alpha. Predictors of knowledge were identified using multiple linear regression and qualitative data were analysed thematically. Contraceptive Prevalence Rate (CPR) and modern Contraceptive Prevalence Rate (mCPR) were estimated with 95% confidence intervals.

Results: Participants were predominantly Indian Tamil (56.3%) and Hindu (68%), with most having married early and having 1-2 children. Contraceptive knowledge was low (mean score 39.5/100), with 85.9% demonstrating poor knowledge. Education was the strongest predictor ($p=0.045$), while younger, educated women had higher knowledge ($p=0.006$). Health workers were the primary information source (39.6%). Attitudes were neutral to positive and varied by religion and ethnicity ($p<0.05$). Contraceptive services were widely available (93%), with high utilisation; CPR was 81.3% and mCPR was 68.8%. Implants (27.1%) and DMPA (23.1%) were most commonly used, though side effects (41%) contributed to discontinuation.

Conclusion: Culturally sensitive, community-based interventions are needed to improve knowledge, address misconceptions, engage men and strengthen access to contraceptive services.

PP05

A content analysis of medication-related misinformation on major social media platforms: identifying prevalence and trends

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Background: With the rapid expansion of digital communication platforms such as social media and messaging applications, misinformation about drugs, treatments, and health practices circulates widely without proper scientific validation. This study aimed to identify and categorise public posts and videos related to medication misinformation, using keyword-based searches of major social media platforms.

Methods: A descriptive content analysis study was conducted from July to December 2025, using pre-determined keywords (in English). A total of 960 public posts/ videos from YouTube, Facebook, and TikTok platforms were collected and reviewed. No duplicates were found among the screened content. Two team members independently evaluated all posts and videos manually. Misinformation data on different medicine classes were categorised based on the Anatomical-Therapeutic-Chemical (ATC) classification system of the World Health Organization.

Results: A total of 960 medication-related videos and posts were collected from three platforms, with 30 (3.13%) identified as containing false information. The endocrine drug class exhibited the highest frequency of misinformation (36.4%), followed by painkillers (30.3%), antibiotics (18.2%), and cardiovascular drugs (15.2%). Notably, the most prevalent misinformation type was false indication of medicines (30%). Platform-specific data showed that TikTok contained the highest percentage of false content (43.35%) and considerably higher average engagement, with 16,150 likes and 12,036.85 shares per post. The lowest rate (23.33%) of misinformation was found on YouTube. In contrast, Facebook recorded lower misinformation rates for specific categories, such as antibiotics. However, misinformation related to antibiotics had a higher engagement.

Conclusion: Overall, the prevalence of medication misinformation on the most popular social media platforms was relatively limited but still concerning, with endocrine drugs most affected and false indications most common. TikTok showed the highest engagement, while antibiotic misinformation attracted a notable proportion, emphasising platform-specific risks.

PP06

Proportion of patient compliance to physiotherapy and associated factors for poor compliance among those who underwent lower limb orthopaedic surgery at a selected tertiary care hospital in Colombo District

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Background: Physiotherapy is vital for post-operative rehabilitation following lower limb orthopaedic surgery, enhancing function and reducing complications such as stiffness, deep vein thrombosis, and muscle atrophy. However, local data on patient compliance remains scarce despite its known importance. The objective of this study was to describe the proportion of patient compliance to physiotherapy among those who underwent lower limb orthopaedic surgery at a selected tertiary care hospital in Colombo District and associated factors for poor compliance.

Methods: A descriptive cross-sectional study was conducted among post-operative patients aged 18-80 years attending the physiotherapy unit, orthopaedic wards and clinic at a selected tertiary care hospital in Colombo District using consecutive sampling. Acutely ill patients and pregnant/lactating women were excluded. Following informed written consent, all consenting participants completed an interviewer-administered questionnaire incorporating questions related to adherence from the SIRAS, RadMAT, and GRAS instruments to assess compliance. Associations were assessed using Pearson's Chi-squared test ($p < 0.05$).

Results: Of 362 participants (73.5% male; mean age 42 ± 13 years), the response rate was 92.3%. Majority (86.2%) demonstrated good compliance. A positive attitude towards physiotherapy, assessed using nine questions utilising the Likert scale with those strongly agreeing and/or agreeing being counted positive, was significantly associated with good compliance ($p=0.024$). Financial difficulties ($p=0.016$), lack of time ($p=0.007$), and lack of understanding ($p=0.000$) were significantly associated with poor compliance. Knowledge regarding physiotherapy, pain, transport difficulties, and lack of motivation were not significantly associated.

Conclusion: Patient attitude, rather than knowledge regarding physiotherapy alone, was the strongest determinant of physiotherapy compliance after lower limb orthopaedic surgery. Although the study setting caters to a socio-demographically diverse population increasing generalisability, socioeconomic factors in Colombo may limit nationwide generalisability.

PP07

Knowledge and factors associated with barriers to insulin self-administration among type 2 diabetes mellitus patients in a selected clinic in the Colombo District

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Background: Type 2 Diabetes Mellitus (T2DM) requires effective insulin therapy to manage complications. However, successful patient compliance is often compromised by deficits in knowledge and multifaceted psychological, logistical, practical, financial barriers. Understanding the knowledge level, barriers and factors associated with them will be useful in improving diabetes management particularly in Sri Lanka where limited studies are available.

Methods: A descriptive cross-sectional study was conducted among 301 T2DM patients utilising insulin at the Colombo South Teaching Hospital. Data was collected via an interviewer-administered questionnaire and analysed using descriptive statistics and Chi-square tests on SPSS version 25. Significance was taken as $p < 0.05$. Knowledge was described using a 32-point questionnaire, converted to percentages and categorised as poor (0-49%), moderate (50-74%) and good (75-100%).

Results: Most participants showed good ($N=177$, 58.8%) or moderate ($N=106$, 35.2%) knowledge of insulin use. However, practical application and emergency preparedness were lacking. The top four barriers identified were worried about insulin cost ($N=134$, 44.5%), the belief that insulin is a "last resort" ($N=119$, 39.5%), travel inconvenience ($N=95$, 31.6%), and difficulty adjusting doses ($N=95$, 31.6%). Worries about cost were significantly associated with lower income, longer duration of disease and a lack of medical insurance, while the psychological "last resort" perception was strongly associated with a longer disease duration (>5 years) and currently on more than 2 medications ($p < 0.05$). Difficulty in adjusting the dose was significantly associated with those having diabetic complications and those with hand tremors ($p < 0.05$).

Conclusion: Despite adequate knowledge, financial difficulties, psychological fear and practical difficulties significantly block insulin self-administration. Moreover, structural interventions, such as financial allowances and earlier insulin education, are important in reducing economic burdens and eliminating treatment stigma.

PP08

Profile of lower limb vascular trauma at a tertiary centre in Sri Lanka: a one-year retrospective analysis

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Background: Lower limb vascular trauma is associated with functional disability, prolonged hospitalisation and significant morbidity. Road traffic accidents are a major cause of high-energy extremity trauma in developing countries. Understanding epidemiological characteristics and injury patterns is important for planning trauma management and improving patient outcomes. This study focused on describing the mechanisms, anatomical distribution, demographic characteristics and associated injuries among patients with lower limb vascular trauma presenting to the National Hospital of Sri Lanka.

Methods: A retrospective descriptive study was performed at NHSL using data from January to December 2024. A total of 44 patients were identified, of whom 35 were traceable and included in the analysis. Patient demographics, anatomical site of injury, mechanisms of injury, associated injuries and early outcomes were analysed using descriptive statistics. Results were presented as frequencies and percentages.

Results: Among the 35 patients, the majority were males, accounting for 28 (80%), while females accounted for 7 (20%). Road traffic accidents were the leading mechanism of injury (77.1%), followed by crush injuries (5.7%) and gunshot injuries (5.7%). Popliteal artery injuries were most common, occurring in 20 patients (57.1%), followed by superficial femoral artery (22.9%) and tibial vessel injuries (17.1%). The most frequent associated injuries were bone fractures, particularly tibial plateau and tibial shaft fractures. The commonest vascular repair procedure was reverse saphenous vein grafting (68.6%).

Conclusion: Lower limb vascular trauma at NHSL selectively affects young males following high-energy road traffic accidents. The most frequent vascular injury involved the popliteal artery, and reverse saphenous vein grafting was the most common vascular repair procedure. Early recognition and multidisciplinary management are crucial for achieving successful limb salvage and functional recovery.

PP09

Injury characteristics, surgical management, operative complexity, associated injuries and in-hospital outcomes of lower limb vascular trauma: a retrospective study

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Background: Lower limb vascular trauma is commonly associated with high-energy injury mechanisms accompanied by multiple associated injuries, increasing the complexity of surgical management. This study aimed to demonstrate injury severity patterns, fasciotomy requirements, associated orthopaedic injuries, vascular repair techniques and in-hospital outcomes among patients with lower limb vascular trauma presenting to the National Hospital of Sri Lanka.

Methods: A retrospective study was conducted at NHSL using data from January to December 2024. Out of 44 a total of 35 traceable patients were analysed. Data collected included anatomical site and

mechanisms of injury, fasciotomy, orthopaedic injury, type of vascular repair and hospital stay duration. Descriptive statistics were used and results were presented using frequencies and percentages.

Results: Road traffic accidents were the leading mechanism of injury in 27 patients (77.1%) with the popliteal artery being the commonest site of injury in 20 patients (57.1%). Associated orthopaedic injuries were identified in 19 patients (54.3%), most commonly tibial fractures. Fasciotomy was done in 14 patients (40.0%) of which 10 (28.6%) were prophylactic and 4 (11.4%) were therapeutic. Reverse saphenous vein grafting was performed in 24 patients (68.6%) as the commonest vascular repair procedure while primary repair was done in 11 patients (31.4%). Hospital stay was <7 days in 25.7%, 7-14 days in 51.4% and >14 days in 22.9% indicating 7-14 days being the most common.

Conclusion: Road traffic accidents are a major cause of high-energy extremity trauma associated with lower limb vascular injuries, often accompanied by significant orthopaedic injury burden. High rates of vein graft reconstruction and fasciotomy reflect the complexity and severity of these injuries. Associated orthopaedic injuries and fasciotomy were significant contributors to prolonged hospitalisation (>14 days). This study highlights the importance of coordinated multidisciplinary trauma care.

PP10

Preference of adults in Sri Lanka on breaking the bad news of a diagnosed terminal illness and associated factors

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Background: While patient autonomy is a global standard, the cultural sensitivity of disclosing terminal diagnoses remains a subject of debate. The research investigated whether adults in Colombo district prefer to be informed of a terminal diagnosis and to identify factors associated with the preferences. There is a lack of research material pertaining to this matter from the Western Province of Sri Lanka and one's autonomy is routinely being violated when those around them do not disclose the truth to them.

Methods: A descriptive study was conducted using an interviewer administered questionnaire on a sample of 280 adults. Participants who are medical professionals and currently suffering from a terminal illness were excluded. A convenience sampling method was used. Associations were determined using Chi-Square test and significance level was 0.05.

Results: Among the 280 participants, majority (90.7%; 254) expressed their willingness to be informed about such a diagnosis. Among them, 92.1% (234) wished to be informed by their doctor and 81.5% (207) at the point of diagnosis itself. 83.1% (211) respondents wanted to be informed first, while 209 (82.3%) were willing to be informed about their life expectancy. Of the minority of individuals who prefer not to be informed of such a diagnosis, 73.1% (19) had stated they would prefer the information to be shared with their families instead. Statistical analysis identified age (31-50 group showed 100% preference) and risk-taking attitudes as significant factors in willingness to be informed. Gender and parental status significantly influenced the desire ($p < 0.05$) to be educated on the number of years that they could live, with more males and non-parents preferring this information.

Conclusion: A significant majority of Sri Lankan citizens favour immediate truth disclosure. It is vital for medical professionals to align their practices with this preference, ensuring patient autonomy is respected in end-of-life care.

PP11

Knowledge, attitudes and factors associated with organ donation among adults attending medical clinics in a selected hospital in Colombo District

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Background: Organ donation is a life-saving intervention that can improve the quality of life of patients with end-stage organ failure. Despite increasing demand for organ transplantation, the availability of donor organs remains inadequate, partly due to limited public knowledge and misconceptions regarding organ donation. Evidence on knowledge and attitudes towards organ donation among adults attending primary care clinics in Sri Lanka is limited. Therefore, this study aimed to assess the knowledge, attitudes and factors associated with knowledge regarding organ donation among adults attending medical clinics at Colombo South Teaching Hospital.

Methods: A descriptive cross-sectional study was conducted among 409 adults attending medical clinics at Colombo South Teaching Hospital. Participants were selected using systematic random sampling. Data were collected using an interviewer-administered questionnaire. Analysis was performed using SPSS version 26, and associations were assessed using the Chi-square test with a significance level of $p < 0.05$. Ethical approval was obtained from the Ethics Review Committee of the Faculty of Medical Sciences, University of Sri Jayewardenepura.

Results: Out of 409 participants, 52.8% ($n=216$) had good knowledge regarding organ donation. Most participants (65.7%, $n=269$) demonstrated positive attitudes towards organ donation and expressed willingness to donate their organs after death. Chi-square analysis showed that younger age (≤ 45 years) ($p < 0.001$), education beyond secondary level ($p < 0.001$), skilled occupation ($p < 0.001$), higher monthly income ($p < 0.001$) and absence of chronic illness ($p < 0.001$) were significantly associated with good knowledge regarding organ donation.

Conclusion: Although attitudes towards organ donation are generally positive, knowledge remains inadequate among a considerable proportion. Targeted health education and awareness programmes in primary care settings are recommended to improve knowledge and address misconceptions.

PP12

Awareness of antibiotic resistance and the associated factors among students of a selected university in Sri Lanka

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Background: Antibiotic resistance has emerged as a major global public health threat, largely driven by the misuse and overuse of antibiotics. University students play a key role in shaping future health behaviours, making their awareness of antibiotic resistance critically important. This study aimed to assess the level of awareness of antibiotic resistance and determine the factors associated with awareness among undergraduate students of a selected university in Sri Lanka.

