

# INTERNATIONAL CONFERENCE ON MEDICAL SCIENCES (ICM) 2023

RESILIENCE. REMEDIATION. REINVENTION



8<sup>TH</sup> & 9<sup>TH</sup> JUNE 2023  
FACULTY OF MEDICAL SCIENCES  
UNIVERSITY OF SRI JAYEWARDENEPURA  
SRI LANKA



**International Conference on Medical Sciences (ICM) 2023**  
**“RESILIENCE. REMEDIATION. REINVENTION”**

**Organized by**  
**The Research Committee**  
**Faculty of Medical Sciences**  
**University of Sri Jayewardenepura**

**8<sup>th</sup> & 9<sup>th</sup> June 2023**  
**Faculty of Medical Sciences**  
**University of Sri Jayewardenepura**  
**Sri Lanka**

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**Front cover designed by Impress Event**

# CONTENTS

<b>Organisers</b>	<b>3</b>
<b>Research Committee 2023</b>	<b>4</b>
<b>Message From the Acting Vice Chancellor</b>	<b>5</b>
<b>Message From the Dean</b>	<b>6</b>
<b>Message From the Chairperson</b>	<b>7</b>
<b>Message From the Secretary</b>	<b>9</b>
<b>Programme</b>	<b>11</b>
Inauguration Ceremony	11
Scientific Sessions	12
<b>Faculty of Medical Sciences Oration</b>	<b>14</b>
<b>Keynote Address</b>	<b>16</b>
<b>Plenary</b>	<b>19</b>
<b>Symposium 1 - Building Resilience and Adapting</b>	<b>20</b>
<b>Symposium 2 - Integration &amp; Harmonization of Oral Health</b>	<b>25</b>
<b>Symposium 3 - Conquering Clinical Conundrums</b>	<b>30</b>
<b>Debate</b>	<b>33</b>
<b>List Of Abstracts</b>	<b>34</b>
Rapid Pitch – Thesis Challenge	34
Oral Presentations	36
Poster Presentations	38

<b>Abstracts of Rapid Pitch-Thesis Challenge</b>	<b>58</b>
<b>Abstracts of Oral Presentations</b>	<b>66</b>
<b>Abstracts of Poster Presentations</b>	<b>74</b>
<b>ICM 2023 Abstract Reviewers</b>	<b>176</b>
<b>Acknowledgements</b>	<b>178</b>
<b>List Of Sponsors</b>	<b>180</b>

# ORGANISERS

**RESEARCH COMMITTEE 2023  
FACULTY OF MEDICAL SCIENCES  
UNIVERSITY OF SRI JAYEWARDENEPURA**

## *Chairperson*

Dr. Varuni Tennakoon

## *Secretary*

Dr. Nilanka Perera

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## *Conference Assistant Secretary*

Dr. Aruni de Silva

## *Conference Treasurer*

Dr. Shehan Silva

## *Conference Assistant Treasurer*

Dr. Prasangika Seneviratne Alles

## *Committee Members*

Prof. Shamini Prathapan

Prof. Guwani Liyanage

Prof. Shalindra Ranasinghe

Prof. Manori Gamage

Dr. Sanath Mahawithanage

Dr. Saraji Wijesekera

Dr. Madura Jayawardena

Dr. Sithara Dissanayake

Dr. Thushara Matthias

**RESEARCH COMMITTEE 2023  
FACULTY OF MEDICAL SCIENCES,  
UNIVERSITY OF SRI JAYEWARDENEPURA**



***Sitting from Left to Right***

Prof. Shamini Prathapan, Dr. Varuni Tennakoon (Chairperson), Snr. Prof. Aloka Pathirana (Dean), Dr. Nilanka Perera (Secretary), Prof. Guwani Liyanage

***Standing from Left to Right***

Dr. Prasangika Seneviratne Alles (Assistant Treasurer), Dr. Aruni de Silva (Assistant Secretary), Dr. Sithara Dissanayake, Dr. Shehan Silva (Treasurer), Dr. Saraji Wijesekera, Dr. Thushari Dissanayake (Conference Secretary), Dr. Sanath Mahawithanage

***Absent***

Prof. Shalindra Ranasinghe, Prof. Manori Gamage, Dr. Madura Jayawardena, Dr. Thushara Matthias

## MESSAGE FROM THE ACTING VICE CHANCELLOR University of Sri Jayewardenepura



It is with immense pleasure that I write this message for the *International Conference on Medical Sciences 2023*, the annual conference organized by the Research Committee of the Faculty of Medical Sciences, University of Sri Jayewardenepura. I fervently believe that this conference is a great platform to bring researchers, academics, and undergraduates together to discuss, critique and disseminate new findings and ideas. Although most researchers face difficulties conducting research at present, it is paramount that good quality research and innovation are continued and recognized. I am confident that the national and international collaborations that are established during the conference will pave the path to elevate the standards of research in the current context. This in turn will generate solutions to uplift the quality of life of human.

I sincerely commend the enthusiasm and the dedication of the organizing committee in organizing this conference at a time of austerity. I would like to extend my earnest appreciation to all speakers, delegates, participants and organizers of Faculty of Medical Sciences for their contribution to this reputable academic event.

I wish 'International Conference on Medical Sciences 2023' a great success.

***Prof. S M C U P Subasinghe***



**MESSAGE FROM THE DEAN**  
**Faculty of Medical Sciences**  
**University of Sri Jayewardenepura**



ICM 2023 is the Scientific Conference of our faculty which is held for the 16<sup>th</sup> time. It is an event which is looked forward to by both staff and students as an important item in our calendar. The conference gives opportunities for young academics and students to showcase their work. This was the main reason we decided to continue conducting this as an annual event, despite financial issues.

Due to the economic crisis, this year, we are conducting the conference without imposing any financial burden on the University. We are grateful for the generous sponsors from various institutions who joined hands to support this academic event. I wish to congratulate the research committee of our faculty for coming up with an interesting program which would be of value to the participants.

The theme of the congress 'resilience, remediation and re-invention' was quite apt, considering the multitude of issues we experienced in the recent past. We learnt many lessons on how to manage with limited resources. These experiences, if used appropriately will help us, the faculty and eventually the country to come out of this difficult situation.

***Senior Professor Aloka Pathirana***

## MESSAGE FROM THE CHAIRPERSON

Research Committee, Faculty of Medical Sciences  
University of Sri Jayewardenepura



I am delighted and honored to welcome you all, to the *International Conference on Medical Sciences 2023!* Hosting a research conference during a crisis can be challenging, however, with some effort and creativity, it can still be a successful and rewarding experience. I'm thrilled to acknowledge the engagement of so many brilliant minds to make this conference a reality.

This year's conference theme 'Resilience. Remediation. Reinvention' signifies the key traits in research. Our ability to bounce back from difficult situations, stay positive and adapt to unexpected changes, embracing challenges as opportunities and focus on finding solutions, are imperative in today's unprecedented world. The vibrant scientific program of the conference highlights these aspects and focus on building up knowledge, practice and quality research during difficult times.

Our conference is a platform for scientists, researchers, and innovators to exchange ideas, present their latest research and address the most pressing challenges of our time. It also fosters a collaborative environment that we all learn from each other's experiences and discoveries and work together towards a more sustainable and prosperous future. I hope this conference will be a catalyst for new partnerships, collaborations, and breakthroughs. I extend my heartfelt appreciation to all prolific international and national experts who contribute to the Keynote, Symposia and Plenary.

As the conference chair, I am thankful to Prof. Upul Subasinghe, Acting Vice Chancellor of USJ, and Senior Prof. Aloka Pathirana, Dean, Faculty of Medical Sciences, USJ for their advice,

networks, and relentless support. I am grateful to the Faculty of Dental Sciences, USJ – partnering with us, the organizing committee, session chairs and moderators, judges, reviewers and volunteers for their support in making this event possible.

I wish you all a productive and inspiring conference!

***Dr Varuni Tennakoon***

## MESSAGE FROM THE SECRETARY

Research Committee, Faculty of Medical Sciences  
University of Sri Jayewardenepura



International Conference on Medical Sciences (ICM) 2023 is organized to provide a platform for researchers and academics to showcase their research and engage in fruitful discussions. ICM 2023 will further highlight how professionals and academics have faced the challenges and overcome problems in healthcare delivery in Sri Lanka amidst economic crisis.

A conference of this magnitude would not have been possible without many individuals. The constant encouragement and unstinted support received from

Professor Upul Subasinghe, Acting Vice Chancellor and Senior Professor Aloka Pathirana, Dean of Faculty of Medical Sciences is warmly acknowledged. We appreciate the help extended by deputy registrar of Faculty of Medical Sciences and the assistant bursar and the finance team.

Such a vibrant program would not have been possible without the contribution of our speakers and panelists from Sri Lanka and overseas. I would like to thank Prof K.M.Nalin de Silva from University of Colombo for delivering the keynote address on a timely topic and Prof Manjula Weerasekera for delivering the FMS Oration 2023. We are extremely grateful for all the speakers who joined physically or virtually to share their knowledge. Let me also thank the chairpersons of the sessions, judges of the oral and poster presentations for their valuable time and effort. We would also like to extend our appreciation to all the reviewers who kindly contributed to improving the submitted abstracts.

This conference would not have been possible without the dedicated hard work of the Conference Secretary, Dr Thushari Dissanayake and Assistant Secretary, Dr Aruni De Silva. I wholeheartedly thank them for shouldering the burden of organizing oral and poster reviewing, judging and presenting. A special note of appreciation to our treasurer, Dr Shehan Silva and Assistant treasurer, Dr Prasangika Alles for handling the finances. A conference of this magnitude can only materialize due to the dedication of our event manager, all academic and non-academic staff of the Faculty of Medical Sciences, USJ. We are thankful for the students who joined hands with the committee in organizing the event. Last but not least, I would like to thank all the members of the research committee of the Faculty of Medical Sciences who contributed in many aspects to make this conference a success.

I hope that all participants will have an opportunity to network and share experience in this conference platform!

***Dr Nilanka Perera***

## PROGRAMME

### INAUGURATION CEREMONY

THURSDAY, 08<sup>TH</sup> JUNE 2023

5:30 pm	Invitees take their seats
6:00 pm	Ceremonial procession
6:05 pm	University anthem
6:10 pm	Lighting of the ceremonial oil lamp
6:15 pm	<b>Welcome address</b> Dr Varuni Tennakoon <i>Chairperson, Research Committee</i>
6:25pm	<b>Address by the Dean</b> Senior Professor Aloka Pathirana <i>Dean of the Faculty of Medical Sciences</i> <i>University of Sri Jayewardenepura</i>
6:35 pm	<b>Address by the Chief Guest</b> Professor SMCUP Subasinghe <i>Acting Vice-Chancellor</i> <i>University of Sri Jayewardenepura</i>
6:45pm	<b>Faculty of Medical Sciences Oration 2023</b> <b><i>“Leptospirosis: Along the road to unraveling the enigma of host – bacterial interaction”</i></b> <i>Professor Manjula Weerasekera</i> <i>Professor in Microbiology, Faculty of Medical Sciences</i>
7:30 pm	<b>Vote of thanks</b> Dr Nilanka Perera <i>Secretary, Research Committee</i>
7:40 pm	Cultural performance
8:00 pm	National anthem
8:05pm	Procession leaves the hall
8:10pm	Fellowship

## SCIENTIFIC SESSIONS

FRIDAY, 09<sup>TH</sup> JUNE 2023

7:45 Onwards	Registration
8.10 – 8.15	Opening Remarks
8.15 – 9:30	Oral communications
9.30 – 10.00	Keynote address <b>“Technology is Changing the Future of Healthcare”</b> <i>Senior Professor K.M. Nalin de Silva</i> <i>Chair Professor, Department of Chemistry, University of Colombo</i>
10.00 – 10.20	Tea/coffee break
10.20 – 11.30	Symposium: <b>“Building resilience and adapting in crisis”</b>  <b>Physician’s perspective</b> <i>Dr Ananda Wijewickrama</i> <i>Consultant Physician</i> <i>National Institute of Infectious Diseases</i>  <b>Laboratory perspective</b> <i>Dr Mahen Kothalawala</i> <i>Consultant Microbiologist, National Hospital of Sri Lanka</i>  <b>Primary healthcare perspective</b> <i>Dr Susie Perera</i> <i>Deputy Director General – Public Health Services</i> <i>Ministry of Health, Sri Lanka</i>
11.30 – 12.00	Rapid pitch: thesis challenge
12.00 – 12:30 pm	Debate <b>“This house believes that healthcare professionals leaving the country in the current context is justifiable”</b> <i>Ms Senara Vidanapathirana</i> <i>Mr Mirshan Sivakumar</i> <i>Ms Amirah Izadeen</i> <i>Mr Chethanan Moka</i>
12.30 – 13.45	Lunch break & poster viewing
13.45 – 15.00	Symposium: <b>“Integration &amp; harmonization of oral health”</b>

## **Introduction**

### ***Dr Lakmal Kulasekara***

*Senior Lecturer, Department of Basic Sciences  
Faculty of Dental Sciences, University of Sri Jayewardenepura*

## **Primary Healthcare & Prevention**

### ***Dr Hemantha Amarasinghe***

*Senior Lecturer, Department of Community Dental Health, Faculty of  
Dental Sciences, University of Sri Jayewardenepura*

## **Oral & Systemic link**

### ***Dr Ananda Rathnayake***

*Senior Lecturer, Department of Oral Surgery,  
Faculty of Dental Sciences, University of Sri Jayewardenepura*

## **Challenges**

### ***Dr Priyake Palipana***

*Senior Lecturer, Restorative Dentistry  
Faculty of Dental Sciences, University of Sri Jayewardenepura*

## **Q & A**

## **Concluding Remarks**

**15.00 – 15.50 pm**    **Symposium: “Conquering clinical conundrums”  
Facing the challenge of metabolic syndrome – the place of  
multimorbidity clinics**

### ***Dr Nimantha de Alwis***

*Consultant in Diabetes and Endocrinology,  
South Tyneside & Sunderland NHS trust, UK*

### **How can we survive sepsis?**

#### ***Dr Anushka Kotelawala Bagga***

*Assistant Professor of Surgery,  
Loma Linda university Health, USA*

**15.50 – 16.20 pm**    **Plenary  
Advances in clinical trial methodology: implications for drug  
development for neglected populations**

### ***Dr Isabela Ribeiro***

*Viral Diseases Cluster Director, DNDi*

**16.20 – 16.30 pm**    **Award ceremony and concluding remarks**

**16.30 pm**            Tea/Coffee



## FACULTY OF MEDICAL SCIENCES ORATION

08<sup>th</sup> June 2023

### Leptospirosis: Along the Road to Unraveling the Enigma of Host – Bacterial Interaction



#### **Professor Manjula Weerasekera**

*BSc (Osmania), MPhil (USJP), PhD (Otago,NZ)*

Professor in Microbiology  
Department of Microbiology  
Faculty of Medical Sciences  
University of Sri Jayewardenepura

Prof Manjula Manoji Weerasekera is a Professor in Microbiology in the Department of Microbiology at Faculty of Medical Sciences, University of Sri Jayewardenepura. She obtained her BSc in Microbiology in 1997 from Osmania University, India followed by MPhil from University of Sri Jayewardenepura in 2002. She was awarded the prestigious Commonwealth Scholarship to complete her PhD in University of Otago, New Zealand in 2012. Prof Weerasekera has published extensively with 65 journal articles published in indexed journals, more than 100 conference papers. She has a h-index of 16 and 1050 citations for her work. She is a member of the Editorial board of PLOS ONE and BMC Infectious Diseases. She has won many awards for her scientific work including Presidential Research award, NRC merit award and SUSRED award. She has supervised 12 research degrees. Prof Weerasekera is a committed lecturer in Microbiology with over 20 years of experience in teaching at University of Sri Jayewardenepura. Her research interests include biofilm infections, oral cancer genetics and molecular pathogenesis of microbial infections.

## Leptospirosis: Along the road to unraveling the enigma of host-bacterial interaction

Sri Lanka is considered a hot spot for leptospirosis, with an estimated annual incidence of 52.1 per 100,000 population and 730 annual deaths. Leptospirosis was first documented in Sri Lanka in 1953, and since then, cases were frequently identified from almost all districts. A high incidence is commonly reported from the wet zone of the country. Clinical manifestations range from asymptomatic or mild flu-like illness to severe disease, such as Weil's disease and pulmonary hemorrhagic syndrome, for which fatality rates are as high as 10% and 50%, respectively. The factors contributing to this wide clinical spectrum of leptospirosis and precise mechanisms that contribute to severe infection are largely unknown. The pathogenesis could be linked to virulence factors of the bacteria or due to the host-bacteria interactions especially via cytokine activation.

The leptospirosis research at Department of Microbiology, FMS, USJ in collaboration with clinicians attached to both teaching and base hospitals in Western and Southern Provinces was commenced in 2013. We aimed to study both bacterial and host factors which contribute to pathogenesis of leptospirosis and the value of the immune markers as early diagnostics.

As part of the study, the "suspected case definition" published by the Ministry of Health (2016) was validated to enable the clinical diagnosis of leptospirosis. Results revealed that this proposed suspected case definition is highly sensitive when screening probable cases of leptospirosis on admission. Throughout the study period (2013- 2021), *Leptospira interrogans* was reported as the predominant circulating species and its presence was mainly associated with renal failure. Pulmonary haemorrhagic syndrome was predominantly associated with mortality. However, we could not establish any relationship between leptospirosis with disease severity.