Methods: A descriptive cross-sectional study was conducted among undergraduate students (first to third year) of the University of Sri Jayewardenepura. Students from health-related faculties and final-year students were excluded. The calculated sample size was 404. Data were collected using a pre-tested structured questionnaire covering socio-demographic characteristics, knowledge, attitudes, and practices related to antibiotic use and resistance. Awareness was assessed among participants who had heard of antibiotic resistance using 18 knowledge questions, with one mark awarded for each correct response, giving a total score ranging from 0 to 18. Based on expert opinion, participants scoring 0-6 were classified as having poor awareness, while those scoring more than 6 were classified as having good awareness. Data analysis was performed using SPSS version 26, and associations were assessed at a significance level of $p < 0.05$. Ethical approval for the study was obtained from the Ethics Review Committee of the Faculty of Medical Sciences, University of Sri Jayewardenepura.

Results: The results showed that although 96% of participants had heard of antibiotics, only 59.3% were aware of antibiotic resistance. Among those aware, 79.1% demonstrated good awareness, while 20.9% had poor awareness. The mean awareness score was 9.72 (SD=3.77). Significant associations were found between awareness and age ($p=0.044$), male gender ($p=0.006$), field of study ($p < 0.001$), Advanced Level subject stream, with Biology and Mathematics students demonstrating higher awareness than other streams ($p < 0.001$), and having a family member in the health sector ($p < 0.001$). Social media was the most commonly reported source of information on antibiotic resistance (44.3%). However, no significant associations were observed with year of study, income, district, or ethnicity.

Conclusion: Although most university students had heard about antibiotics, only about half were aware of antibiotic resistance. Overall awareness of antibiotic resistance among students who were aware of the condition was satisfactory. Social media was the most common source of information regarding antibiotic resistance. Age, gender, field of study, Advanced Level subject stream, and having a family member in the health sector were significantly associated with awareness. Targeted educational interventions focusing on behavioural change, rather than knowledge alone, should be implemented among university students. Strengthening regulations on antibiotic access, improving communication from healthcare professionals, and promoting awareness campaigns through digital and social media platforms are recommended to reduce antibiotic misuse.

PP13

Most frequently prescribed ayurvedic internal formulations for the management of allergic rhinitis: a survey of Sri Lankan ayurvedic practitioners

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Background: Allergic rhinitis affects approximately 400 million people worldwide and is one of the most common allergic disorders. A growing interest in Ayurvedic medicine has emerged due to the limitations and adverse effects of conventional therapies. In Ayurveda, allergic rhinitis is correlated with *Peenasa*. The present study aimed to identify commonly prescribed Ayurvedic internal formulations for allergic rhinitis.

Methods: A semi-qualitative survey was conducted among graduate Ayurvedic Medical practitioners from key institutions registered under the Department of Ayurveda, Sri Lanka. Traditional Ayurvedic Doctors and Diploma holders were excluded. Data were collected using an interviewer-administered semi-structured questionnaire to identify practitioners' preferred formulations for allergic rhinitis across seven treatment categories: decoctions, hot infusions, medicinal powders, pills, medicinal pastes, oils, and medicated fumes. Formulations were ranked using a frequency-based scoring system based on practitioner recommendations. Commonly prescribed internal formulations were selected, while external formulations were excluded from the study.

Results: The survey included 25 Ayurvedic Medical practitioners, comprising 17 consultants selected through purposive sampling and 8 Ayurvedic Medical Officers selected through simple random sampling. A total of 113 internal and 38 external formulations were identified. Among internal formulations, decoctions and medicinal pastes were the most frequently prescribed dosage forms. *Thamalakyadhi decoction* was the most commonly reported (n=14), followed by *Prathyaksha Dhathree* and *Pitawakka* 9 decoctions. The mean prescription frequency score was 6.89 ± 4.76 (Standard Deviation), with a 95% confidence interval of 5.67-8.11. *Sharkaradhi Kalkaya* and *Haridra Khandaya* were the most frequently prescribed medicinal pastes.

Conclusion: The study provides a practitioner-based profile of the most frequently prescribed Ayurvedic internal formulations for allergic rhinitis and may serve as a basis for future evaluation of their safety and effectiveness.

PP14

Influence of dietary patterns and nutritional knowledge on myocardial infarction among patients attending the Cardiology Clinic of a selected hospital in Colombo district, Sri Lanka

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Background: Myocardial infarction (MI) is a foremost public health challenge worldwide. Dietary patterns and knowledge of their impact are critical as preventive strategies that can lead to improving the quality of life. This study aimed to describe the influence of dietary patterns and nutritional knowledge on myocardial infarction among patients attending the cardiology clinic of a selected hospital in Colombo district, Sri Lanka.

Methods: This cross-sectional study was conducted at the cardiology clinic of a selected tertiary care hospital in Colombo district, Sri Lanka. We included 250 patients aged ≥ 18 years diagnosed with MI or presenting for cardiology follow-up for MI related comorbidities for ≥ 6 months, selected through systematic random sampling. Data was obtained using a validated, pretested, structured interviewer administered questionnaire. Descriptive statistics and chi-square tests were used for data analysis. A p value of <0.05 was considered statistically significant.

Results: The majority were female (61.6%)., The mean age of the sample was 52.56 (SD=12.96) years. Dietary assessment revealed that less than half of the participants consumed deep-fried foods (41.6%) and red meat (35.2%) 1-2 days per week, and sweets (42.4%) 3-4 days per week. Majority knew of high intake of salt (63.2%) and processed foods (59.2%) as risk factors for MI, while only 42.8% knew high sugary foods as a risk factor. As preventive measures, intake of a low trans-fat diet was recognized by 84.4%, while only 42% recognized fruit and vegetable intake. Awareness of high intake of sugary food as a risk factor was significantly associated with younger age, nuclear family type, higher educational level and being employed ($p<0.05$).

Conclusion: The study revealed limited nutritional knowledge regarding intake of excessive sugary food as a risk factor for cardiovascular diseases. These findings suggest strengthening community-based educational interventions focusing on dietary knowledge, to support cardiovascular health.

PP15

Persistent geographic distribution of lymphoma in Sri Lanka: A national spatiotemporal analysis, 2015–2022

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Background: Although temporal trends in lymphoma incidence have been widely described, less is known about whether its geographic distribution changes over time. Identifying persistent high-burden regions may help guide regional cancer control strategies and resource allocation. This study examined temporal and geographic patterns of lymphoma incidence in Sri Lanka from 2015 to 2022.

Methods: A retrospective ecological study was conducted using publicly available National Cancer Registry data from 2015–2022. District-level lymphoma cases were analyzed separately by sex. Temporal trends were described, and annual district rankings were compared to identify persistent geographic patterns and consistently high-burden districts.

Results: Lymphoma incidence increased from 474 to 842 cases among males and from 267 to 619 cases among females between 2015 and 2021, followed by declines to 601 and 428 cases, respectively, in 2022. Despite these temporal fluctuations, the overall geographic distribution remained largely consistent throughout the study period. Colombo, Gampaha, Kandy, Kurunegala and Ratnapura were repeatedly among the districts with the highest lymphoma burden, while northern districts consistently reported comparatively fewer cases. The persistence of these geographic patterns suggests limited redistribution of lymphoma burden over time.

Conclusion: Although annual lymphoma incidence varied during the study period, the geographic distribution remained broadly stable across districts. Persistently high-burden districts may represent priority areas for surveillance, diagnostic services and future epidemiological research, to better understand regional factors associated with lymphoma incidence.

PP16

Diagnostic delay signature in breast cancer: A population-based proxy for early detection and treatment effectiveness

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Background: Population-based assessment of diagnostic delay is challenging because cancer registries rarely capture diagnostic timelines. Stage at diagnosis reflects disease progression, while the mortality-to-incidence ratio (MIR) is an ecological proxy for survival and health system performance. This study applied the Diagnostic Delay Signature (DDS), integrating stage distribution and MIR, to evaluate temporal patterns of breast cancer detection and outcomes in Sri Lanka.

Methods: A population-based ecological study was conducted using publicly available National Cancer Registry data. Breast cancer stage distribution (2015–2022) and national incidence and mortality data (2015, 2019–2021) were analyzed. Late-stage presentation was defined as Stage III–IV disease. The MIR was calculated as the ratio of mortality to incidence for available years, while DDS was derived by jointly interpreting late-stage burden and MIR to characterize population-level diagnostic and outcome patterns.

Results: A total of 35,216 breast cancer cases were diagnosed between 2015 and 2022. Annual incidence increased from 3,690 cases in 2015 to 5,610 in 2021. The proportion of Stage III–IV disease declined from approximately 34–38% during 2015–2016 to 28–29% during 2021–2022. The MIR remained consistently low (0.15–0.20) with little temporal variation. The coexistence of declining late-stage presentation and stable low MIR was consistent with a DDS pattern suggesting improvements in early detection alongside favourable population-level outcomes.

Conclusion: Breast cancer in Sri Lanka demonstrates temporal changes in stage distribution accompanied by persistently low MIR. The Diagnostic Delay Signature provides a complementary population-level framework for interpreting patterns of early detection and cancer outcomes using routinely available registry data and may support monitoring of breast cancer control programmes.

PP17

Can personalized antenatal care mitigate obesity-related maternal and neonatal complications? Evidence from a community-based cross-sectional study from Sri Lanka

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Background: Pre-pregnancy overweight and obesity increase pregnancy complications and healthcare utilization. Sri Lankan evidence on obesity-focused antenatal care and related outcomes remains limited. This study assessed whether personalized antenatal care, which went beyond routine service provision and was tailored to the individual needs and risk profile of the pregnant woman, was associated with reduced obesity-related maternal and neonatal complications among pre-pregnancy overweight and obese mothers in Sri Lanka.

Methods: A community-based descriptive cross-sectional study with an analytical component was conducted among postpartum mothers. Mothers with a documented body-mass-index (BMI) $\geq 25\text{kg/m}^2$ at the antenatal booking visit were recruited. Data were collected using an interviewer-administered questionnaire and antenatal records. Data were analyzed using SPSS version-26. Multivariable logistic

regression was used to estimate adjusted odds ratios and 95% confidence intervals. Personalized care was assessed based on whether the mother had received the services. The total number of personalized care components received was then used to rate the intensity of personalized antenatal care.

Results: Among 427 postpartum mothers with pre-pregnancy excess weight, 271 (63.5%) were overweight and 156 (36.5%) were obese. Only 23.4% received moderate-to-high personalized antenatal care. Gestational Diabetes Mellitus (GDM) and PIH affected 35.1% and 19.9% of mothers, respectively, while neonatal complications were reported in 26.0% of newborns. Personalized antenatal care was independently associated with lower odds of PIH (AOR=0.30, 95% CI: 0.13–0.70, $p=0.006$) and GDM (AOR=0.37, 95% CI: 0.17–0.81, $p=0.013$). A significant interaction was observed between maternal BMI category and personalized antenatal care ($p=0.005$), with stronger protective associations among obese mothers.

Conclusions: Personalized antenatal care was underutilized among overweight and obese mothers despite a high burden of obesity-related complications. These findings suggest that structured, obesity-focused antenatal care delivered through community maternal health services may reduce maternal and neonatal morbidity and should be prioritized within health programmes in Sri Lanka and similar lower-middle-income country settings.

PP18

The association between red cell distribution width (RDW) and stages of chronic kidney disease: A cross-sectional study among Sri Lankan patients

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Background: Chronic Kidney Disease (CKD) is a major non communicable disease in Sri Lanka. Sri Lanka still lacks validated, low-cost, and accessible prognostic tools for assessing CKD progression. This study aims to address this gap by evaluating the utility of Red Cell Distribution Width (RDW), a routinely available hematological parameter, as a marker for the severity and progression of CKD.

Methods: A hospital based cross-sectional study was conducted among 226 CKD patients attending the nephrology clinic at National Hospital Galle, Sri Lanka. Sociodemographic, clinical, and lifestyle data were collected using an interviewer-administered questionnaire. Complete blood count and serum creatinine analyses were performed, and estimated glomerular filtration rate (eGFR) was calculated using the CKD-EPI equation. Data was analyzed using descriptive and inferential statistics at 5% significance level. Ethics approval was obtained from the Ethics Review Committee, Faculty of Allied Health Sciences, University of Ruhuna.

Results: Out of all ($n=226$), 46.46% ($n=105$) were females. Significant differences in RDW were observed across CKD stages ($F=35.96$, $p<0.001$), with mean RDW increasing progressively from 12.95% in Stage 1 to 14.92% in Stage 5. Hemoglobin concentration ($F=18.12$, $p<0.001$) and RBC count ($F=8.60$, $p<0.001$) also differed significantly among CKD stages 1-5. Pearson correlation analysis demonstrated a significant moderate negative correlation between RDW and eGFR ($r=-0.504$, $p<0.001$), indicating that higher RDW values were associated with poorer renal function. The Receiver Operating Characteristic (ROC) curve analysis showed that RDW had acceptable discriminatory ability for identifying advanced CKD (Stages 4–5), with an area under the curve (AUC) of 0.760 (95% CI: 0.697–0.824, $p<0.001$). Logistic regression analysis revealed that RDW was a significant predictor of

advanced CKD (OR=2.806, $p<0.001$), with each 1% increase in RDW associated with a 2.8-fold increase in the odds of advanced disease.

Conclusion: RDW increased with CKD progression and inversely correlated with eGFR, suggesting its potential as a cost-effective biomarker for CKD severity.

PP19

Health-seeking behaviour and associated factors related to non-communicable disease prevention among estate adults in a selected district, Sri Lanka: A preliminary analysis

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Background: Non-communicable diseases (NCDs) are a major public health concern in Sri Lanka. Estate populations often face limited access to preventive healthcare services due to socioeconomic, geographic, and occupational barriers. Healthy Lifestyle Centres (HLCs) play an important role in NCD prevention and early detection, yet their utilization among estate workers remains poorly explored. This study examined health-seeking behaviour (HSB) and associated factors among adult estate workers in Kegalle District.

Methods: A descriptive cross-sectional study was conducted among 252 adults aged 30–59 years residing in selected estate communities in the Kegalle district, excluding pregnant/lactating women and those with severe psychiatric disorders. Data were collected using a pretested interviewer-administered questionnaire. Data were analyzed using IBM SPSS version 25. The Chi-Square test was used, and significance was set at $p<0.05$.

Results: Among the participants, 51.6% ($n=130$) were Tamil, and 78.6% ($n=198$) were female. The majority were aged 40–49 years (49.2%, $n=124$), with a mean age of 43 years ($SD=\pm 6.7$). Overall, HLC awareness was 59.5% ($n=138$). Only 28.2% ($n=68$) had visited a HLC, and none were self-referrals. Diagnosis of NCD was reported by 23.8% ($n=60$), of which 66.6% ($n=40$) sought healthcare within one month of diagnosis. Worsening symptoms triggered care-seeking among 71.6% ($n=43$). Awareness on HLC was significantly high among females and Sinhalese ($p<0.05$). However, no significant associations were observed between HLC awareness and age, educational level, occupation, monthly income, or family size ($p>0.05$).

Conclusion: Health-seeking behaviour for NCD prevention is suboptimal among estate adults in Kegalle District, with fewer than one-third having utilized HLCs. Gender and ethnicity are significant determinants. Targeted interventions for male and Tamil-speaking populations are essential to improve uptake of NCD preventive care in estate communities of Sri Lanka.

PP20

Evaluation of risk factors of childhood asthma among children aged 5–14 years: A hospital-based case-control study in Sri Lanka

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Background: Childhood asthma is a common chronic disease in Sri Lanka and imposes a substantial healthcare burden. Identifying locally relevant risk factors may help guide preventive strategies. The study aimed to assess risk factors associated with childhood asthma among children aged 5–14 years attending a tertiary hospital in Colombo, Sri Lanka.

Methods: A hospital-based case-control study was conducted at Colombo South Teaching Hospital. A total of 180 children were enrolled, including 60 physician-diagnosed asthmatic cases and 120 non-asthmatic controls. Data were collected using an interviewer-administered questionnaire. Risk factors assessed included family history of atopy, allergic rhinitis, eczema, household cigarette smoking, biofuel use, domestic animal ownership, mosquito coil use, and room overcrowding. Associations were assessed using chi-square tests and odds ratios (ORs) with 95% confidence intervals (CIs). Multivariable logistic regression was performed to identify independent predictors.

Results: The mean age was 8.7 years, and 60% were male. Significant associations were observed between asthma and family history of atopy (OR=3.85, 95% CI: 2.00–7.43, $p<0.001$), allergic rhinitis (OR=9.27, 95% CI: 4.16–20.64, $p<0.001$), and eczema (OR=15.72, 95% CI: 1.89–130.96, $p=0.001$). After adjustment, family history of atopy (adjusted OR=3.54, 95% CI: 1.7–7.4, $p=0.001$) and allergic rhinitis (adjusted OR=8.62, 95% CI: 3.4–21.9, $p<0.001$) remained independent predictors. Environmental exposures were not significantly associated with asthma.

Conclusion: Childhood asthma was independently associated with family history of atopy and allergic rhinitis. Early identification of children with atopic predisposition may support targeted asthma prevention and control strategies.

PP21

Utilization of Well Woman Clinic services by patients diagnosed with cervical and breast cancers at the National Cancer Institute, Sri Lanka

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Background: Well Woman Clinics (WWCs) provide free screening services for breast and cervical cancers in Sri Lanka. However, the rising incidence of these cancers and continued presentation at advanced stages suggest suboptimal utilization of WWC services. Unlike previous studies conducted among the general population, this study examines previous utilization among women who ultimately developed cancer, identifying missed opportunities for screening and early detection.

Methods: A hospital-based descriptive cross-sectional study was conducted among 288 women diagnosed with breast or cervical cancer attending the National Cancer Institute, Maharagama. Participants were selected using systematic random sampling. Data were collected using a pre-tested interviewer-administered questionnaire and a clinical data extraction sheet. Descriptive statistics and Chi-square tests were performed using SPSS version 26, with statistical significance set at $p < 0.05$.

Results: Among participants, 59.7% had breast cancer and 40.3% had cervical cancer. Most patients were aged 35-54 years (57%), married (86.8%), Sinhalese (77.4%) and living in urban areas (62.5%). Although 70.3% reported prior awareness of WWC services, only 43.1% had attended a clinic before diagnosis. Awareness was obtained predominantly through Public Health Midwives, while media contributed minimally. Well Woman Clinics contributed to the detection of 32.3% of cancers, while most diagnoses occurred through other healthcare pathways. Younger age (≤ 45 years), higher education level, and higher monthly income ($> \text{LKR } 60,000$) were significantly associated with WWC utilization. Among non-attendees, the commonest barrier was lack of practical knowledge regarding when and where services were available.

Conclusion: Despite relatively high awareness, WWC utilization remained low, highlighting missed opportunities for early detection. The findings highlight important gaps in practical awareness and accessibility of preventive screening services within the public healthcare system. Strengthening media-based health promotion with greater emphasis on practical information regarding clinic locations and service access pathways, may improve participation in WWC services and promote earlier cancer detection.

PP22

Synergistic antibacterial potential of zinc oxide nanoparticles conjugated with curcumin and piperine: a nano-bio hybrid approach

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Background: The rapid rise of antibiotic resistance emphasises the urgent need for innovative antimicrobial strategies. This study focused on developing and analysing a nano-bio hybrid system made of zinc oxide nanoparticles functionalised with curcumin and piperine.

Methods: The zinc oxide nanoparticles were prepared using a chemical precipitation method. The antibacterial properties of the nano-bio hybrid were tested in vitro against *Escherichia coli*, *Staphylococcus aureus*, and *Salmonella typhimurium* using the disc diffusion assay.

Results: The zinc oxide nanoparticles were well dispersed and mainly spherical, with some irregular shapes. Scanning electron microscopy revealed an average particle size close to 150nm, with most ranging from 80-300nm and displaying a consistent size distribution. X-ray diffraction confirmed the crystalline structure of zinc oxide as hexagonal wurtzite, with an average crystallite size of 48.62nm. Fourier-transform infrared spectroscopy indicated effective attachment of curcumin and piperine to the nanoparticle surfaces, as demonstrated by characteristic absorption bands for hydroxyl, carbon-carbon double bonds, carbon-oxygen bonds, and zinc-oxygen bonds. The measured drug-loading efficiency was 10.82% for curcumin and 20.8% for piperine, confirming efficient surface adsorption. The nanoparticles functionalised with curcumin and piperine showed stronger antibacterial effects against *Escherichia coli* and *Staphylococcus aureus* than the individual agents alone, suggesting a synergistic

interaction. In contrast, there was no detectable inhibitory effect against *Salmonella typhimurium*, possibly due to strain-specific resistance mechanisms.

Conclusion: These results suggest that zinc oxide nanoparticles co-functionalised with curcumin and piperine have significant antibacterial potential and could be explored further as new antimicrobial agents. Additional research is necessary to assess their performance in more complex biological environments and against a wider range of microorganisms.

PP23

Synthesis and evaluation of antibacterial activity of curcumin conjugated zinc oxide nanoparticles

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Background: The growing challenge of antimicrobial resistance has prompted an urgent need to explore new antibacterial approaches that go beyond traditional antibiotics. This study synthesised curcumin-conjugated zinc oxide nanoparticles via chemical precipitation and solvent-based physical adsorption, evaluating their enhanced antibacterial efficacy.

Methods: The synthesised zinc oxide-curcumin nanoparticles were characterised using scanning electron microscopy (SEM), powder X-ray diffraction (PXRD), Fourier-transform infrared (FTIR) spectroscopy, UV-visible spectroscopy, and dynamic light scattering (DLS). Antibacterial activity was evaluated using an agar diffusion assay.

Results: Characterisation by SEM revealed spherical zinc oxide nanoparticles (~150nm) with minimal aggregation, while PXRD confirmed a crystalline wurtzite structure (JCPDS 80-0075) with an average crystallite size of 48.62nm (Scherrer's equation). FTIR spectroscopy confirmed successful conjugation of curcumin onto zinc oxide nanoparticles, evidenced by characteristic O-H (~3416cm⁻¹), C=O (~1616cm⁻¹), aromatic C-C/C-O (~1411-1394cm⁻¹), Zn-O stretching (~652 and ~426cm⁻¹), and C-O-C/C-H bending (~1125-926cm⁻¹) peaks, indicating stable surface conjugation without disrupting the zinc oxide crystal lattice. UV-visible spectroscopy quantified curcumin loading (capacity: 46mg/g; efficiency: 12.19%), demonstrating successful conjugation. Antibacterial assays against *Escherichia coli*, *Staphylococcus aureus*, and *Salmonella typhimurium* revealed synergistic effects: zinc oxide-curcumin nanoparticles exhibited larger inhibition zones (12mm) compared with individual agents (9-10mm) against *E. coli* and *S. aureus*, while no activity was observed against *S. typhimurium*, highlighting strain-specific responses. DLS indicated post-synthesis agglomeration (3283nm), underscoring the need for dispersion optimisation.

Conclusion: The combined mechanisms of zinc oxide (ROS generation, membrane disruption) and curcumin (molecular interference) enhanced antibacterial action while potentially reducing cytotoxicity. Future studies should focus on improving conjugation efficiency, elucidating molecular mechanisms of synergy, and validating in vivo biocompatibility for clinical translation. The zinc oxide-curcumin nanoparticle system represents a compelling step towards next-generation antimicrobial nanotherapeutics.

PP24

Quantitative biochemical analysis of sulfated fucoidans extracted from native brown seaweed *Sargassum ilicifolium* using the BaCl₂-gelatin turbidimetric assayH.E. Fernando*Faculty of Medicine, University of Kelaniya, Sri Lanka*

Background: Fucoidan from *Sargassum ilicifolium* is reported to possess immunomodulatory potential, which is closely associated with its sulphate content. Since sulphate levels in Sri Lankan seaweeds are underreported, this study quantified sulphate in crude *S. ilicifolium* fucoidan extract using the BaCl₂-gelatin turbidimetric assay reliably.

Methods: Diluted fucoidan samples (100µL) or K₂SO₄ standards (100-600µg/mL) were mixed in 96-well plates with 120µL distilled water, 20µL gelatin (5mg/mL), 10µL 1M HCl, and 50µL 10% BaCl₂. Plates were incubated at room temperature for 20 minutes to precipitate BaSO₄. Absorbance was measured at 420nm. Sulphate concentrations were determined from the K₂SO₄ calibration curve, corrected by a threefold dilution factor using a microplate reader with blank subtraction.

Results: The K₂SO₄ calibration curve was highly linear ($R^2=0.9812$) over 100-600µg/mL, with the regression equation $y=0.0002x+0.0269$. The *S. ilicifolium* fucoidan sample had a mean corrected absorbance of 0.1647 ± 0.017 . Using the calibration, this corresponded to $334.7\pm84.5\mu\text{g/mL}$ sulphate in the assay (pre-dilution). After applying the threefold dilution factor, the extract's sulphate concentration was $1004.1\pm253.5\mu\text{g/mL}$, yielding 16.7% sulphate (w/w) in the crude fucoidan.

Conclusion: This study successfully quantified sulphate in crude *S. ilicifolium* fucoidan extract. The measured sulphate content (16.7%, w/w) confirms that Sri Lankan *S. ilicifolium* is a source of sulphated fucoidan and is consistent with previous reports of sulphate contents ranging from ~10-50% in *Sargassum* species, representing a promising sustainable marine resource for future immunomodulatory studies.

PP25

Investigation of cost effective, biodegradable materials as an alternative for agarose to be used as a gel matrix in electrophoresis

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Background: Agarose gel electrophoresis is the gold standard for nucleic acid electrophoresis, but its high cost limits accessibility in low-resource settings. This study aimed to develop a cost-effective, biodegradable gel that could replace agarose using corn starch, food-grade agar as a solidifying agent, and polyvinyl alcohol (PVA) as an alternative matrix medium for DNA electrophoresis. In addition, this study aimed to characterise transparency, thermal, chemical, and rheological properties to understand the material's structure.

Methods: Gels were prepared with different combinations of corn starch, food-grade agar, and PVA to optimise gel formation and handling. Electrophoretic performance was tested using microbial DNA and

compared with conventional agarose. Chemical bonds, thermal, and rheological properties were measured using Fourier-transform infrared spectroscopy (FTIR), differential scanning calorimetry (DSC), and viscosity measurements, respectively. Visualised DNA from the developed gel matrix was extracted and quantified using a NanoDrop spectrophotometer.

Results: The developed gel appeared semi-transparent and flexible compared with conventional agarose gel. The migration of microbial DNA was observed, confirming electrophoretic compatibility of the developed gel. Post-electrophoretic gel DNA extraction confirmed that the DNA fragments had migrated through the gel, with NanoDrop analysis showing DNA concentrations ranging from 41.0-51.8ng/ μ L and 260/280 purity ratios ranging from 1.22 to 1.42. FTIR analysis confirmed the presence of significant functional groups similar to agarose, while higher viscosity at lower temperatures indicated improved gelation. The DSC thermograms indicated strong intermolecular interactions and less chain mobility. Increased absorbance indicated lower optical transparency and greater light scattering within the polymer matrix.

Conclusion: The developed gel matrix demonstrated satisfactory electrophoretic performance, indicating that it could be used in resource-limited settings. Further studies are recommended, as limited electrophoretic testing was performed.

PP26

Development and antioxidant characterisation of herbal syndet soap infused with venivel, vetiver and rathambala extracts

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Background: This study created a new herbal syndet soap using optimised extracts of three Sri Lankan plants: *Coscinium fenestratum*, *Ixora coccinea*, and *Chrysopogon zizanioides*. While each plant benefits skin individually, their combined synergistic effects in syndet bases have not previously been studied. The soap was formulated and tested for physicochemical characteristics, antioxidant and antibacterial activity, while maintaining compound stability.