Based on the battery of cytokine studies, we observed a significant IL10 response in acute phase of the illness. The ratio of IL-10/TNF was higher in patients with complications indicating its value as a biomarker. Both serum and urine KIM-1 levels were elevated in leptospirosis-associated acute kidney injury (AKI) highlighting its usefulness as a potential biomarker for AKI. Overall, these results reveal how the host immune response is exploited by the organism in the pathogenesis and how these can be utilized in diagnosis.

## KEYNOTE ADDRESS

09<sup>th</sup> June 2023

“Technology is Changing the Future of Healthcare”



### Senior Professor K. M. Nalin de Silva

FRSC, BSc (Colombo), PhD (Cambridge, UK)

Chair Senior Professor  
Department of Chemistry  
Faculty of Science  
University of Colombo

K. M. Nalin de Silva is the Chair Senior Professor of Chemistry at the University of Colombo, Sri Lanka. He obtained his B.Sc. (Chemistry, First Class) from the University of Colombo, Sri Lanka and Ph.D. from the University of Cambridge, UK. He has gained postdoctoral experience from University of Cambridge and Louisiana State University, USA. He worked as the Science Team Leader in Sri Lanka Institute of Nanotechnology (SLINTEC) from 2012-2019. Upon completion of the assignment at SLINTEC he returned to his university position in 2017. He has published 100 Science Citation Index papers and four US patents. His present h-index is 32. He won the Presidential Research Award for ten consecutive years and a National Research Award presented by National Research Council (NRC) and National Science Foundation (NSF), Sri Lanka. He was also named ‘Young Scientist of the Year’ in 2004 by The World Academy of Science (TWAS) and NSF. He received the Vice Chancellors Award for Research Excellence in 2017 & 2020. He was a member of the National Nanotechnology Committee and Chairman of the National Nanotechnology Research Panel at NSF. He was also a member of the committee at NSF for drafting the National Nanotechnology Policy of Sri Lanka. He also served as the Chairman of National Basic Sciences Research Committee and National Committee for Technology at the NSF. His main research focus areas are advanced material for healthcare, water purification, textiles and apparel, natural resources and Nanobiotechnology. His research team has brought approximately Rs. 70 million external funding to the university and established a state-of-the-art materials lab, Center for Advanced Materials and Devices (CAMD) in 2018. Recently he was appointed as the Chair of Chemistry and also as the Head of the Department, Department of Chemistry. In addition to academic activities, he was involved with sports in the Colombo University and Cambridge University. He captained both Tennis and Table Tennis teams of the University of Colombo, 1991 and 1992 respectively. He has also played national level cricket in Sri Lanka and represented under 23 team of the University of Colombo and was a member of the Madingley Sports Club in Cambridgeshire

Junior County League, Cambridge UK, 1995 – 1998. He was also a member of the Cambridge University Table Tennis team (Cambridge Blue) in 1995. Recently he was awarded with the most prestigious professional qualification, Fellow of the Royal Society of Chemistry (FRSC), United Kingdom.

## **Technology is Changing the Future of Healthcare**

It is my privilege and pleasure in writing this message for the International Conference on Medical Sciences 2023, University of Sri Jayewardenepura, Sri Lanka. It is an honor to be the Keynote speaker of the great event of the Faculty of Medical Sciences. I am delighted to note that the conference committee has decided on ‘Resilience, Remediation and Reinvention’ as their theme for the conference.

Across Sri Lanka, the working dynamics are quickly evolving with many institutions attempting to sail through complex situations after the economic recession. In response, scientists are looking for remedial actions and innovative ways to adopt strategies to bounce back for a bright future. Technology has played a critical role in developing the modern world, from the wheel to the most advances in nanotechnology, biotechnology, robotics, and artificial intelligence. Various scientists have already addressed how the field of medicine will transform due to technological advances. The influence of biotechnology and nanotechnology will greatly impact the future of healthcare in the world. The future landscape of healthcare industry will drastically change due to the advent of nanomedicine, nanobots, nanofibers, and nanotech-based wearables. Nanomedicine is currently being used to develop targeted & magnetic drug delivery in cancer therapy. Nanotechnology in healthcare requires more research to overcome a lot of hurdles. In addition, the nanotech devices are expensive which hinders mass manufacturing. Therefore, scientists must work towards bringing the cost down so that the technology can be accessible to the general masses. In addition to nanotechnology, artificial intelligence will play a crucial role in advancing the healthcare industry. One such example is that hospitals and research institutions can employ AI to handle large amounts of data to identify patterns to predict future health outcomes. Robotics will also play a significant role in the healthcare industry. Robots are already used in operating rooms and in addition, robots are now used in clinical settings to assist healthcare workers and improve patient care and safety. We have already witnessed that hospitals employed robots to help reduce pathogen exposure during the COVID-19 pandemic.

Scientists are optimistic about driving these technologies towards a greater impact in healthcare and how the technology can drive the industry into a new era of development in the country. These technologies will shape the planet in the next three decades and any nation without a vision to embrace these technologies will move from chaos to further chaos. To achieve significant growth, the government needs to have a long-term strategy with

significant funding including a strategic policy framework. Due to the lack of strategy and long-term funding, many scientists leave the country for greener pastures to seek sophisticated workplaces, however, it should be noted here that great innovations have always originated in less sophisticated work environments. Therefore, the present situation has created a golden opportunity for us to become resilient and reinvent the hidden potential to become an innovative nation yet again.

## PLENARY

09<sup>th</sup> June 2023

### “Advances in Clinical Trial Methodology: Implications for Drug Development for Neglected Populations”



#### **Dr. Isabela Ribeiro**

Director  
DNDi Viral Disease Cluster

Dr Isabela Ribeiro is a medical doctor with post-graduate training in infectious diseases and over 25 years of drug development management experience focused on infectious diseases.

She is the current Director, DNDi Viral Diseases Cluster with responsibility for the portfolio of HIV, HCV and Dengue. Dr Ribeiro led and helped establish the DNDi Dynamic Portfolio Unit with responsibility for scoping, exploratory evaluation, feasibility assessment for support and/or integration of potential new R&D areas for DNDi.

Dr Ribeiro is working at DNDi since 2005 in projects on malaria, visceral and cutaneous leishmaniasis and Chagas disease, involved in the development and registration of two DNDi available products – artesunate-mefloquine fixed-dose combination (WHO-prequalified) and the pediatric dosage form of benznidazole (included in the WHO Model List of Essential Medicines for Children).

## SYMPOSIUM 1

### “Building Resilience and Adapting”

#### Building Resilience and Adapting: Physician’s Perspective



**Dr Ananda Wijewickrama**

MBBS, MD, FRCP, FCCP

Consultant Physician

National Institute of Infectious Diseases

Dr Ananda Wijewickrama graduated in 1991 from the Faculty of Medicine, University of Colombo. He obtained MD (Sri Lanka) from Post Graduate Institute of Medicine, University of Colombo in 1998, MRCP(UK) from RCP, London in 2000 and FCCP from CCP in 2009. Working as the Consultant Physician at the National Institute of Infectious Diseases (formerly IDH), Colombo since 2003, an external lecture/examiner in faculties of Medicines. He was a member of the National Medicines Regulatory Authority of Sri Lanka. He had undergone post graduate training in infectious diseases including dengue, SARS, avian flu and other emerging infections and HIV. Dr. Wijewickrama’s research interest includes clinical management of COVID-19, dengue, HIV and chicken pox. A member of the “WHO guideline development group for the Living guideline for COVID-19 therapeutics and clinical management” and the editorial board of the “Guidelines for the Management of Dengue Fever and DHF in adults in Sri Lanka”. He has several publications in peer reviewed journals and delivered Dr. Cyril Fernando memorial oration and Prof. P.B. Fernando memorial orations at Annual Academic Sessions, Ceylon College of Physicians and many guest lectures both in local and foreign medical forums on dengue. He won the ProMED award for emerging infectious diseases in ICID 2016 and President's Awards for Scientific Research in 2016, 2017 and 2018. He was a member of the Task Force for COVID-19 management in Sri Lanka. He was the President of the Ceylon College of Physicians for the year 2020 and President-elect of the SLMA for the year 2024.

## Abstract

Firstly, the COVID-19 pandemic and then the economic and political crisis hit Sri Lanka severely. These have led to many serious issues in almost all the sectors. Impact on the health sector and the health of the general public is probably the most important as it affects the lives of people. Increasing poverty, increasing prices of medicines and all modes of treatment, increasing malnutrition, lack of adequate funds for pharmaceuticals and developments in state health sector are some of the key issues resulted from the present crisis. This crisis has further worsened with increased migration of health professionals.

We, as health professionals, see and understand the impact on the health sector better than others as we are deeply involved in it. There are many solutions and methods we can use not only to face this crisis but also to have many improvements. This is an opportunity to adopt and promote cost-effective patient management methods and for us to be more cost-conscious in patient management. A significant reduction in 'drug budget' can be achieved by this while using the available funds optimally. Increase in tax revenue can be done by increasing the taxes of harmful/unhealthy agents such as tobacco, palm oil etc aiming to reduce the consumption at the same time. Such taxes will reduce the burden of taxes on individuals too.