Methods: Powdered plant samples of the three plants were subjected to cold sequential extraction using distilled water and 70% ethanol. Following extraction, plant extracts were combined at ratios of 1:4 and 1:9 (plant material-to-solvent) and infused into syndet soap. Following one week of curing, physicochemical characteristics, 2,2-diphenyl-1-picrylhydrazyl (DPPH) and 2,2'-azino-bis(3-ethylbenzothiazoline-6-sulphonic acid) (ABTS) free-radical scavenging activities were further investigated. Moreover, the antibacterial activity of the soap was evaluated via the disc diffusion method.

Results: The physicochemical analysis of the soap, conducted after the curing process, showed a pH of 5.5, a foam stability index of 99.4, alcohol-insoluble matter of 2.36g, and a moisture content of 5%. These results indicate that the soap possesses good stability and quality characteristics. In comparison with the control samples, the soap also demonstrated minimal weight loss (<6%) and did not produce hard-water scum. The plant-infused soap demonstrated significant antioxidant activity compared with the negative control, with a DPPH IC₅₀ of 147.78 $\pm$ 7.23 μ g/mL (p <0.05) and an ABTS IC₅₀ of 253.14 $\pm$ 32.27 μ g/mL (p <0.05). The plant extract showed antibacterial activity: against *S. aureus*, it produced a mean zone of inhibition of 19.0 $\pm$ 1.20 mm (SEM), while against *E. coli*, the mean zone was 20.0 $\pm$ 0.00 mm (SEM).

Conclusion: The findings confirm the synergistic retention of bioactivity, making this herbal soap an eco-friendly antioxidant skin-protective substitute.

PP27

Biotechnological potential of epiphytic yeasts from lovi fruit (*Flacourtia inermis*) in fermented beverage production

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Background: Lovi (*Flacourtia inermis*) represents an underutilised fruit in Sri Lanka, with significant yet largely unexplored biotechnological potential. Characterised by its bright red drupes, lovi is traditionally valued for its astringent properties and rich antioxidant profile. Previous studies have focused on the fruit's phytochemical and medicinal properties, with limited attention to its associated yeast communities. This study aimed to investigate the diversity of epiphytic yeasts associated with lovi and assess their fermentation potential for novel beverage production.

Methods: Fruit samples were collected, and yeast isolation was carried out through fruit washing followed by serial dilution and culturing on potato dextrose agar supplemented with gentamicin. Eight morphologically distinct colonies were purified by quadrant streaking. Fermentation screening was performed using glucose, fructose, and sucrose to evaluate sugar utilisation capabilities of the isolates. Antagonistic assays were conducted to assess isolate compatibility and their suitability for consortium development. Molecular identification of the most efficient fermentative isolate was performed using DNA extraction followed by PCR amplification using ITS1 and ITS4 primers. PCR products were confirmed by gel electrophoresis and subsequently purified for Sanger sequencing.

Results: Microscopic observations using Lactophenol Cotton Blue staining confirmed the cellular morphology of the isolates. Among the eight isolates, fermentation efficiencies of 87% for glucose, 75% for fructose, and 50% for sucrose were observed, indicating glucose as the most efficiently utilised substrate. Isolates FI-J02, FI-J06, and FI-J07 were used as a yeast consortium to ferment lovi fruit extracts for 21 days. Sequence analysis showed that the isolate with the best fermentation potential, FI-J07, belongs to the genus *Meyerozyma* (accession no. PZ139164), while phylogenetic analysis revealed a close evolutionary relationship with *Meyerozyma caribbica* (KC422423).

Conclusion: These findings on epiphytic yeasts from lovi represent an initial step towards a potential bioresource framework, requiring further research to explore yeast diversity and evaluate fermented beverage quality and applications.

PP28

Effectiveness of *Osbeckia octandra* L. and *Melastoma malabathricum* L. fruit extracts and *Ixora coccinea* L. flower extract as natural alternatives to haematoxylin and eosin in routine histology

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Background: Haematoxylin and eosin (H&E) staining is the routine standard staining technique in histopathology for visualising tissue architecture. However, its dependence on synthetic chemicals, potential health hazards, environmental concerns, and supply limitations have encouraged the search for safer, cost-effective, and sustainable alternatives. This study explores the staining capability of selected Sri Lankan plant extracts as alternatives to conventional H&E staining. The study aimed to use *Osbeckia octandra* (Heen Bovitiya), *Melastoma malabathricum* (Maha Bovitiya), and *Ixora coccinea* (Rathmal) extracts as natural substitutes for haematoxylin and eosin in the histological staining of paraffin-embedded tissue sections.

Methods: An in vitro experimental study was conducted using bovine skeletal muscle tissue. Plant extracts were prepared from Bovitiya fruits and *Ixora* flowers using methanol under varying extraction ratios, pH conditions, and staining times. Standard H&E staining was used as the control. The pigments were kept in contact with the tissue either in one extract or in both extracts. The stained sections were evaluated microscopically for nuclear staining, cytoplasmic staining, contrast, background staining, and overall staining quality.

Results: *Ixora coccinea* extract demonstrated moderate cytoplasmic staining with a light pink colouration, particularly at a 1:2 extraction ratio, pH 4-5, and 20-minute staining time. However, the staining intensity was not similar to eosin. Both *Osbeckia octandra* and *Melastoma malabathricum* extracts showed poor nuclear staining under all tested conditions. The combination of *Ixora* and Bovitiya extracts resulted in moderate cytoplasmic staining but poor nuclear staining.

Conclusion: Among the tested plant extracts, *Ixora coccinea* showed potential as a natural alternative to eosin for cytoplasmic staining. The Bovitiya species is inoperative as a substitute for haematoxylin. The findings provide baseline data supporting the potential of plant-based stains, and further optimisation is required to improve staining intensity.

PP29

Potential of placental membrane in wound healing and as a possible antimicrobial source: a preliminary clinical study

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Background: Chronic venous ulcers heal slowly because of persistent inflammation, impaired angiogenesis, and microbial colonisation, resulting in prolonged morbidity and repeated healthcare visits. Human Amniotic Membrane (HAM), or placental membrane, is a biologically active dressing rich in growth factors, regenerative cells, and antimicrobial peptides, with anti-inflammatory, low-immunogenic, pro-epithelialisation, and antimicrobial properties that may accelerate chronic wound healing. The aim of this study was to evaluate the clinical healing response and microbiological changes following placental membrane dressing in patients with chronic venous ulcers.

Methods: This prospective observational study enrolled 40 consecutive patients aged ≥ 12 years with chronic venous ulcers of >6 weeks' duration at the School of Tropical Medicine, Kolkata. After baseline evaluation, wound documentation, and debridement as required, freshly procured placental membrane from screened, consenting post-caesarean donors was applied as a biological dressing two to three times weekly and covered with secondary sterile dressings. Systemic antibiotics were administered only when clinically indicated. Wound area, granulation, epithelialisation, exudate, and signs of local infection were recorded serially over 6 months. Wound area reduction across time points was analysed using the

paired t-test/Wilcoxon signed-rank test, healing proportions using descriptive statistics, and change in wound culture positivity using the McNemar test; a p -value <0.05 was considered statistically significant.

Results: The mean baseline ulcer area was $12.4 \pm 6.8 \text{ cm}^2$, decreasing to $4.9 \pm 3.2 \text{ cm}^2$ at 3 months and $1.2 \pm 2.1 \text{ cm}^2$ at 6 months ($p < 0.001$). A $\geq 50\%$ reduction in ulcer area by 3 months was achieved in 27/40 patients (67.5%), and complete epithelialisation by 6 months in 23/40 patients (57.5%); the remaining cases showed 80-90% area reduction with healthy granulation and epithelialisation. The mean time to complete healing was 9.8 ± 3.4 weeks. Wound culture positivity declined from 28/40 (70.0%) at baseline to 8/40 (20.0%) at follow-up ($p < 0.001$). No serious adverse events, hypersensitivity reactions, or deterioration of comorbidity were observed.

Conclusion: Placental membrane dressing was associated with a significant progressive reduction in ulcer size, improved granulation and epithelialisation, and a significant decline in microbial burden without adverse events. Placental membrane may serve as a useful biologically active adjunct for chronic venous ulcer care, warranting larger controlled studies.

PP30

Association between sleep quality and intelligence quotient and emotional quotient of nursing undergraduates of a selected university in Colombo, Sri Lanka

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Background: Cognitive performance and emotional regulation are of importance for nursing undergraduates. Poor sleep is particularly common among them, due to demanding academic and clinical schedules, which may affect their cognitive performance and emotional regulation. The study aimed to assess the association between sleep quality, Intelligence Quotient (IQ) and Emotional Quotient (EQ) among nursing undergraduates of a selected university in Colombo, Sri Lanka.

Methods: An institutional-based descriptive cross-sectional study was conducted among 158 nursing undergraduates at the Faculty of Allied Health Sciences, General Sir John Kotelawala Defence University. Participants were recruited using systematic random sampling. Sleep quality was assessed using the Pittsburgh Sleep Quality Index (PSQI), IQ using Total IQ score and EQ using Total EQ score. Data was analyzed using SPSS version 25.0, and statistical significance was set as at $p < 0.05$.

Results: Most students were of 24 -25 years' age group (53.8%, $n=85$), followed by 21-23 years' age group (43.7%, $n=69$), and 79.7% ($n=126$) were females. Mean $\pm$ SD global PSQI score was 5.57 ± 2.38 , with 44.9% ($n=71$) reporting poor sleep quality. Mean $\pm$ SD IQ score was 10.2 ± 1.53 (maximum total score=12), while the mean $\pm$ SD EQ score was 54.58 ± 10.88 (maximum total score=75). Global PSQI score demonstrated a weak, negligible negative correlation with both total IQ score ($r=-0.177$, $p < 0.05$) and total EQ score ($r=-0.164$, $p < 0.05$), indicating that poor sleep quality was associated with lower cognitive performance and emotional regulation among nursing undergraduates.

Conclusion: Poor sleep quality, which was prevalent among nursing undergraduates, showed a statically significant negative association with both total IQ and EQ scores. Improving sleep hygiene among nursing undergraduates will improve their cognitive functioning and emotional regulation and thus, the overall academic performance.

PP31

Prevalence of depression, anxiety, stress, and associated factors among nursing officers in a selected hospital in Gampaha district

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Background: Nursing officers play an essential role in the healthcare system, ensuring effective patient care services. However, continuous exposure to various occupational stressors, such as excessive workload, emotional demands, long and irregular working hours, and complex decision-making responsibilities, can significantly increase the risk of developing mental ill health, which can disrupt both personal and professional life. The study aimed to describe the prevalence of depression, anxiety & stress and to determine its associated factors among nursing officers in a selected hospital in Gampaha district.

Methods: A cross-sectional descriptive study was conducted among 248 nursing officers selected using simple random sampling from the District General Hospital, Gampaha. Data were collected using a pretested self-administered questionnaire consisting of sociodemographic, work-related, and health-related information, and the Depression, Anxiety, and Stress Scale 21 (DASS 21). Associations between selected variables were assessed using the Chi-square test, with statistical significance set at 95% confidence level.

Results: The response rate was 100% (n=248). From the total number of nursing officers, 22.2% (n=55) had anxiety ranging from mild to extremely severe intensity. Among them, 23.8% (n= 59) showed depressive symptoms and 21.4 % (n=53) had stress levels higher than normal scores. Age ($p<0.009$) and work experience ($p<0.03$) showed statistically significant associations with depression, while marital status ($p<0.01$), working unit ($p<0.004$), and sleep disturbances ($p<0.001$) showed significant associations with anxiety. Age ($p<0.001$), working unit ($p<0.001$), and sleep disturbances ($p<0.005$) showed significant associations with stress.

Conclusion: Work experience, working unit and poor sleep, were identified as modifiable associated factors for mental health problems among nurses. Addressing those factors with timely and appropriate preventive interventions and support for nurses is necessary to promote nurses' mental well-being.

PP32

Exploring the relationship between physical activity and stress among students of a private university in Gampaha district, Sri Lanka

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Background: University students are at risk of stress because of their academic workload, changed lifestyle and their personal responsibilities. Exercise can have a positive effect on mental health and stress levels. But there is limited evidence about this relationship among students in private universities in Sri Lanka. This study investigated the correlation between physical activity and stress among undergraduate students at a selected private university in Gampaha District, Sri Lanka.

Methods: A descriptive cross-sectional study was conducted, with a sample of 152 undergraduate students sampled using stratified random sampling. A self-administered questionnaire, the World Health Organization Global Physical Activity Questionnaire (WHO-GPAQ) and the Depression Anxiety Stress Scale-21 (DASS-21) stress subscale were used to collect data. IBM SPSS Statistics version 26 was used for analyzing the data, using both descriptive statistics and Chi-square Test.

Results: The majority of the respondents were female (84.2%), nursing students (69.7%) and third year students (45.4%). Around 44.1% of participants indicated high stress, 17.1% indicated moderate stress and 38.8% indicated low stress. Stress was significantly associated with age ($\chi^2=4.32, p=0.038$), year of study ($\chi^2=5.11, p=0.024$), and academic discipline ($\chi^2=6.02, p=0.014$), but not with gender ($p=0.646$). Low physical activity and high stress were seen among the students. Regular physical activity and stress management programmes can help to enhance the physical and psychological health of students.

Conclusion: There is increasing recognition of the need for physical activity in university students to mitigate stress, and the WHO-GPAQ and DASS-21 are valuable tools for measuring physical activity and stress, respectively.

PP33

Perception of stress among undergraduates in the Faculty of Allied Health Sciences of a selected Sri Lankan university and its associated factors

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Background: Although stress among Sri Lankan university students has been widely reported, few studies have examined multiple domains of stress within a single faculty. We assessed the prevalence of perceived stress and its associated factors among undergraduates in the Faculty of Allied Health Sciences (FAHS), University of Sri Jayewardenepura (USJ), Sri Lanka.