Health professionals should be alert on 'abuse' of the present situation by wrong doers and prevent such attempts as such actions can make the present crisis further worse and also destroy the 'free health system' which has achieved so much in Sri Lanka.

Health professionals and professional association's role in the present economic and political crisis should not be limited to advocacy only but should be much wider.



## Building Resilience and Adapting: Laboratory Perspective



### **Dr Mahen Kothalawala**

MBBS, Diploma in Microbiology, MD(Medical Microbiology), MPH (NZ)

Consultant Clinical Microbiologist

National Hospital of Sri Lanka

Dr Mahen Kothalawala is a clinical microbiologist who is currently working at the National Hospital of Sri Lanka.

He is a Board-certified Medical Microbiologist with 16 years of service. His special interests include rational use of antibiotics.

### **Abstract**

Treatment based on identification of the etiological agents from clinical specimens was long considered an essential element of making rational clinical decisions and it was endorsed by many great clinicians in the calibre of Osler and Pasteur. In keeping with the traditions, clinical microbiology laboratories have provided much needed laboratory input to clinicians to manage infections. In addition, laboratory inputs provided data for surveillance activities within individual hospitals and to the country on MDR and XDR pathogens which had been identified as an integral part of antibiotic stewardship programs.

But, the crisis experienced recently after the pandemic seriously hampered the ability of clinical laboratories to provide input to clinicians. As most of the reagents for lab equipments/instruments are coming from overseas sources, import restrictions made it impossible to obtain needy reagents.

As a direct consequence, most hospitals reverted back to manual culture methods since most automated systems used in clinical laboratories were coming from overseas sources.

I will be discussing the impact of crisis in different laboratory disciplines especially focussing on microbiology and the ways and means of overcoming the difficulties in my presentation.

## Building Resilience and Adapting: A Primary Health Care Perspective



### **Dr. Susie Perera**

MBBS, MSc Community Medicine, MD Community Medicine  
Deputy Director General – Public Health Services  
Ministry of Health, Sri Lanka

Dr. Susie Perera is a Public Health Specialist and currently holds position of the Deputy Director General Public Health Services II in the Ministry of Health, Sri Lanka. She currently oversees the Directorates relevant to MCH, Nutrition, Elderly care, Estate and Urban health and Health promotion.

Her interests are for service quality and integration giving further coverage of these services through primary care reform, social empowerment and reducing health inequities. Her work on identifying a rational health care delivery system has led to the development of the 'Policy on health services delivery for UHC'. The "shared care cluster model" and a "Family doctor for all" are key concepts in the reform.

She has actively contributed in the COVID 19 response having taken a lead role in formulating instructions to the public and enterprises on the resumption of activities based on key principles of COVID prevention.

Most recent involvement in public health advocacy has been for integrating nutrition security into National food security plans in context of current economic crisis having led the work on an Emergency Nutrition Plan in 2022.

Dr. Perera contributes to postgraduate training in the disciplines of Community Medicine, focusing on Health systems, public health policy, management & Administration, and Health Development & Research. Dr. Perera is the current President of Perinatal Society, a Honorary Fellow of the College of General Practitioners and past President and Fellow of the College of Community Physicians of Sri Lanka. She is an Eisenhower Fellow since 2007.

## Abstract

The Primary health care organization in Sri Lanka has a strong prevention and community focus that is state led but also has the potential of both public and privately funded primary care institution network. The 2018 policy on health service delivery for Universal Health Coverage gave a strong signal for a reorganization of the state led primary care curative institutions to be grouped as clusters surrounding a specialist referral unit named as “äpex” hospital which can be easily considered a performance unit for shared continuity of care for the people within its catchment. The reorganization was to address bypassing of primary curative care hospitals and make a reasonable essential health care package available in primary care whilst enabling access to a specialist when needed.

The COVID 19 pandemic tested the health system for its resilience. The extent to which primary health care supported in the pandemic response and was able to maintain other non-COVID essential health service needs to be reflected on. Strong Primary health care systems that focus on health promotion, vaccination, continue to provide screening facilities for early detection of common diseases that can be treated and provide routine care for underlying health conditions such as non-communicable diseases are considered as resilient, where care is more accessible at primary care in crisis situation.

In the economic crisis, health system resilience, its continuous measurement of performance in clusters and the need to sustain the emphasis for PHC is highlighted.

## SYMPOSIUM 2

# “Integration & Harmonization of Oral Health”

## Integration & Harmonization of Oral Health: Introduction



### **Dr. Lakmal Kulasekara**

(BDS (Peradeniya) MD in Restorative Dentistry (University of Colombo))

Senior Lecturer, Department of Basic Sciences, Faculty of Dental Sciences, University of Sri Jayewardenepura

Dr. Lakmal Kulasekara is the Head and Senior Lecturer of the Department of Basic Sciences, Faculty of Dental Sciences, University of Sri Jayewardenepura.

### **Abstract**

Oral disease is one of the great preventable public health challenges of the 21<sup>st</sup> century. Labeled a “silent epidemic”, oral disease ranks high in prevalence among chronic health conditions. It is universally prevalent, but a number of subpopulations are particularly vulnerable, including seniors, children and adolescents, low-income people, minority groups, and people with special health care needs.

Oral health is an essential element of general health and quality of life through an individual's life-course - yet one that is often neglected in integrated approaches for the promotion of general health. Effective information-sharing between oral health professionals and other health care disciplines is critical for efficient health care and public health.

While oral disease is itself a discrete health concern, like many other chronic diseases, it has broader health impacts. Poor oral health has been linked to increased risk for cardiovascular disease, diabetes, and other chronic conditions. Studies have shown that among adults who have lost their natural teeth, there is a significant impact on nutritional intake, resulting in the consumption of little or no fresh fruit and vegetables. Poor oral health also exacerbates other underlying chronic diseases. For example, diabetic patients with periodontitis are six times more at risk for worsening glycemic control and are at increased risk for other diabetic related health complications.

Oral diseases have number of broader implications. Poor oral health in children has been shown to result in decreased academic performance and can adversely affect behavioral and social development. Over 51 million school hours are lost each year due to dental problems.

## Integration & Harmonization of Oral Health: Primary Healthcare & Prevention



### **Dr. Hemantha Amarasinghe**

(BDS, MSc, MD, FDSRCPS (Glasgow))

Consultant Community Dentist

Institute of Oral Health, Maharagama

Dr Hemantha Amarasinghe is the Head of the Training unit, Institute of Oral Health, Maharagama, Sri Lanka. Last 25 years, he has been engaged in various capacities in the National Cancer Control Programme, Ministry of Health, to control tobacco and smokeless tobacco health hazards mainly prevention and early detection of oral cancer. In the recent past, he was

engaged in an extensive community-based studies and develop a novel high-risk approach called risk factor model (RFM) for prevention and early detection of oral cancer. Introduction of “New betel tray” and formulation of victim group named “Voice of Blue Pea” are among the other approaches he immensely contributed.

He has many publications to his credit: won 4 awards for scientific publications, authored 16 books and two thesis, published 27 full papers in highly prestigious journals and more than 60 papers presented at the local and international conferences.

### **Abstract**

One approach to integration that has won the most support is to offer ‘essential oral health’ within the context of primary health care (PHC). The concept of PHC was granted recognition in 1978 at the International Conference on Primary Health Care.

The call for the integration of health disciplines has been made continuously, since the 1970s. Among the attributes proposed for this ‘new health care system’ where ‘universal access, integration of service delivery in a single community-based site, and an organised body of compatible and mutually reinforcing policies and standards’

With regard to the integration of oral health with general health care, notable collaborative efforts were initiated between medical and dental practitioners in the areas of education and practice. Opportunities where oral health measures could effectively be embedded in the spectrum of general health care were explored

Furthermore, programmes designed to improve the oral health of the special populations, particularly the maternal and child groups, illustrated the importance of incorporating oral health standards and procedures within general health policies.

The Declaration of Alma Ata has since been adopted by many governments and adapted to the health and socioeconomic conditions in each country. The original PHC framework did not include a strategy to integrate oral health with general health programmes. However, during the 'global review' conducted in 2003 – the 25<sup>th</sup> anniversary of the historic conference – a number of PHC models, with oral health integrated at various phases of implementation emerged.

While models for delivering PHC will continue to emerge in parallel to its evolution and development, the process of integrating oral health into primary care has remained slow and unsteady. This is so despite the epidemic of oral diseases, the established oral-systemic link of some chronic diseases, and the increased demand and need for prevention-based health care.

## Integration & Harmonization of Oral Health: Oral & Systemic link



### **Dr Ananda Rathnayaka**

Consultant Oral & Maxillofacial Surgeon/Senior Lecturer, Department of Oral Surgery, Faculty of Dental Sciences, University of Sri Jayewardenepura

Dr Ananda Rathnayaka is a Past president of the Sri Lanka association of OMF Surgeons and Government Dental Surgeons' Association.

### **Abstract**

Integrating primary care and oral health makes logical sense for a number of reasons. By sharing information, providing basic diagnostic services, and consulting one another in a systematic and sustained manner, dental and medical professionals in integrated practice arrangements would have a far better chance of identifying disease precursors and underlying conditions in keeping with a patient-centered model of care.

Integration can also raise patients' awareness of the importance of oral health, potentially aiding them in taking advantage of dental services sooner rather than later.

Integration could also:

- increase the effectiveness and efficiency of both dental and medical professionals in preventing disease, thereby reducing the large number of preventable dental conditions, which are far too often treated in emergency rooms
- improve chronic disease management and prevention;
- address significant oral health care access issues by expanding entry points into the dental care system, especially for at-risk and underserved populations
- facilitate the use of interdisciplinary techniques to overcome patient-specific barriers to accessing services, such as patient apprehension and anxiety about visiting the dentist and
- provide significant cost savings to the health care system by controlling for and reducing risk factors; common to dental disease and various chronic diseases, like diabetes



## Integration & Harmonization of Oral Health : Challenges



### **Dr Priyake Palipana**

Consultant / Senior Lecturer,  
Department of Restorative Dentistry  
Faculty of Dental Sciences, University of Sri  
Jayewardenepura  
Surgeon Commodore / Consultant in Restorative  
Dentistry, Sri Lanka Navy

Dr. Priyake Palipana obtained his BDS in 1994 (2<sup>nd</sup> Class Honours) with a Distinction in Restorative Dentistry and MS in Restorative Dentistry in 2000. He received

Fellowship of Royal Australasian College of Dental Surgeons (FRACDS) in 2004. He is a PGIM Trainer/ Examiner in MD Restorative Dentistry, MD orthodontics, DHDP and Geriatric Medicine.

He held the positions of President CDSL (College of Dentistry & Stomatology Sri Lanka) 2014/2015, President ASRDS (Association of Specialists in Restorative Dentistry, Sri Lanka) 2019/2020, Secretary-CDSL (College of Dentistry & Stomatology Sri Lanka), Secretary - ASRDS (Association of Specialists in Restorative Dentistry, Sri Lanka, Secretary – Board of Study (Dental Surgery) 2018 -2021.

Dr. Palipana has authored chapters in 4 textbooks and published his work in many Indexed & Peer-reviewed Journals.

### **Abstract**

Medical and Dental Professionals :

- Educated separately
- Licensed separately
- Regulated separately in most instances
- Practice independently
- Non-integrated benefits/insurance programs
- Medical doctors see the mouth as the property of Dental surgeons
- Sharing of information rarely occurs
- Seen by the public as separate
- Oral Health Training for health professionals has been sparse to non-existent



## SYMPOSIUM 3

### “Conquering Clinical Conundrums”

#### Facing the Challenge of Metabolic Syndrome: The Place of Multimorbidity Clinics



#### **Dr Nimantha de Alwis**

MBBS, MD, PhD

Consultant in Diabetes and Endocrinology,  
South Tyneside & Sunderland NHS trust, UK

Dr De Alwis graduated from the second batch of The Faculty of Medical Sciences, USJP in 1999. He joined the Department of Medicine soon after and underwent MD training at Colombo South Teaching Hospital. He moved to the UK with a Commonwealth Scholarship and read for PhD in Non-Alcoholic Fatty Liver Disease, Metabolic syndrome and Mitochondrial

genetics at Newcastle University, UK and was trained in Diabetes & Endocrinology in the North East of England.

After completion of specialist training, he joined Sunderland Royal Hospital and set up a Specialist Weight Management Service to support the Bariatric surgical service. Dr. de Alwis was part of the liver research group in Newcastle and was also involved in obesity research in the UK. He then spent 4 years in Dubai, UAE setting up and leading a weight management service and returned to the UK this year to take up his previous role.

His main interests include non-alcoholic fatty Liver disease, obesity, and medical complications of bariatric surgery.

#### **Abstract**

The incidence and prevalence of Obesity and Metabolic syndrome is increasing worldwide to pandemic proportions. Cardiovascular death remains the leading cause of death but this is a complex integration of cardiac, renal, metabolic (including diabetes and hypercholesterolaemia) and most importantly obesity. The diagnosis is simple but management is challenging as these are lifelong conditions requiring multi-specialist cooperation.

Complicating matters is the non-acceptance of obesity as a disease in many countries making it difficult to access services for patients and physicians. Tackling cardiometabolic disease is the responsibility of all physicians. Identifying patients at risk of metabolic disease and appropriately managing them within the community and hospital setting should be approached in an integrated multimorbidity service.

## How Can We Survive Sepsis?



### **Dr. Anushka Kotelawala Bagga**

MBBS, MD

Assistant Professor of Surgery,  
Loma Linda university Health, USA

Dr. Anushka Kotelawala Bagga received her primary education in Sri Lanka and medical education from the FMS, USJP. After completing internship at NHSL she worked in pediatric cardiothoracic anesthesia at LRH and during that time volunteered at the army hospital and war zones in Vavuniya during the war. In 2009, she moved to America and started postgraduate training

initially in internal medicine completing a residency in internal medicine in Boston at Cambridge Health alliance and stayed on as faculty at Harvard Medical School as a teaching hospitalist. Dr. Bagga then moved to the University of Buffalo to pursue surgical training which she completed in 2021 and continued on to UC Irvine to complete a fellowship in trauma surgery and critical care. She is currently an assistant professor in trauma acute care surgery and critical care at Loma Linda University in California. Her other interests include spending time with her 5-year-old twins, music and spirituality.

### **Abstract**

Sepsis is life-threatening organ dysfunction caused by a dysregulated host response to infection. Sepsis and septic shock impacts millions of people around the world each year killing between one in three to one in six of those it affects. Early identification and appropriate management in the initial hours after the development of sepsis improve outcomes. Understanding the disease process and the evidence that is behind the creation of evolving guidelines plays a pivotal role in the successful management of this otherwise lethal disease process.

## DEBATE

**“This House Believes that Health Care Professionals Leaving the Country in the Current Context is Justifiable.”**

### Proposition Team



**Mr. Mirshan Sivakumar**  
MBBS undergraduate (29<sup>th</sup> Batch)



**Miss Senara Vidanapathirana**  
MBBS undergraduate (29<sup>th</sup> Batch)

### Opposition Team



**Mr. Chethanan Mogan**  
MBBS undergraduate (30<sup>th</sup> Batch)



**Miss. Amirah Izadeen**  
MBBS undergraduate (30<sup>th</sup> Batch)

## LIST OF ABSTRACTS

### RAPID PITCH – THESIS CHALLENGE

#### RP1

**Investigation of Dengue NS1-specific antibody and memory B cell responses in individuals with varying severity of past infection**

Ramu ST<sup>1</sup>, Dissanayake M<sup>1</sup>, Jeewandara C<sup>1</sup>, Bary B<sup>1</sup>, Harvie M<sup>1</sup>, Gomes L<sup>1</sup>, Wijesinghe A<sup>1</sup>, Ogg GS<sup>2</sup>, Malavige GN<sup>1,2</sup>.

<sup>1</sup>Allergy Immunology Cell Biology Unit, Department of Immunology and Molecular Medicine, University of Sri Jayewardenepura, Sri Lanka, <sup>2</sup>MRC Human Immunology Unit, MRC Weatherall Institute of Molecular Medicine, University of Oxford, United Kingdom

#### RP2

**Parasitological, serological and molecular-based diagnosis of strongyloidiasis among immunocompromised patients in Sri Lanka and associated risk factors for disease occurrence**

Weerasekera CJ<sup>1</sup>, Menike CW<sup>1</sup>, Wimalasiri U<sup>2</sup>, Anpahalana JP<sup>3</sup>, Wijerathna T<sup>2</sup>, Jayathilake DCC<sup>4</sup>, Somawardane UABP<sup>4</sup>, Saravanamuttu U<sup>4</sup>, Yoganathan N<sup>4</sup>, Pilapitiya D<sup>5</sup>, Perera N<sup>6</sup>, Gunathilaka N<sup>2</sup>, De Silva NR<sup>2</sup>, Wickremasinghe DR<sup>1</sup>

<sup>2</sup>Department of Parasitology, Faculty of Medicine, University of Kelaniya, Ragama, Sri Lanka

<sup>3</sup>University Medical Unit, Colombo South Teaching Hospital, Kalubowila, Sri Lanka, <sup>4</sup>National Cancer Institute of Sri Lanka, Maharagama, Sri Lanka, <sup>5</sup>Sri Jayewardenepura General Hospital, Nugegoda, Sri Lanka, <sup>6</sup>Department of Medicine, Faculty of Medical Sciences, University of Sri Jayewardenepura, Nugegoda, Sri Lanka

#### RP3

**Microbiological profile of paediatric community-acquired pneumonia and analysis of pneumococcal colonization among healthy children in the Colombo district**

Gonapaladeniya GDMC<sup>1</sup>, Dissanayake DMBT<sup>1</sup>, Weerasekera MM<sup>1</sup>, Kaviratna M<sup>2</sup>, Liyanage GSH<sup>3</sup>

<sup>1</sup>Dept. of Microbiology, Faculty of Medical Sciences, University of Sri Jayewardenepura, <sup>2</sup>Ministry of Health, <sup>3</sup>Dept. of Paediatrics, Faculty of Medical Sciences, University of Sri Jayewardenepura

#### RP4

### Prevalence of carbapenem-resistant *Enterobacteriaceae* among two patient populations and evaluation of selected phenotypic carbapenemase detection methods

Chathuranga BAG<sup>1</sup>, Dissanayake T<sup>2</sup>, Fernando N<sup>2</sup>, Wanigatunge CA<sup>3</sup>

<sup>1</sup>Department of Medical Laboratory Sciences, University of Sri Jayewardenepura, Sri Lanka, <sup>2</sup>Department of Microbiology, University of Sri Jayewardenepura, Sri Lanka, <sup>3</sup>Department of Pharmacology, University of Sri Jayewardenepura, Sri Lanka

#### RP5

### Study of Group B Streptococcus (GBS), their characteristics and vaginal microbiome in pregnant women from tertiary care hospitals in Colombo.