Methods: A descriptive cross-sectional study was conducted among undergraduates at the FAHS, USJ using stratified random sampling. Stratification was based on the year of study and degree programme (nursing, pharmacy, medical laboratory science, optometry). The sample size was calculated using an estimated prevalence of perceived stress of 72.3%, with a 10% allowance for non-response. Perceived stress was assessed using the Perceived Stress Scale (PSS-10) and was categorized as low (0–13), moderate (14–26), and high (27–40). Academic stress scale and World Health Organization – Quality Of Life tool were used to assess environmental, social, and academic domains. Associations were examined using bivariate analyses and multivariate logistic regression. Adjusted Odds Ratios (AOR) were calculated to estimate effect sizes.

Results: A total of 339 undergraduates participated. The prevalence of high, moderate, and low perceived stress was 7.8%, 89.9% and 2.3%, respectively. Although several sociodemographic factors were significantly associated with perceived stress in bivariate analyses, only a history of mental illness (AOR=7.87, $p=0.022$) and year of study (AOR=5.279, $p=0.013$) remained significant in the multivariate model. Students with a history of mental illness and those in the third year of study had significantly higher odds of experiencing high perceived stress.

Conclusion: More than 97% of undergraduates experienced moderate to high levels of perceived stress. A history of mental illness and being in the third year of study were independently associated with

higher stress levels. Targeted interventions are suggested to improve the psychological well-being of undergraduate students.

PP34**Mental health literacy and stigma among Dalit women in Nepal: Silenced minds, stigmatized lives**

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Background: Mental health literacy and stigma influence the recognition of mental health problems, help-seeking, and social inclusion. Dalit women in Nepal experience multiple social disadvantages that may increase vulnerability to poor mental health literacy and stigmatizing attitudes. However, evidence among this marginalized population is scarce. This study assessed mental health literacy and reported and intended stigma-related behaviour among Dalit women of reproductive age in Nepal.

Methods: A community-based descriptive cross-sectional study was conducted among 422 Dalit women aged 15–49 years in Tarkeshwor Municipality, Kathmandu, using multistage purposive sampling. Data were collected using a socio-demographic questionnaire, the Modified Kuppaswamy Socio-economic Scale, the Mental Health Knowledge Schedule (MAKS), and the Reported and Intended Behaviour Scale (RIBS). In this study, both instruments were translated into Nepali using a forward–backward translation process, reviewed by experts for cultural appropriateness, pretested, and demonstrated acceptable internal consistency. Descriptive and multivariable logistic regression analyses were performed using SPSS version 26. Ethical approval was obtained from the Nepal Health Research Council.

Results: Participants demonstrated moderate mental health literacy, with better recognition of depression (64.0%) and stress (58.5%) than severe mental health problems (16.4%). Moderate knowledge was observed in 50.9% of the participants. Religion (AOR=0.439, $p=0.019$) and family type (AOR=0.426, $p<0.001$) were independently associated with mental health knowledge. More than half of the participants reported no previous contact with individuals experiencing mental illness and expressed unwillingness for future contact. Family type (AOR=1.828), age group (AOR=3.413), family occupation (AOR=0.451), and family income (AOR=2.594) were significant predictors of stigma-related behaviour.

Conclusion: Mental health literacy among Dalit women was moderate, while stigma towards people with mental illness remained substantial. Community-based, culturally appropriate, and gender-sensitive mental health promotion programmes targeting marginalized women are needed to improve mental health literacy and reduce stigma.

PP35**Mental health problems among Dalit women and associated factors in Kathmandu, Nepal**

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Background: Mental health among women remains a neglected public health issue, particularly among marginalized Dalit women who experience intersecting social, economic, and gender

disadvantages. Despite persistent structural inequalities, evidence on the mental health status of Dalit women in Nepal is limited. This study examined the prevalence of mental illness and its associated factors among Dalit women.

Methods: A community-based cross-sectional study was conducted among 422 Dalit women aged 15–49 years residing in Tarkeshwor Municipality, Kathmandu, Nepal. Participants were selected using a multistage sampling approach. Mental health status was assessed using the General Health Questionnaire (GHQ-28) together with a structured socio-demographic questionnaire. Descriptive statistics, chi-square tests, and bivariate and multivariable logistic regression analyses were performed to identify factors associated with mental illness. Ethical approval was obtained from the Nepal Health Research Council.

Results: The prevalence of mental illness was 19.2%. Social dysfunction was the most affected GHQ-28 domain (19.0%). Lower socio-economic status, measured using the Modified Kuppaswamy Socio-economic Scale, was significantly associated with mental illness ($p=0.030$). Occupation showed a significant association in unadjusted analysis, whereas religion demonstrated only limited association.

Conclusion: Approximately one in five Dalit women experienced mental health problems, indicating a substantial mental health burden among this marginalized population. Socio-economic disadvantage emerged as an important determinant of poor mental health. These findings highlight the need for culturally sensitive, community-based mental health promotion and targeted interventions addressing social inequities. Longitudinal studies are recommended to better understand the long-term effects of marginalization on mental health.

PP36

Validation of an Ultra-Violet Spectrophotometric method and its application in post-marketing quality surveillance of Empagliflozin tablets

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Background:

Empagliflozin is widely used in type 2 diabetes management, with increasing availability of generic formulations. Simple, validated analytical methods are essential for routine quality assessment; however, integration of such methods with post-marketing surveillance remains limited. This study aimed to validate an ultra-violet (UV) spectrophotometric method and evaluate marketed tablet quality.

Methods: A cross-sectional study was conducted for six brands of empagliflozin tablets. The method was validated at 223 nm for linearity, accuracy, precision, specificity, stability, and sensitivity. Quality control tests included weight variation ($n=20$), hardness ($n=20$), disintegration ($n=6$), assay ($n=20$), and dissolution ($n=6$). For spectrophotometric analysis, powdered tablet samples equivalent to 25 mg of active ingredient were dissolved in a 1:1 mixture of de-ionized water and methanol, sonicated for 30 minutes at 37 °C, and filtered using a 0.45 μm polyvinylidene fluoride (PVDF) filter to obtain a 10 $\mu\text{g/mL}$ working solution. Data were expressed as mean $\pm$ standard deviation.

Results: The method showed excellent linearity over 2–20 $\mu\text{g/mL}$ ($R^2=0.9994$), with accuracy (97.8%–100.1%) and precision (relative standard deviation $<2\%$) within acceptable limits. The limit of detection and quantification were 0.34 $\mu\text{g/mL}$ and 1.03 $\mu\text{g/mL}$, respectively. All six brands complied with pharmacopeial specifications for weight variation, with no tablets exceeding allowable limits. Mean

hardness ranged from $26.28 \pm 3.89\text{N}$ to $76.91 \pm 7.38\text{N}$, indicating adequate mechanical strength. Disintegration times were well within limits (35 seconds to 3 minutes 36 seconds). Assay results demonstrated active ingredient content within $9.55 \pm 0.05\text{mg}$ to $10.45 \pm 0.02\text{mg}$. Dissolution testing showed rapid and complete drug release, ranging from $98.11\% \pm 0.11$ to $100.78\% \pm 0.06$ within 30 minutes for all brands.

Conclusion: The validated method is simple, reliable, and specific, showing no interference from common tablet excipients, making it ideal for routine quality control. All brands met pharmacopeial standards, indicating consistent post-marketing quality. This supports the use of cost-effective analytical methods in pharmaceutical surveillance.

PP37

Adopting simulation-based learning in healthcare: An assessment of educators' preparedness

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Background: Simulation-Based Learning (SBL) has emerged as a pivotal pedagogical approach in healthcare education, providing a safe and controlled environment for the development of clinical competencies, critical thinking, and decision-making skills. Despite the influence of various factors on the effectiveness of SBL, educators' readiness to adopt and implement simulation-based methodologies remains a key determinant of its successful integration into higher education. Accordingly, this study aims to evaluate the readiness of healthcare educators for the adoption of simulation-based learning.

Methods: A cross-sectional descriptive study was conducted to assess healthcare educators' readiness at the Faculty of Health-Care Sciences (FHCS), Eastern University, Sri Lanka. All permanent academic staff were invited to participate in this study. Data were collected using the validated Readiness for Simulation-Based Learning in Healthcare Education (RSBL-HE) scale, which includes 15 items across four domains: personal, professional, resources, and infrastructure readiness. Readiness levels were interpreted based on mean score ranges using equal intervals on a five-point Likert scale: low (1.00–2.33), moderate (2.34–3.66), and high (3.67–5.00). Frequencies and percentages were calculated to describe the distribution of participants across the readiness categories.

Results: A total of 32 out of 41 healthcare educators participated in the study (response rate: 78.04%). The overall readiness for SBL was high (mean=3.90), with 21 participants (65.6%) demonstrating a high level of readiness. Among the domains, the educators reported high levels of Personal Readiness (mean=4.60) and Infrastructure Readiness (mean=4.44), while Professional Readiness (mean=3.61) and Resource Readiness (mean=3.28) demonstrated moderate levels of readiness.

Conclusion: Healthcare educators demonstrated a high level of readiness for SBL in FHCS, with strong personal and infrastructure readiness. However, moderate levels of professional and resource readiness highlight the need for targeted faculty development and enhanced resource support to facilitate successful SBL implementation.

PP38

Incidence, time to develop surgical site infection and its predictors among surgical patients admitted at Gurage zone hospitals

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Background: Despite developments in aseptic procedures, the use of antimicrobial treatments, modern sterilization, and surgical techniques, postoperative surgical site infection remains a major issue in surgical patients. As a result, the purpose of this study was to assess the time it takes to develop a surgical site infection and its predictors among surgical patients admitted to Gurage zone hospitals.

Methods: A facility-based prospective follow-up study was carried out. The Kaplan-Meier curve was used to calculate the median survival time and cumulative survival probability for surgical site infections. A Cox proportional hazards regression model was used to find predictor variables, with a *p*-value less than 0.05 in the multivariable analysis being considered independent predictors.

Results: A total of 558 patients were followed, making the response rate 100%. The cumulative incidence rate was found to be 222 per 1000 surgeries, and the surgical site infection-incidence density rate was 9.4 per 1000 person days. The cumulative probability of surgical patients surviving at the end of 30 days was 0.77. In multivariable Cox regression analysis, emergency procedures (adjusted hazard ratio [AHR]=2.10, 95% confidence interval [CI]: 1.45–3.05), prophylactic antibiotic administration >60 minutes before incision (AHR=2.10, 95% CI: 1.25–3.39), ≥7 professionals in the operating room (AHR=1.98, 95% CI: 1.24–3.36), and BMI ≤18.5kg/m² (AHR=2.98, 95% CI: 1.76–4.97) were significant predictors of surgical site infection.

Conclusion: The incidence of surgical site infection was found to be high, with two-thirds of cases occurring during the postoperative follow-up period.

PP39

The leadership gap in academic medicine: why research excellence alone is not enough in India

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Background: Medical leaders serve as principal investigators (PIs), acting as the primary drivers of externally funded research in academic medicine. In resource-constrained contexts such as India, however, institutional support systems struggle to meet the needs of clinically active PIs who lack protected research time. This study examines the micro-level institutional barriers that impede PIs' pursuit of research-driven medical leadership in India.

Methods: A 24-item, five-point Likert scale (1-strongly disagree to 5-strongly agree) questionnaire was completed by 168 PIs to assess three interdependent domains of a research grant: pre-award grant facilitation, project implementation support, and post-award recognition.

Results: Respondents were predominantly male (69.6%), aged 41–50 years (53%), and held MD/MS (45.8%), PhD (34.5%), or DM/MCh (17.3%) degrees. Nearly half were Professors (49.4%), with most affiliated with clinical (46.5%) or basic science (41.7%) specialties. Principal investigators informed dissatisfaction with key support areas, including access to funding opportunities (70.2%, mean=2.74), budgeting (51.2%, mean=2.63), post-grant recognition & motivation (51.2%, mean=2.61), procurement (30.4%, mean=2.55), intellectual property support (36.3%, mean=2.48), and workflow automation (52.9% mean=2.42). However, they rated payroll management (58.9%, mean=3.86) and regulatory compliance (57.7%, mean=3.51) positively.

Conclusion: Informed by these findings, we developed a grounded institutional-support model to strengthen research-driven medical leadership. Our study revealed that significant mismatch exists between individual PI's achievements and institutional research support. Extending principal-agent theory, the study highlights institution's struggle to act as effective 'internal principals' for clinically-active medical research leaders. Our proposed model provides practical and actionable strategies to enhance research-driven medical leadership in the non-western contexts.

PP40

Estimating the stature of repatriated Vedda skeletal collection of Sarasin using femoral and tibial multiple regression equations

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Background: Stature estimation using long bones is a key component of biological profile reconstruction from the skeletal remains in forensic anthropology and bioarchaeology. Morphometric records of Vedda people are limited. Stature of Vedda was estimated using long bones collected by Swiss naturalists Paul and Fritz Sarasin during the late nineteenth and early twentieth centuries, preserved at the Natural History Museum in Basel, and repatriated to Sri Lanka in 2024.

Methods: Femora and tibiae of adult skeletons of repatriated skeletal remains were examined. Maximum lengths of the femur and tibia were measured using an osteometric board (0.1cm accuracy). Stature was estimated using the multiple regression equation derived by Trotter and Gleser from Femur+Tibia for White and Negro males in 1952 and 1958, for Mongoloid males in 1958, for White and Negro females in 1952, and the multiple regression equation derived by Pomeroy et al. in 2018 for South Asian males and females.

Results: Mean of estimated male stature (n=7) was 169.78±2.61cm (using Trotter and Gleser, 1952 for White), 170.30±2.53cm (1958, White), 165.24±2.31cm (1952, Negro), 165.95±2.31cm (1958 Negro), and 170.31±2.45cm (1958, Mongoloid). Mean estimated female stature (n=3) was 154.35±8.35cm (1952, White) and 149.81±8.41cm (1952, Negro). The application of the South Asian equation was 162.66±3.52 cm for males and 146.42±8.78 cm for females.