Dilrukshi GN<sup>1</sup>, Kottahachchi J<sup>1</sup>, Dissanayake DMBT<sup>1</sup>, Fernando SSN<sup>1</sup>

<sup>1</sup>Department of Microbiology, Faculty of Medical Sciences, University of Sri Jayewardenepura, Sri Lanka.

#### RP6

### Selected treatment adherence behaviours and dialysis adequacy among patients undergoing haemodialysis in selected government hospitals in Sri Lanka

Lasanthika TLC<sup>1</sup>, Wanigasuriya JKP<sup>2</sup>, Hettiaratchi UPK<sup>3</sup>, Amarasekara AATD<sup>1</sup>, Goonewardena CSE<sup>4</sup>

<sup>1</sup>Department of Nursing and Midwifery, Faculty of Allied Health Sciences, University of Sri Jayewardenepura, Sri Lanka, <sup>2</sup>Center for Kidney Research, Faculty of Medical Sciences, University of Sri Jayewardenepura, Sri Lanka, <sup>3</sup>Department of Biochemistry, Faculty of Medical Sciences, University of Sri Jayewardenepura, Sri Lanka, <sup>4</sup>Department of Community Medicine, Faculty of Medical Sciences, University of Sri Jayewardenepura, Sri Lanka

## ORAL PRESENTATIONS

### OP1

#### Association of tumour budding and clinicopathological characteristics in colorectal cancer from four tertiary care centres in Sri Lanka

Kosgallana EW<sup>1</sup>, Wijetunge S<sup>2</sup>, Malaviarachchi SL<sup>3</sup>, Kumarasinghe I<sup>4</sup>, Ratnayake P<sup>5</sup>, Ratnatunga KC<sup>6</sup>, Kandedara SL<sup>7</sup>, Gamage BD<sup>8</sup>, Prathapan S<sup>9</sup>, Prematilleke IV<sup>10</sup>

<sup>1</sup>Department of Anatomy, Faculty of Medicine, University of Peradeniya, Sri Lanka, <sup>2</sup>Department of Pathology, Faculty of Medicine, University of Peradeniya, Sri Lanka, <sup>3</sup>Department of Oncology, University Hospital Plymouth NHS Trust, United Kingdom, <sup>4</sup>Department of Paraclinical Sciences, Faculty of Medicine, General Sir John Kotelawala Defense University, <sup>5</sup>Department of Pathology, National Hospital Kandy, Sri Lanka, <sup>6</sup>Department of Surgery, Faculty of Medicine, University of Peradeniya, Sri Lanka, <sup>7</sup>Oncology Unit, National Hospital Kandy, Sri Lanka, <sup>8</sup>Department of Surgery, Faculty of Medical Sciences, University of Sri Jayewardenepura, Sri Lanka, <sup>9</sup>Department of Community Medicine, Faculty of Medical Sciences, University of Sri Jayewardenepura, Sri Lanka, <sup>10</sup>Department of Pathology, Faculty of Medical Sciences, University of Sri Jayewardenepura, Sri Lanka

### OP2

#### Impact of microlearning on academic performance of students in higher education in theoretical examinations - A systematic review and meta-analysis

Senadheera VV<sup>1,2</sup>, Ediriweera DS<sup>3</sup>, Rupasinghe TP<sup>4</sup>

<sup>1</sup>Faculty of Graduate Studies, University of Kelaniya, Sri Lanka, <sup>2</sup>Department of Physiotherapy, Faculty of Allied Health Sciences, University of Peradeniya, Sri Lanka, <sup>3</sup>Health Data Science Unit, Faculty of Medicine, University of Kelaniya, Sri Lanka, <sup>4</sup>Department of Applied Computing, Faculty of Computing and Technology, University of Kelaniya, Sri Lanka

### OP3

#### Molecular-based detection of pathogenic and intermediately pathogenic *Leptospira* spp. from the kidneys of swine slaughtered for human consumption in Kegalle district, Sri Lanka.

Rathnayake NS<sup>1</sup>, Vijeyakumaran R<sup>1</sup>, Senarathne KMPH<sup>1</sup>, Bandara RMVV<sup>1</sup>, Karunadasa AKUI<sup>1</sup>, Muthusinghe BDS<sup>2</sup>, Ruwanpathirana NR<sup>3</sup>, Koizumi N<sup>4</sup>, Gamage CD<sup>1</sup>

<sup>1</sup>Department of Microbiology, Faculty of Medicine, University of Peradeniya, Sri Lanka, <sup>2</sup>National Research Center for Control and Prevention of Infectious Diseases, Nagasaki University, Japan, <sup>3</sup>Department of Biomedical Science, ICBT Campus, Sri Lanka, <sup>4</sup>Department of Bacteriology, National Institute of Infectious Diseases, Tokyo, Japan

#### OP4

**Are we giving enough attention to young people with diabetes? A preliminary analysis of the multicenter database for patients with young-onset diabetes in Sri Lanka (DYOD – SL)**

Step - D Research Group<sup>1</sup>

<sup>1</sup>*Sri Lanka College of Endocrinologists*

#### OP5

**Platelet to Lymphocyte ratio: a novel marker for severity prediction in chronic kidney disease**

Azra MAF<sup>1</sup>, Asra MHF<sup>1</sup>, Nifla S<sup>1</sup>, Brammah RT<sup>2</sup>, Karunaitas R<sup>1</sup>

<sup>1</sup>*Department of Medical Laboratory Sciences, Faculty of Allied Health Sciences, University of Jaffna, <sup>2</sup>Nephrology Clinic, Teaching Hospital, Jaffna*

#### OP6

**Little Eaters, Big Impact: Preliminary findings on food group patterns and minimum dietary diversity in early childhood in selected MOH areas in Colombo District**

Mapatunage TK<sup>1</sup>, Seneviwickrama KLM<sup>2</sup>, Hettiaratchi UPK<sup>3</sup>, Anusha K<sup>4</sup>, Liyanage G<sup>1</sup>

<sup>1</sup>*Department of Pediatrics, Faculty of Medical Sciences, University of Sri Jayewardenepura, Gangodawila, Sri Lanka, <sup>2</sup>Department of Community Medicine, Faculty of Medical Sciences, University of Sri Jayewardenepura, Gangodawila, Sri Lanka, <sup>3</sup>Department of Biochemistry, Faculty of Medical Sciences, University of Sri Jayewardenepura, Gangodawila, Sri Lanka, <sup>4</sup>Department of Basic Sciences, Faculty of Health Sciences, Open University, Sri Lanka*



## POSTER PRESENTATIONS

### PP1

**A study of in vitro antimicrobial properties of selected medicinal plants against uropathogenic *Staphylococcus aureus***

Ilangage JIMK<sup>1</sup>, Ilangakoon IACS<sup>1</sup>, Dissanayake DMMK<sup>1</sup>, Rajapaksha NPD<sup>1</sup>, Fernando KMK<sup>1</sup>, Walpola LH<sup>1</sup>, Hettiarachchi D<sup>2</sup>

<sup>1</sup>Department of Biomedical Science, Faculty of Health Science, KIU, Sri Lanka, <sup>2</sup>Department of Anatomy, Genetics and Biomedical Informatics, Faculty of medicine, University of Colombo, Sri Lanka

### PP2

**Molecular detection of antibiotic resistance genes in farmed prawns collected from selected areas of Sri Lanka**

Vijeyakumaran R<sup>1</sup>, Rathnayake NS<sup>1</sup>, Bandara RMVV<sup>1</sup>, Karunadasa AKUI<sup>1</sup>, Senarathne KMPH<sup>1</sup>, Furukawa T<sup>2</sup>, Amarasiri M<sup>2</sup>, Sei K<sup>2</sup>, Ruwanpathirana NR<sup>3</sup>, Gamage CD<sup>1</sup>