Conclusion: The South Asian-specific Femur+Tibia equation produced stature estimates closest to previously reported stature records of the living Vedda population and is appropriate for South Asian forensic and bioarchaeological skeletal analysis. The estimated stature was higher than that of

prehistoric man from Bellan-bandi Palassa (140.05 ± 4.21 cm), as reported by Kanthilatha et al. in 2007, suggesting a slight increase in stature from prehistoric humans to the Vedda population.

PP41

Haplogroup identity of repatriated Vedda skeletal remains based on mitochondrial DNA sequencing

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Background: Haplogroups are geographically associated genetic lineages that provide insight into human ancestry, migration patterns, and population history. To date, in Sri Lanka, research has mainly focused on present-day Vedda populations, limiting understanding of historical population continuity and the deeper maternal ancestry of Indigenous communities. Repatriated skeletal remains collected in the late nineteenth and early twentieth centuries by Swiss naturalists Paul Sarasin and Fritz Sarasin and deposited in the Natural History Museum Basel, Switzerland, have since been repatriated to Sri Lanka, offering a unique opportunity to understand the genetic affinities of the ancestral Vedda community. The present study aimed to analyse mitochondrial DNA from these skeletal remains to explore their haplogroup identity.

Methods: DNA was extracted from 20 molar teeth from the repatriated skeletal remains, and specific Polymerase Chain reaction (PCRs) were performed to amplify the mitochondrial hypervariable region 1 (HVR1). The products were purified and subjected to Sanger sequencing using BigDye Terminator chemistry. Sequence analysis and identity confirmation were performed using Finch TV and BioEdit software and the NCBI BLAST tool, respectively. Resulting sequences were aligned against the revised Cambridge Reference Sequence (Accession Number NC_012920.01), and haplogroups assignment was performed using MITOMASTER and HaploGrep 3, with PhyloTree Build 17.

Results: Among the twenty repatriated skeletal remains, macrohaplogroup R predominated (60%, n=12), followed by macrohaplogroup M (40%, n=8). Twelve sub haplogroups were identified, indicating a high degree of maternal genetic diversity. The studied population belonged to haplogroup R lineages; R6a2* (5%), R7 (5%), R8a1a3 (5%), and U7b1 (20%), U5b2a1b (15%), U2a2 (5%) and U2c1a (5%), followed by M lineages; M76 (15%), M2b (10%), M18 (5%), M71a1a (5%) and D5c1a (5%).

Conclusion: Macrohaplogroup R was predominant among the repatriated skeletal remains, followed by macrohaplogroup M, reflecting both West Eurasian and South Asian maternal affinities in the ancestral Vedda population.

PP42

Developing an ecofriendly chemical solution to degrade accidental spills of embalm solution and tissue fat in the Anatomy dissection hall

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Background: Formaldehyde and phenol are commonly used in anatomy dissection halls for preservation of cadavers. These chemicals cause health and environmental hazards. The spills in the dissection hall contain embalming fluid and tissue fat produced during dissection activities. This study aims to develop an eco-friendly, cost-effective method to degrade formaldehyde, phenol, and tissue fat in embalming fluid contamination.

Methods: An in vitro laboratory-based experiment was conducted in the Department of Anatomy, Faculty of Medical Sciences, University of Sri Jayewardenepura. Used embalming fluid and tissue fat samples, as well as pure phenol and 40% formaldehyde, were used for the experiment. Samples were treated with a ferrous sulfate-citric acid-activated potassium persulfate system. Data were collected at each 10, 20, and 30 minutes at room temperature for analysis. Formaldehyde was assessed using Schiff reagent. Phenol degradation was assessed using the ferric chloride test, and tissue fat degradation was assessed using the translucent spot test. During the experiment, the qualitative data were interpreted by comparing visual observations.

Results: The activated persulfate system effectively degraded formaldehyde, phenol, and tissue fat within 30 minutes. Reduced colour intensity with the Schiff reagent and disappearance of violet colour with the ferric chloride test indicated degradation of formaldehyde and phenol, respectively. Absence of greasy appearance in the tissue fat sample during the translucent spot test indicated lipid degradation. Bubble formation after the addition of reagents confirmed active oxidation reactions.

Conclusion: The findings of this study indicate that the activated persulfate system is an eco-friendly and cost-effective method to degrade formaldehyde, phenol, and tissue fat in embalming spills.

PP43

Clinical educators' perceptions on clinical training of physiotherapy undergraduates of University of Colombo, Sri Lanka

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Background: Clinical education is a principal component of an entry level physiotherapy curriculum to develop clinical competencies of students. Clinical educators play a critical role in it. This study aims to explore the perceptions of clinical educators on clinical training of BScHons (Physiotherapy) programme at University of Colombo.

Methods: A qualitative phenomenological study was conducted at Faculty of Medicine, University of Colombo. Nine individual semi-structured interviews were conducted with clinical educators who had

at least two years of experience in training physiotherapy undergraduates. Purposive sampling method of maximum variation was used to recruit study participants. Selection and recruitment of participants were terminated upon data saturation. Interviews were audiotaped and transcribed. Data analysis was conducted using the framework analysis method.

Results: Clinical educators perceived themselves as the key personnel who connect students' theoretical knowledge with real world practice. They emphasized their role as a facilitator and a role model to influence students' learning and highlighted the importance of practicing clinical skills on actual patients under supervision. Heavy clinical workload due to limited number of staff, insufficient time allocation for a single clinical placement with too many placements, limited understanding of learning outcomes, lack of readiness and limited communication skills of students were stressed as barriers. Strengthened communication between clinical educators and the university has positively influenced the whole education process. They urged the necessity of identifying the most effective clinical placements and allocating students for a satisfactory time for them. Increasing exposure to multidisciplinary teamwork and integrating basic sciences knowledge with clinical practice were also noted as required future improvements.

Conclusion: Clinical educators have a clear understanding of their role in training physiotherapy undergraduates. Addressing barriers and maintaining stronger interconnections between clinical educators and the university will enhance the outcomes of clinical training.

PP44

Promoting energy and material conservation through a departmental behavioral intervention: A longitudinal observational study

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Background: Unnecessary fans and lightbulbs are continuously kept on in certain government institutions. The outcome of environmental preservation ultimately depends on individual attitudes. If each individual considers that he/she owes a moral duty to preserve nature, achieving sustainable development goals becomes easier. Therefore, attitude change at the individual level is an important step towards energy and material conservation.

Methods: This prospective longitudinal study was conducted in a Department of the University of Sri Jayewardenepura over a period of 10 months, with 13 participants. A simple departmental initiative was introduced to encourage members to switch off unnecessary fans and lights during working hours. Volunteers were requested to record their daily actions in a register. Those who did not maintain the register were excluded from analysis. In addition, staff members were encouraged not to tear up envelopes when opening letters and to reuse envelopes where possible. Data from the register was entered into Microsoft Excel.

Results: Some participants were inconsistent in changing their behaviour despite repeated encouragement. Thirteen individuals showed regular involvement throughout the study period. A total

of 1851 energy-saving actions were recorded over the 10 months. The number of envelopes reused was roughly 80. Monthly conservation behaviour fluctuated from 35 to 246 actions, with a mean of 126.9. Around 70.7% of recorded actions were lighting-related.

Conclusion: Behavioural change is comparatively difficult to initiate. However, even simple departmental encouragement can contribute to improved energy and material conservation practices. This initiative shows that small voluntary actions may help build awareness and responsibility toward environmental sustainability in a workplace setting.

PP45

Concurrent scrub typhus and leptospirosis presenting as acute febrile illness with thrombocytopenia and transaminitis in Nepal: A case report

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Background: In Nepal, scrub typhus and leptospirosis are emerging causes of acute undifferentiated febrile illness (AUI). While both are endemic, concurrent infection is underreported and presents a diagnostic challenge due to overlapping clinical features and the frequent absence of pathognomonic signs like eschar or conjunctival suffusion.

Case Presentation: We report the case of a 40-year-old female farmer presenting with high-grade fever, headache, and generalized weakness. Examination revealed a febrile patient without eschar, rash, or icterus. Laboratory investigations showed severe thrombocytopenia, significant transaminitis, and direct hyperbilirubinemia, but preserved renal function. Serological testing confirmed dual positivity for IgM antibodies against *Orientia tsutsugamushi* and *Leptospira*. The patient was successfully treated with a combination of intravenous doxycycline and ceftriaxone.

Discussion: The absence of pathognomonic markers like eschar or conjunctival suffusion creates a "diagnostic vacuum," necessitating reliance on thrombocytopenia and transaminitis. While IgM cross-reactivity is possible, the shared ecological niche and rapid response to dual-spectrum therapy suggest true coinfection. This highlights the importance of early empirical therapy in endemic settings. This case highlights the importance of suspecting dual zoonotic infections in endemic regions when patients present with thrombocytopenia and hepatitis, even in the absence of classic signs. Early empiric coverage for both rickettsial and spirochetal pathogens is crucial to prevent severe complications. Doxycycline plus ceftriaxone is a rational empiric regimen when coinfection is suspected, since beta-lactams do not cover scrub typhus, and doxycycline alone may be suboptimal for severe leptospirosis.

PP46

Star fruit-induced acute kidney injury: A case report

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Background: Star fruit is a known cause of oxalate nephropathy and can result in acute kidney injury (AKI), particularly in individuals with impaired renal function. Renal biopsy in reported cases has demonstrated oxalate-induced acute tubulointerstitial nephritis with calcium oxalate crystal deposition.

However, no minimum quantity of star fruit has been established to cause AKI, and the toxic threshold remains uncertain, warranting further research. Consumption of sour varieties of star fruit appears to carry a higher risk of nephrotoxicity.

Case presentation: A 50-year-old woman presented with abdominal discomfort, loose stools, and nausea after consuming two-star fruits on an empty stomach. She subsequently developed reduced urine output and mild lower-limb edema over the following day. Her medical history included ischemic heart disease and well-controlled hypertension. She denied recent use of nephrotoxic medications. Physical examination revealed mild bilateral ankle edema without features suggestive of chronic kidney disease or an alternative underlying etiology. Laboratory investigations showed an elevated serum creatinine of 4.1mg/dL on admission, compared with a baseline serum creatinine of 1.0mg/dL (eGfr>90) recorded three months earlier. Urine microscopy was performed; however, calcium oxalate crystals were not identified. The patient did not consent to a renal biopsy. Star fruit-induced AKI was considered based on the clear history of star fruit ingestion, the temporal relationship between exposure and symptom onset, and the exclusion of other common causes of AKI. Consequently, the diagnosis was made on clinical grounds after excluding other potential etiologies. Oral prednisolone (30mg daily) was initiated because acute tubulointerstitial nephritis was suspected. Renal function improved without the need for hemodialysis, and the patient's serum creatinine decreased to 1.1mg/dL (eGfr>90) two months after admission, indicating complete recovery from AKI.

Discussion: This case highlights the importance of early recognition and prompt management of star fruit-induced nephropathy to prevent further renal injury. It also emphasizes the value of obtaining a detailed dietary history in patients presenting with unexplained AKI.

PP47

Complete androgen insensitivity syndrome masquerading as bilateral inguinal hernias in a 24-year-old patient: A case report

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Background: Androgen insensitivity syndrome (AIS) is a rare X-linked disorder of sex development. This, in turn, makes the genetically XY male resistant to the actions of androgen hormones, resulting in a spectrum of changes, according to the severity of androgen resistance, ranging from partial to full female.

Case presentation: A 24-year-old girl initially presented to the surgical clinic with bilateral inguinal swellings. On clinical examination, she exhibited normal intellectual function and a feminine phenotype, including a height of 161cm, weight of 50kg, and a female voice. Secondary sexual characteristics were well developed, with breast and pubic hair at Tanner stage 5. Gynecological examination revealed well-formed labia and a small clitoris. Initial hormonal evaluation revealed follicle-stimulating hormone (FSH) at 17.79IU/L (1.4-15.4) and luteinizing hormone (LH) at 16.11IU/L (1.2-7.8). However, total testosterone was elevated at 10.76 ng/mL. Further imaging with pelvic MRI showed absence of uterus and ovaries, a hypoplastic vagina, and bilateral undescended testes located in the inguinal canals. Karyotyping confirmed a 46, XY chromosomal pattern, consistent with complete androgen insensitivity syndrome. The patient underwent laparoscopic gonadectomy. Histopathological examination revealed atrophic seminiferous tubules containing only Sertoli cells, and no evidence of malignancy. She received comprehensive counseling regarding her condition and chose to continue

identifying as female. She was initiated on oral estradiol replacement therapy post operatively to maintain secondary sexual characteristics.

Discussion: Complete androgen insensitivity syndrome comprises a large spectrum of presentations. High index of suspicion is needed for early diagnosis and treatment. It should be included in the differential diagnosis of primary amenorrhea, especially if the patient has a history of bilateral inguinal hernia.

PP48

Ethical and legal considerations in referral of a clinically explained natural death for medicolegal autopsy: A case report

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Background: Accurate differentiation between medicolegal and pathological autopsy pathways is essential to ensure legal compliance, ethical practice, and respect for family autonomy. Unnecessary medicolegal referral in clearly natural deaths may override consent-based processes and raise ethical concerns regarding appropriateness of action.

Case presentation: A middle-aged woman presented with acute severe headache, focal neurological deficits, and progressive reduction in consciousness. Neuroimaging confirmed cerebral venous sinus thrombosis with hemorrhagic venous infarction. Clinical history included prior pregnancy losses, and laboratory evaluation showed autoimmune serological positivity, supporting an underlying prothrombotic state. The diagnosis of a natural thrombotic cerebrovascular event was clearly established through clinical and radiological correlation. There were no features suggestive of trauma, foul play, or suspicious circumstances. The primary challenge was the referral of a fully explained natural death for medicolegal autopsy despite absence of statutory indication. The death was subjected to medicolegal autopsy based on institutional referral. External and internal examinations revealed no injuries or alternative causative pathology. The cause of death remained consistent with cerebral venous sinus thrombosis.

Discussion: This case highlights ethical tension between institutional practice and legal necessity. Medicolegal autopsy is justified only in sudden, suspicious, or unnatural deaths, whereas pathological autopsy is consent based. Inappropriate escalation to medicolegal pathways may compromise family autonomy and appropriate use of medical procedures. Strength of this case lies in clear clinico-radiological diagnosis; limitation is system driven misclassification of autopsy type. Conclusions were based on clinical and postmortem findings, confirming a natural death. Clear natural deaths should follow consent-based autopsy pathways; medicolegal referral must be strictly reserved for legally mandated situations.

PP49

Postoperative septic and hemorrhagic death following radical nephrectomy for advanced urothelial carcinoma: A medicolegal case report highlighting appropriate indications for forensic autopsy

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Background: Upper tract urothelial carcinoma of the renal pelvis is a smoking-related malignancy with aggressive biological behaviour. Radical nephrectomy may be complicated by major haemorrhage and postoperative sepsis. In hospital deaths, with a clear clinical trajectory, medicolegal autopsy may have limited additional value.

Case Presentation: A 67-year-old chronic smoker with stage IV right renal pelvic urothelial carcinoma underwent planned radical nephrectomy at the National Hospital Colombo. No additional recognized risk factors for urothelial malignancy were identified. The operation lasted 6.5 hours and was complicated by significant intraoperative haemorrhage requiring massive transfusion. Postoperatively, he was ventilated and managed in intensive care. Over three days, he developed fever, raised inflammatory markers, pulmonary consolidation, and progressive septic shock. No clinical evidence suggested sudden unexplained deterioration beyond expected postoperative complications. Despite intensive care support, the patient developed refractory septic shock and died. Medicolegal autopsy confirmed intact surgical ligation, absence of intra-abdominal bleeding, no metastatic disease, and findings consistent with pneumonia and systemic sepsis.

Discussion: Autopsy findings corroborated the clinical diagnosis of hemorrhagic complication followed by postoperative sepsis without evidence of surgical injury or alternative pathology. Clear, clinically explained postoperative deaths should be carefully triaged to distinguish medicolegal necessity from cases more appropriately suited for clinical autopsy, preserving resources and respecting family autonomy.

PP50

Hyperkalaemic paralysis presenting as acute flaccid paraparesis mimicking Guillain–Barré syndrome successfully treated with haemodialysis: A case report

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Background: Acute flaccid paralysis is a neurological emergency with a broad differential diagnosis. Guillain–Barré syndrome (GBS) is frequently considered in patients presenting with rapidly progressive symmetrical weakness and areflexia. However, severe hyperkalaemia may rarely present with an almost identical clinical picture. Failure to recognize this reversible condition may delay definitive treatment and expose patients to potentially fatal cardiac complications.

Case Presentation: A 53-year-old woman with type 2 diabetes mellitus and hypertension presented with rapidly progressive bilateral lower limb weakness over several hours, resulting in inability to stand or walk. Neurological examination demonstrated flaccid paraparesis with Medical Research Council grade 1/5 power in both lower limbs and absent lower limb reflexes. Upper limb strength was preserved with no sensory symptoms or objective sensory deficits. Initial investigations revealed severe hyperkalaemia (7.18mmol/L), acute kidney injury (serum creatinine 231.8μmol/L), and electrocardiographic evidence of peaked T waves. Neuroimaging was normal and nerve conduction studies showed no evidence of acute or chronic neuropathy. The major diagnostic challenge was distinguishing a metabolic cause of paralysis from Guillain–Barré syndrome. Hyperkalaemia remained refractory despite standard medical therapy. A single haemodialysis session resulted in rapid biochemical improvement and dramatic neurological recovery, with restoration of independent ambulation within 24 hours.

Discussion: Hyperkalaemic paralysis is an uncommon but important reversible mimic of Guillain–Barré syndrome. The absence of sensory involvement, severe hyperkalaemia with characteristic

electrocardiographic changes, and rapid neurological recovery following correction of serum potassium supported the diagnosis. Electrolyte abnormalities should be considered early in patients presenting with acute flaccid paralysis, particularly those with renal dysfunction. Prompt recognition and treatment can result in complete neurological recovery while preventing potentially life-threatening cardiac complications. Severe hyperkalaemia should always be excluded before pursuing invasive investigations for neurological causes of acute paralysis.

PP51**Fahr syndrome presenting with behavioural disturbance, prolonged QT interval, and status epilepticus secondary to chronic post-thyroidectomy hypoparathyroidism: A case report**

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Background: Post-thyroidectomy hypoparathyroidism is a recognized complication of thyroid surgery and may remain undetected for years without long-term follow-up. Chronic disturbances in calcium and phosphate homeostasis can result in bilateral intracranial calcification, known as Fahr syndrome, manifesting with neuropsychiatric symptoms, seizures, movement disorders, and cognitive impairment. Although preventable, delayed recognition may result in significant neurological morbidity.

Case Presentation: A 56-year-old woman with a history of total thyroidectomy for multinodular goitre in 2005 presented with a one-month history of progressive behavioural disturbance followed by recurrent generalized tonic-clonic seizures. She developed status epilepticus requiring intravenous phenytoin. Examination revealed profound post-ictal drowsiness with positive Chvostek and Trousseau signs with no focal neurological deficits. Electrocardiography demonstrated marked QT prolongation (QTc 530ms). Biochemical evaluation revealed severe hypocalcaemia (0.9mmol/L), hypomagnesaemia (0.5mmol/L), hyperphosphataemia (2.0mmol/L), and an inappropriately low parathyroid hormone level (6.8pg/mL), confirming chronic hypoparathyroidism. Non-contrast computed tomography demonstrated extensive bilateral symmetrical intracranial calcifications involving the basal ganglia and other deep cerebral structures, consistent with Fahr syndrome. Intravenous calcium and magnesium replacement followed by oral calcium and calcitriol resulted in seizure cessation, improvement of behavioural symptoms, and correction of serum calcium to 2.1mmol/L at discharge.

Discussion: Chronic post-thyroidectomy hypoparathyroidism remains an uncommon but important cause of secondary Fahr syndrome. The long interval between thyroidectomy and presentation illustrates how hypocalcaemia may remain unrecognized for years before presenting with behavioural disturbance, status epilepticus, prolonged QT interval, and characteristic intracranial calcification. Rapid clinical improvement following calcium, magnesium, and calcitriol replacement supports the diagnosis and demonstrates that many neurological manifestations are reversible when treated promptly. Lifelong biochemical surveillance after thyroid surgery is essential, and hypocalcaemia should be considered in patients presenting with new-onset seizures, neuropsychiatric symptoms, prolonged QT interval or unexplained intracranial calcification.

PP52

Epithelioid leiomyosarcoma of cervical stump following subtotal abdominal hysterectomy and bilateral salphingo-oophorectomy: A case report

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Background: Cervical stump carcinoma is a rare entity, particularly following sub-total abdominal hysterectomy with bilateral salphingo-oophorectomy. Residual cervical tissue or malignant transformation may lead to delayed presentation with non-specific symptoms, posing diagnostic challenges.

Case presentation: A 56-year-old morbidly obese parous woman with a history of sub-total abdominal hysterectomy and bilateral salphingo-oophorectomy for benign disease presented with a gradually enlarging abdominal lump, associated with weight loss and constitutional symptoms. Examination revealed a firm cervix and a hard anterior vaginal wall mass. Imaging demonstrated a large irregular pelvic mass extending to the vaginal vault with left ureteric compression and an indeterminate lung lesion. Diagnostic uncertainty included neoplastic lesion versus recurrent fibroid. Exploratory laparotomy revealed a mass arising from the cervical stump with ureteric entrapment and bowel adhesions. Surgical enucleation was performed with multidisciplinary involvement. Histopathology confirmed a poorly differentiated malignant tumor consistent with epithelioid leiomyosarcoma. Postoperative recovery was uneventful with resolution of ureteric obstruction.

Discussion: To the best of our knowledge, after an extensive review of literature, this represents the first reported case of an epithelioid leiomyosarcoma of the cervical stump in Sri Lanka. This case highlights the rarity and diagnostic complexity of cervical stump malignancies following hysterectomy. Strengths include comprehensive imaging, multidisciplinary surgical management, and definitive histopathological diagnosis. Limitations include initial diagnostic ambiguity and the rarity limiting generalizability. The case underscores the importance of considering malignancy in patients with prior hysterectomy presenting with pelvic masses. Vigilant follow-up and thorough evaluation are essential. The key message is that cervical stump malignancy, though rare, should not be overlooked in symptomatic patients even after definitive gynecological surgery.

PP53

***Streptococcus gallolyticus* infective endocarditis revealing an occult tubulovillous adenoma with low-grade dysplasia: A case report**

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Background: *Streptococcus gallolyticus* bacteraemia and infective endocarditis are important clinical markers of underlying colorectal neoplasia. Recognition of this association may facilitate early detection of clinically silent premalignant and malignant colorectal lesions. Current evidence supports routine colorectal evaluation in all patients with *S. gallolyticus* bloodstream infection.

Case Presentation: A 70-year-old female with hypertension presented with a one-month history of generalized ill health and intermittent evening fever. Clinical examination revealed a systolic murmur. Blood cultures were positive for *Streptococcus gallolyticus* in two of three sets. Transoesophageal echocardiography demonstrated a 13×12mm vegetation attached to the posterior mitral valve leaflet,

confirming infective endocarditis. The patient fulfilled the Modified Duke Criteria for definite infective endocarditis. In view of the established association between *S. gallolyticus* infection and colorectal neoplasia, colonoscopy was performed despite the absence of gastrointestinal symptoms. Colonoscopic examination identified polyps in the ascending and transverse colon, which were removed endoscopically. Histopathological assessment confirmed tubulovillous adenoma with low-grade dysplasia, a recognized premalignant colorectal lesion, without evidence of invasive malignancy. The patient received targeted antimicrobial therapy with resolution of fever and constitutional symptoms. Follow-up echocardiography demonstrated persistence of the vegetation without significant reduction in size, and cardiothoracic surgical evaluation was arranged. Ongoing gastroenterology follow-up with surveillance colonoscopy was also planned.

Discussion: The association between *Streptococcus gallolyticus* infection and colorectal neoplasia remains one of the most clinically relevant examples of an infectious disease serving as a marker of occult malignancy. The identification of a premalignant tubulovillous adenoma in an otherwise asymptomatic patient emphasizes the importance of routine colorectal evaluation in all patients with *S. gallolyticus* bacteraemia or infective endocarditis. This case reinforces the value of multidisciplinary management and appropriate long-term cardiac and gastrointestinal follow-up.

PP54

Hamstring injuries in cricket: A systematic review and meta-analysis of injury proportions

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Background: Hamstring injuries are among the most common musculoskeletal injuries in cricket. However, the overall proportion of hamstring injuries relative to all cricket injuries has not been systematically established. This review aimed to systematically analyze the pooled proportion of hamstring injuries among all cricket injuries and identify factors moderating injury rates.

Methods: PubMed, Scopus, Embase, PEDro, SportDiscus, Cochrane Central Register of Controlled Trials, Science Direct, and Google Scholar were searched from inception to April 1, 2026. Retrospective, prospective cohort, and cross-sectional studies reporting hamstring injury incidence or prevalence in cricket were included. Methodological quality was assessed using the Joanna Briggs Institute (JBI) Critical Appraisal Tool for prevalence studies. Meta-analysis and meta-regression were performed where feasible. The review was registered with PROSPERO (CRD420251020463).

Results: The pooled proportion of hamstring injuries was 8.0% (95% CI: 6.0%–12.0%) based on 15 studies comprising 3,440 cricketers, 4,818 total injuries, and 471 hamstring injuries. Heterogeneity was high ($I^2 = 94.5\%$; $p < 0.0001$). Subgroup analyses showed no significant moderation by geographic region ($p=0.152$), gender ($p=0.371$), player role ($p=0.149$), or injury setting (match vs. match & training; $p=0.883$) for the hamstring injury proportion. Meta-regression indicated that the observation period was significantly associated with hamstring injury proportion ($p=0.019$), but mean age was not ($p=0.838$).

Conclusion: Hamstring injuries represent a significant proportion (8.0%) of all cricket injuries. None of the examined factors (geographic region, gender or match vs training definition) significantly influenced these rates.

PP55

The relationship between smartphone dependence and memory among university students: A systematic review

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Background: The excessive use of smartphones among students has introduced the term “digital amnesia”. It refers to the phenomenon of forgetting information due to the dependence on digital devices. This condition may negatively affect memory performance and cognitive functioning. The purpose of this review is to systematically examine the relationship between smartphone dependency and memory among university students aged 18-28 years. This review explores the mediating role of cognitive overload, emotional symptoms and sleep disturbances.

Methods: PubMed, ResearchGate, BioMed Central and Google Scholar platforms were used to screen studies published between 2015 and 2024, following the PRISMA guidelines. Eleven studies were selected based on inclusion criteria.

Results: Around 78% of studies indicated a significant association between smartphone dependence and reduced memory recall performance. Smartphone dependence was evaluated using the problematic smartphone usage scale in 36% (n=), the smartphone addiction scale – short version (SAS-SV) in 46% (n=5) and the smartphone addiction scale (full version) in 18% (n=2) of the studies. Memory was measured using the Wechsler Memory Scale in 27% (n=3) and the Digital Amnesia Scale in 45% (n=5) of the studies, while the emotional symptoms were assessed using the Depression Anxiety Stress Scale (DASS) in 27% (n=3). Sleep disturbance and cognitive overload were identified as moderating factors in 63.6% (n=7) of the studies, and emotional symptoms were related with impaired memory in 36.4% (n=4) of the studies.