<sup>1</sup>Department of Microbiology, Faculty of Medicine, University of Peradeniya, Sri Lanka, <sup>2</sup>Department of Health Sciences, Kitasato University, Japan, <sup>3</sup>Department of Biomedical Science, ICBT Kandy Campus, Sri Lanka

### PP3

**Identification of *Leptospira kmetyi* from patients with symptomatic leptospirosis in Kandy district, Sri Lanka**

Karunadasa AKUI<sup>1</sup>, Vijeyakumaran R<sup>2</sup>, Rathnayake NS<sup>2</sup>, Bandara RMVV<sup>2</sup>, Herath T<sup>2</sup>, Pathirage MMK<sup>3</sup>, Kularatne SAM<sup>3</sup>, Koizumi N<sup>4</sup>, Gamage CD<sup>2</sup>

<sup>1</sup>Postgraduate Institute of Science, University of Peradeniya, <sup>2</sup>Department of Microbiology, Faculty of Medicine, University of Peradeniya, <sup>3</sup>Department of Medicine, Faculty of Medicine, University of Peradeniya, <sup>4</sup>Department of Bacteriology, National Institute of Infectious Diseases, Tokyo, Japan

### PP4

**Association between HbA1c and, serum electrolytes with the presence of antibiotic resistant pathogens in diabetic foot ulcers in patients with diabetes managed at Teaching Hospital Karapitiya**

Nusry MNM<sup>1</sup>, Weerasinghe NP<sup>2</sup>, Piyasiri DLB<sup>3</sup>

<sup>1</sup>Department of Medical Laboratory Science, Faculty of Allied Health Sciences, University of Ruhuna, <sup>2</sup>Department of Microbiology, Faculty of Medicine, University of Ruhuna, <sup>3</sup>Department of Microbiology, Teaching Hospital Karapitiya

#### PP5

**In-vitro susceptibility of clinical isolates of extended-spectrum beta-lactamase (esbl) producing *Escherichia coli* and *Klebsiella pneumoniae* to Dimethyl Sulfoxide (DMSO)**

Semini SPC<sup>1</sup>, Weerasinghe NP<sup>2</sup>, Napagoda MT<sup>3</sup>, Piyasiri DLB<sup>4</sup>

<sup>1</sup>Department of Medical Laboratory Science, Faculty of Allied Health Sciences, University of Ruhuna, Galle, Sri Lanka, <sup>2</sup>Department of Microbiology, Faculty of Medicine, University of Ruhuna, Galle, Sri Lanka, <sup>3</sup>Department of Biochemistry, Faculty of Medicine, University of Ruhuna, Galle, Sri Lanka, <sup>4</sup>Teaching Hospital Karapitiya, Galle, Sri Lanka

#### PP6

**An investigation of plasmid-based quinolone resistant genes existence in mid-gut contents from pigs farmed for human consumption in Kegalle district, Sri Lanka**

Bandara RMVV<sup>1</sup>, Rathnayake NS<sup>1</sup>, Vijeyakumaran R<sup>1</sup>, Senarathne KMPH<sup>1</sup>, Karunadasa U<sup>1</sup>, Ruwanpathirana NR<sup>2</sup>, Gamage CD<sup>1</sup>

<sup>1</sup>Department of Microbiology, Faculty of Medicine, University of Peradeniya, Sri Lanka, <sup>2</sup>Department of Biomedical Science, ICBT Kandy Campus, Sri Lanka

#### PP7

**Retrospective analysis of dermatological specimens for fungal studies received at a selected center**

Timali BO<sup>1</sup>

<sup>1</sup>Department of Medical Laboratory Science, University of Ruhuna, Sri Lanka

#### PP8

**Antimicrobial activities of silver nanoparticles biosynthesized by *Lannea coromandelica* aqueous extract**

Samadhi KGA<sup>1</sup>, Kalansuriya P<sup>2</sup>, Wijayarathne WMDGB<sup>3</sup>, Wasana KGP<sup>3</sup>

<sup>1</sup>Department of Medical Laboratory Sciences, Faculty of Allied Health Science, University of Ruhuna, Sri Lanka, <sup>2</sup>Department of Biochemistry, Faculty of Medicine, University of Ruhuna, Sri Lanka, <sup>3</sup>Department of Microbiology, Faculty of Medicine, University of Ruhuna, Sri Lanka

## PP9

### Efficacy of Alcohol-Chlorhexidine combination in comparison to Alcohol-Povidone Iodine combination in skin antisepsis

Wanasingha WWMSC

*Department of Medical Laboratory Science, University of Ruhuna, Sri Lanka*

## PP10

### Incidence and characterization of carbapenemase-producing *Enterobacteriaceae* isolated from cancer patients; first evidence of *bla*<sub>VIM</sub> harboring *Enterobacteriaceae* in Sri Lanka

Chathuranga BAG<sup>1</sup>, Dissanayake T<sup>2</sup>, Fernando N<sup>2</sup>, Wanigatunge CA<sup>3</sup>

*<sup>1</sup>Department of Medical Laboratory Sciences, University of Sri Jayewardenepura, Sri Lanka, <sup>2</sup>Department of Microbiology, University of Sri Jayewardenepura, Sri Lanka, <sup>3</sup>Department of Pharmacology, University of Sri Jayewardenepura, Sri Lanka*

## PP11

### Risk of persistent fatigue following SARS-CoV-2 infection among undergraduates in medical faculties of state universities in Sri Lanka

Hapuarachchi TM<sup>1</sup>, Wanigaratnam MNF<sup>1</sup>, Bandara AMSA<sup>1</sup>, De Silva HHDNM<sup>1</sup>, Egodawaththa HAC<sup>1</sup>, Prathapan S<sup>2</sup>, Malavige N<sup>3</sup>

*<sup>1</sup>Faculty of Medical Sciences, University of Sri Jayewardenepura, Sri Lanka, <sup>2</sup>Department of Community Medicine, Faculty of Medical Sciences, University of Sri Jayewardenepura, Sri Lanka, <sup>3</sup>Department of Immunology and Molecular Medicine, Faculty of Medical Sciences, University of Sri Jayewardenepura, Sri Lanka*

## PP12

### Evaluation of antimicrobial activity of modified "*Pasyale Seethodaka oil*" against common pathogens associated with wound infections

Samaranada HMVA<sup>1</sup>, Wijekumar PJ<sup>2</sup>, Samarakoon DNAW<sup>2</sup>, Herath HMNDM<sup>3</sup>, Fernando CA<sup>3</sup>, Ranadeva NDK<sup>3</sup>, Jayamaha AR<sup>4</sup>, Pushpakumara AAJ<sup>5</sup>, Fernando SSN<sup>6</sup>

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### PP13

#### Antimicrobial activity of Zinc oxide nanoparticles synthesized from *Camonea bifida* leaf extract

Jayalath CN, Kaluarachchi DU, Medis LSD, Peiris MMK

*Department of Medical Laboratory Sciences, General Sir John Kotelawala Defence University, Sri Lanka*

### PP14

#### Biosynthesis of silver nanoparticles from *Camonea bifida* leaf extract and their antimicrobial activity

Jayawardena YR, Senevirathna JY, Medis LSD, Peiris MMK

*Department of Medical Laboratory Sciences, General Sir John Kotelawala Defence University, Sri Lanka*

### PP15

#### Investigation of antimicrobial activity of secondary metabolites produced by selected *Aspergillus species* against pathogenic microorganisms

J Vithushan, VA Bodhinayaka, ODK Perera

*Department of Biomedical Science, Faculty of Health Science, CINEC Campus, Malabe, Sri Lanka*

### PP16

#### Study on isolation and antimicrobial sensitivity of *Escherichia coli* from environmental samples in hospital and livestock farming environments in the Gampaha District, Sri Lanka

Badanasinghe CN, Randeni RASB

*Department of Medical Microbiology, Faculty of Medicine, University of Kelaniya, Sri Lanka.*

### PP17

#### Serological evidence of exposure to hantaviruses among residents of Kegalle district, Sri Lanka

Senarathne KMPH<sup>1</sup>, Karunarathne SS<sup>1</sup>, Rathnayake NS<sup>1</sup>, Vijeyakumaran R<sup>1</sup>, Bandara V<sup>1</sup>, Karunadasa AKU<sup>1</sup>, Muthusinghe BDS<sup>2</sup>, Yoshimatsu KY<sup>3</sup>, Gamage CD<sup>1</sup>

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#### PP18

### A study on clinico–epidemiological characteristics of intentional poisoning patients admitted to a tertiary care hospital in Trincomalee District

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#### PP19

### Development and standardization of an antifungal topical formulation from langkas galangal rhizome (Zingiberaceae)

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#### PP20

### Prevalence of anaemia and its associated risk factors among type 2 diabetic patients attending the Diabetic Centre, Teaching Hospital Jaffna