Conclusion: Excessive reliance on smartphones among university students may decline memory recall abilities. Encouraging proper use of technology is crucial, to limit the adverse cognitive effects. Future longitudinal and intervention-based studies are recommended to understand the causation

PP56

***Candida* species colonization and its independent or synergistic contribution to oral cancer risk in betel quid, tobacco, and/or alcohol users: A systematic review**H.V.V. Fonseka¹, H.A. Meepage¹, S.A. Hewage², M.M. Weerasekera³, K.L.M.D. Seneviwickrama^{1,4}¹Centre for Cancer Research, University of Sri Jayewardenepura, Sri Lanka, ²Ministry of Health, Colombo, Sri Lanka, ³Department of Microbiology, Faculty of Medical Sciences, University of Sri Jayewardenepura, Sri Lanka, ⁴Department of Community Medicine, Faculty of Medical Sciences, University of Sri Jayewardenepura, Sri Lanka

Background: Oral cancer remains a major public health concern driven by betel quid, tobacco, and alcohol use. Based on recent findings of increased *Candida* colonization in oral cancer patients, this review investigates its independent or synergistic role alongside these traditional risk habits in oral carcinogenesis.

Methods: A literature search was performed on PubMed, Embase (Ovid), Scopus, and Cochrane Library using a comprehensive search strategy without date restrictions. Studies published in English on histopathologically confirmed Oral Potentially Malignant Disorders (OPMDs) or Oral Squamous Cell Carcinoma (OSCC) patients exposed to betel quid, tobacco, and/or alcohol were included. Newcastle-Ottawa Scale and Joanna Briggs Institute (JBI) tools were used to assess the study quality. Screening, quality assessment and data extraction were performed by two independent reviewers according to JBI methodology for systematic reviews of aetiology and risk. Given heterogeneity, a narrative synthesis was conducted. The protocol was registered in PROSPERO (CRD420251235354).

Results: Seven studies were included (5 cross-sectional, 1 case-control, and 1 cohort) with a total of 909 participants, published between 2007 and 2025. Of the 7 included studies, *C. albicans* predominated over non-*albicans* species. In OSCC, a higher prevalence of *Candida* was reported in smokers (41%) and alcohol users (48%), compared to non-smokers (31%) and non-alcohol users (21%) (n=1). *Candida* infected oral leukoplakia was more common among smokers (17.6%-40.0%) and betel quid chewers (41.3%) than the non-smokers (7.5%-8.1%) and non-chewers (6.3%) (n=2). In oral submucous fibrosis, betel quid chewers had the highest colonization (18.3%-75.0%), while tobacco users reported 31.3% compared to 15.4% without the habit (n=3).

Conclusion: Findings indicate that *Candida* colonization is higher among individuals with oral cancer and OPMDs associated with those risk behaviours, suggesting the need for further habit-specific *Candida* prevalence studies to evaluate independent and synergistic effects.

Abstracts of Rapid Pitch Thesis Challenge

RTC1

A smartphone app educating and helping family carers of people with dementia in managing behavioural and psychological changes: a mixed-method study

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Background: Dementia is a growing public health concern in Sri Lanka, given the rapidly rising elderly population. Behavioural and psychological symptoms of dementia (BPSD) are considered a major factor in the negative impacts on family carers at the community level. Accordingly, support for family carers is an essential need that is scarce in Sri Lanka. This study aimed to co-design a mobile health (mHealth) application focused on BPSD management and carer self-care.

Methods: This multi-phase mixed-methods study first involved quantitative and qualitative needs assessment studies with carers and experts in health, app development, and law. Each study was conducted sequentially, analysed separately, and interpreted jointly to assess the app's potential usability and content framework. The app, *DementiaPal*, was co-designed and iteratively developed with researchers, carers, and experts. Unpaid carers with more than 6 months of caring experience were invited. The content framework was validated, followed by a review of the content by carers, health experts and language experts. Descriptive and inferential statistics for quantitative data and thematic qualitative analysis were conducted.

Results: Carers, who were mainly female in their middle age, showed a lack of knowledge in managing BPSDs and a high caregiver burden. Most had smartphones and a positive attitude towards a potential app for gaining knowledge and support. The prevalence of BPSDs among their loved ones was high, leading to negative psychological impacts on carers. The need analysis studies revealed four educational modules: dementia, BPSD, supportive systems, and carer self-care. Main supportive features included a BPSD tracker, reminder settings, and a reminiscence photo gallery. A preliminary version of *DementiaPal* was developed to be user-friendly for older people.

Conclusion: Family carers of people with dementia are ready to accept mHealth technology in dementia care. It is recommended to assess the app's feasibility, usability and effectiveness.

RTC2

Effect of mindfulness-based tri-modal prehabilitation on functional recovery and psychological outcomes of patients with colorectal cancer admitted to surgical hospital wards

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Background: Colorectal cancer (CRC) surgeries are associated with significant postoperative morbidity, delayed functional recovery, and psychological distress. The use of various prehabilitation modalities has become increasingly common; nevertheless, few studies have addressed the incorporation of mindfulness-based interventions. This study aimed to determine the impact of mindfulness-based tri-modal prehabilitation on functional recovery and psychological outcomes in CRC patients.

Methods: The sample size for this prospective, randomised controlled trial was based on the primary outcome, the 6-Minute Walk Test (6MWT). The study groups received a 4-week standardised tri-modal prehabilitation programme; the intervention group incorporated the mindfulness practice component. Outcomes were measured at four different time intervals. Secondary outcome measures cover psychological status and selected biomarker status. Data were analysed using SPSS V.23.

Results: Participants in both groups had similar average age (intervention: 55.00±10.30 years; control: 55.74±9.68 years). Except for family support, all other variables were similar in both groups ($p>0.05$). The intervention group had a lower mean duration of postoperative hospital stay (5.08±1.84 vs 7.82±6.59 days). Significant increase was seen in functional capacity of the intervention group from baseline to pre-operative condition (345.82±42.07 m to 510.82±42.07 m) as compared to the control group (350.33±37.53 m to 395.33±37.53 m). These changes were maintained up to 4 weeks (519.08±46.50 vs 408.10±37.57) and 8 weeks (510.13±57.86 vs 386.28±50.38). Repeated-measures ANOVA revealed a significant main effect of time ($F=728.98$; $p<0.001$), a significant between-group effect ($F=83.54$, $p<0.001$), and a significant time×group interaction ($F=233.12$; $p<0.001$). This intervention increased mindfulness and quality of life, reduced anxiety, depression, perceived stress, and serum cortisol levels.

Conclusion: This intervention significantly improved functional recovery and Psychological Status in CRC Patients.

RTC3

Plasma and seminal plasma Lead (Pb), Cadmium (Cd), Arsenic (As), testosterone, and their association with semen parameters in males and Anti-Müllerian Hormone (AMH) in females of couples investigated for infertility

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Background: Exposure to heavy metals like lead, cadmium, and arsenic are associated with impaired fertility. Studies assessing both partners of infertile couples are limited. The objectives of this study were to assess Pb, Cd, and As concentrations in blood (plasma) of both partners and seminal plasma of males and evaluate associations with plasma testosterone and semen parameters in males and Anti-Müllerian Hormone (AMH) in females.

Methods: A cross-sectional study was conducted at Colombo South Teaching Hospital, recruiting 208 infertile couples after excluding known causes of infertility. Data were collected using an interviewer-administered questionnaire, and semen analysis following WHO guidelines. Heavy metal concentrations were measured using inductively coupled plasma-mass spectrometry (ICP-MS). Plasma testosterone in males, and serum AMH in females were measured using immunoassay methods. Data were analysed using SPSS version 23 and Python software.

Results: Mean($\pm$ SD) age of males was 34.6 ($\pm$ 5.2) and 32.38 ($\pm$ 5.28) years in females. Exposure to heavy metals was reported by 76.4% of males and 47.1% of females. Among males, median plasma testosterone was 352ng/dL and 59.1% had normal semen parameters. Mean ($\pm$ SD) blood concentrations (μ g/dL) of Pb, Cd, and As in males were 24.7 ($\pm$ 26.86), 1.68 ($\pm$ 2.96), and 2.8 ($\pm$ 4.97), while for seminal plasma were 12.2 ($\pm$ 14.53), 3.55 ($\pm$ 5.39), and 1.49 ($\pm$ 3.15) respectively. Pb, Cd, and As were associated with reduced testosterone levels by 32.8% ($p=0.011$), 30.4% ($p=0.001$), and 30.9% ($p=0.001$), respectively; after adjusting for covariates Pb remained significant (29.9%). Blood Pb, Cd, and As levels differed significantly between men with normal and abnormal semen parameters. Among females, mean ($\pm$ SD) Pb, Cd, and As concentrations were 24.71 ($\pm$ 23.99), 1.31 ($\pm$ 2.64), and 2.55 ($\pm$ 4.26), respectively, and median AMH concentration was 1.563ng/mL. Plasma Pb was positively associated with AMH ($p=0.0085$), Cd and As showed no significant associations.

Conclusion: Pb, Cd, and As in both partners exceeded reference ranges. In males, heavy metal levels were associated with reduced testosterone and impaired semen parameters, with Pb showing the strongest effect. In females, Pb demonstrated a positive association with AMH, while Cd and As showed no significant relationship.

RTC4

Bacterial co-occurrence and competition within herniated lumbar discs: decoding the hidden bacterial ecosystem

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Background: While low-virulence bacteria are associated with lumbar disc herniation (LDH), recent studies focused on isolated individual bacteria. Further, there is a critical gap on investigating the unseen functional bacterial eco-system and major hub dynamics within the herniated discs.

Methods: A cross-sectional study was conducted among patients (n=20) diagnosed with LDH who underwent lumbar microdiscectomy at selected hospitals in Sri Lanka. Discs were subjected to aerobic, and anaerobic bacterial culture and for bacterial taxonomic profiling using 16S Oxford Nanopore sequencing platform. Quality filtering was applied, retaining only bacterial taxa present in at least two individuals with a relative abundance of (>0.1%) for downstream analysis. Bacteria detected through both culture and ONT sequencing were further investigated for co-occurrence and competitive interactions with other bacteria across various disease conditions. Spearman's correlation was performed using Python (v3.12.13) on individual bacterial relative abundance. Correlation network (Co-occurrence/Competition) was constructed applying the thresholds: (Correlation coefficient: $|\rho| > 0.5$, $p < 0.05$). The significant network was visualised into Cytoscape (v3.10.3) and integrated with culture findings and literature-derived bacterial interaction to map the detailed bacterial ecosystem and to identify hub bacteria that resides within herniated discs to explain the cooperative and competitive bacterial relationships.

Results: Highly interconnected statistically significant bacterial ecosystem with 51 nodes (bacteria) and 70 edges (correlation) was generated. Maximal clique centrality (MCC) algorithm detected *Rothia*, *Massilia*, *Streptococcus*, *Sphingomonas*, and *Haemophilus* as five prominent hub bacteria. Key statistically significant 16S ONT based bacterial correlations involving MCC derived hub bacteria were observed between *Massilia* and *Pseudoduganella* ($\rho=0.640$, $p=0.006$), *Streptococcus* and *Salmonella* ($\rho=0.615$, $p=0.009$), *Sphingomonas* and *Methylobacterium* ($\rho=0.695$, $p=0.002$), and *Acinetobacter* and *Haemophilus* ($\rho=0.553$, $p=0.021$). Integration of ONT results with culture findings and literature evidences identified *Massilia* as a central co-occurring hub connected to *Haemophilus*, *Streptococcus*, *Staphylococcus*, and *Moraxella* whereas, *Rothia* appeared as a central competitive hub associated with *Haemophilus* and *Klebsiella*.

Conclusion: Bacteria residing in herniated disc do not exist as random contaminants, rather uniquely studded in a polymicrobial network surviving as co-occurring or competing partners; attributing to pathologies of LDH.

RTC5

Standardisation and development of tablet dosage form from *Amurthashtaka kwatha* by bioactivity-based scientific validation

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Background: *Amurthashtaka Kwatha* (AK) is a classical Ayurvedic decoction used for fever and inflammatory disorders. However, extensive preparation and lack of standardisation limit wider acceptance. This study aimed to develop a scientifically validated tablet dosage form of AK by establishing quality standards, identifying bioactive markers, and evaluating its biological activities.

Methods: Eight medicinal plant ingredients of AK from five sources were authenticated and standardised using physicochemical, phytochemical, and chromatographic analyses. The decoction was converted into a spray-dried powder, formulated into tablets by dry granulation, and evaluated for antioxidant, anti-inflammatory, antipyretic, cytotoxic, and safety effects.

Results: AK exhibited a pH of 6.75 ± 0.03 and contained phenolics (9.24 ± 0.50 mg/kg GAE), flavonoids (3.26 ± 0.53 mg/kg QE), alkaloids ($2.78 \pm 0.50\%$), saponins ($1.78 \pm 0.24\%$), and tannins ($8.68 \pm 0.14\%$). Chromatographic analyses quantified the presence of nimbolide, piceatannol, conessine, picroside-I, α -santalol, berberine, cucurbitacin-B, and 6-gingerol. The spray-dried powder exerted $85.7 \pm 1.54\%$ fever reduction after 3 hours in Wistar rats. The formulated tablets exhibited significant anti-inflammatory activity ($p < 0.05$), with IC_{50} values of 222.4 ± 0.89 μ g/mL in the egg albumin denaturation assay, 836.8 ± 0.88 μ g/mL in the heat-induced RBC membrane stabilisation assay, 860.3 ± 0.92 μ g/mL in the hypotonicity-induced RBC membrane stabilisation assay, and 98.90 ± 1.88 μ g/mL in the COX-2 inhibitory assay. Acute toxicity assessment using zebrafish embryos revealed an LC_{50} value of 651.0 ± 0.88 μ g/mL, corresponding to a theoretical human equivalent dose of 3.91 ± 0.16 g/day. Cytotoxicity studies using THP-1 cells demonstrated $>81\%$ cellular functionality and $>60\%$ cell viability at concentrations up to 1000μ g/mL, indicating a favourable safety profile.

Conclusion: This study successfully developed a standardised tablet dosage form of AK and scientifically validated its traditional therapeutic claims. The findings support its potential as a safe, effective, and evidence-based Ayurvedic medicine for the management of fever and inflammatory disorders.

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