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#### PP21

### Anti-hypertensive, anti-cholinesterase and anti-cancer potential of *Calendula officinalis* flowers

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#### PP22

### In vitro anti-inflammatory potential of *Terminalia arjuna* (Roxb.) aqueous bark extract

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### PP23

**Effect of the ethyl acetate soluble proanthocyanidins (EASPA) from the immature inflorescence of *Cocos nucifera* L. on LPS induced inflammatory response in endometrial mesenchymal stem cells derived from women with endometriosis**

Tenne PCRK<sup>1</sup>, Galhena PB<sup>2</sup>, Dissanayake DMAB<sup>3</sup>, Padumadasa S<sup>3</sup>, Peiris LDC<sup>4</sup>, Abeysekera A<sup>1</sup>, Padumadasa C<sup>1</sup>

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### PP24

**A study on in vitro anti-inflammatory potential of *Hemidesmus indicus* R. Br. Aqueous plant extract**

Riham MCM<sup>1</sup>, Madhuranga HDT<sup>1</sup>, Gunasena GKBCM<sup>1</sup>, Dharmasena WASH<sup>1</sup> Thambiliyagoda TGKU<sup>1</sup>, Samarakoon DNAW<sup>1</sup>, Herath HMLPB<sup>2</sup>

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### PP25

**Stability of propranolol hydrochloride tablets in amber-colored glass containers**

Madhushika IWH, Jayasinghe M, Wijesekara KAKD, Subasinghe HWAS

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### PP26

**Biophysical, behavioural and anthropometric factors in predisposition of non-communicable diseases in adults attending Healthy Lifestyle Centers in Kalutara district**

Udawella AV<sup>1</sup>, Weerasinghe YO<sup>1</sup>, Wimalarathna CUI<sup>1</sup>, Dilshan SAC<sup>1</sup>, Nirmani SKHC<sup>1</sup>, Prathapan S<sup>1</sup>, Nandasena S<sup>2</sup>

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## PP27

### Comparative analysis of the antioxidant activity of *Biophytum reinwardtii*, *Trachyspermum roxburghianum* and *Cyanthillium cinereum* extracts

Prabhashini GSC<sup>1</sup>, Silva DADM<sup>1</sup>, Farwin SS<sup>1</sup>, Senarathna DMCP<sup>1</sup>, Fath MMUU<sup>1</sup>, Weeranayaka K<sup>1</sup>, SamarakoonDNAW<sup>1</sup>, Rathnayaka GRN<sup>2</sup>

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## PP28

### Anthropometric parameters of newly diagnosed patients with myocardial infarction admitted to tertiary care hospitals of Western province of Sri Lanka - a case control study

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## PP29

### *In vitro* Litholytic Effect of Aqueous Extracts of Selected Plants and Young Coconut Water on Oxalate Stone

Minfak KA<sup>1</sup> Arasaratnam V<sup>1</sup> Sivagnanam S<sup>2</sup> Madhushani LR<sup>3</sup> Maheswaran T<sup>3</sup> Peries MJC<sup>3</sup> Aranraj T<sup>1</sup>

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## PP30

### Anatomic variations of insertion of right posterior hepatic duct: Cadaveric and endoscopic retrograde cholangiopancreatography findings

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### PP31

#### Barriers for implementing evidenced-based practice among nurses in selected hospitals in Sri Lanka: A mixed method study

Sinthujan J<sup>1</sup>, Anuradha Rathnayake<sup>1</sup>

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### PP32

#### Designed and implementation of a T-ARMS-PCR assay to genotype genetic variants associated with retinoblastoma in a cohort of Sri Lankan population

Shathushika A<sup>1</sup>, Wetthasinghe TK<sup>1</sup>, Dissanayake MM<sup>1</sup>, Abeysekara H<sup>2</sup>, Irugalbandara D<sup>2</sup>

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### PP33

#### A Review on Clinical Education in the new era

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### PP34

#### “Connectivism” as a theoretical framework underpinning social media usage for higher education in the digital age – A scoping review

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### PP35

#### Acute appendicitis: clinical decision and histopathological correlation

Abeyasinghe AHMGB<sup>1</sup>, Herath MTD<sup>2</sup>, Samarasinghe NR<sup>3</sup>, Abeyasinghe AHMCD<sup>4</sup>, Wimalasena GADNB<sup>5,1</sup>

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### PP36

#### Clinicopathological characteristics of young patients with oral squamous cell carcinoma – A Hospital based study.

Rathnayaka RMAS<sup>1</sup>, Shanmuganathan S<sup>1</sup>, Wadusinghearachchi NS<sup>2</sup>, Piyumila BD<sup>2</sup>, Liyanage RLPR<sup>2</sup>

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### PP37

#### Injury patterns and nature of the road traffic crashes reported to the Accident Service Unit in Colombo South Teaching Hospital and its associated factors

Rabel M.D.N.<sup>1</sup>, Ghajhane V<sup>1</sup>, Isurika J.K.M.S.<sup>1</sup>, P.S.U. Perera<sup>1</sup>, D.M. Kulathilake<sup>1</sup>, Goonewardena S<sup>2</sup>, Ariyaratne D<sup>3</sup>

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### PP38

#### Anomalous insertion of an inferior mesenteric vein varix: A cadaveric case report

Jayarathna M J S<sup>1</sup>, Udayakumara S<sup>1</sup>, Dhanushkar R<sup>1</sup>, Weerasinghe S<sup>1</sup>, Amaratunga H A<sup>1</sup>

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### PP39

#### Descriptive study of 132 primary oral squamous cell carcinomas from the oral pathology diagnostic service in Teaching Hospital Karapitiya, Galle, Sri Lanka

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#### PP40

### Analysis of chemicals present in slaked lime used with betel quid in Jaffna District: Presence of carcinogenic chemical Rhodamine B

Priyanath H<sup>1</sup>, Edirisinghe EAST<sup>2</sup>, Weerasekera MM<sup>2</sup>, Jayeweera PM<sup>3</sup>

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#### PP41

### Multidisciplinary management of patients with severe generalized periodontitis: A case series

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#### PP42

### Giving the living hope-Prosthetic rehabilitation after maxillectomy; A case series

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#### PP43

### Avulsed teeth: why those should be replanted? A case series

Handapangoda HMKG<sup>1</sup>, Kalubowila SS<sup>2</sup>, Santhanagobalan B<sup>3</sup>, Ranathunga RMSDK<sup>4</sup>

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#### PP44

### Management of post traumatic pathological root resorption; two case reports

Jayasundara KMBA, Chandrasiri TS, Vasantha S

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#### PP45

### **Distribution of delivery complications and their association with antenatal obesity/overweight among pregnant women in Anuradhapura, Sri Lanka**

Dharmasoma UWNK<sup>1</sup>, Agampodi TC<sup>2</sup>, Jayasinghe HMIU<sup>2</sup>, Agampodi SB<sup>2</sup>

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#### PP46

### **Investigation of knowledge regarding antimicrobial resistance among general public living in the Northern and Eastern provinces of Sri Lanka: A descriptive cross-sectional survey**

Mathanki S<sup>1</sup>, Mohamed F<sup>2</sup>, Dassanayake D<sup>3</sup>, Sakeena MHF<sup>2</sup>

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#### PP47

### **Adherence to statin and factors associated with adherence among patients with ischemic heart disease at Teaching hospital, Jaffna, Sri Lanka**

Kodelinishiya A<sup>1</sup>, Kowsika K<sup>1</sup>, Yathusha K<sup>1</sup>, Thuvaragan S<sup>1</sup>, Guruparan M<sup>2</sup>

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#### PP48

### **Dietary practices and associated factors among pregnant women in Nugegoda, Maharagama and Borelesgamuwa Medical Officer of Health areas in Colombo district**

Seneviratne D.V.W<sup>1</sup>, Imalshi HDK<sup>1</sup>, Munasinghe MIC<sup>1</sup>, Herath HMUGAS<sup>1</sup>, Apporwa MDI<sup>1</sup>, De Silva HL<sup>2</sup>, Alagiyawanna AMADK<sup>3</sup>, Goonewardena CSE<sup>3</sup>

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#### PP49

### Cardiovascular disease risk level and associated factors among medical clinic attendees between 40 to 70 years attending Colombo South Teaching Hospital

Dikmadugoda YC<sup>1</sup>, Mariyam HMGKMR<sup>1</sup>, Malshan LHH<sup>1</sup>, Abewardhana KMDS<sup>1</sup>, Basnayaka BMMM<sup>1</sup>, Matthias AT<sup>2</sup>, Goonewardena CSE<sup>3</sup>

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#### PP50

### Vitamin D deficiency and gestational diabetes mellitus: A preliminary study among pregnant mothers attending antenatal clinics at Colombo South Teaching Hospital, Kalubowila

Wimalajeewa TMDYD<sup>1</sup>, Jayawardane MAMM<sup>1</sup>, Hettiaratchi UPK<sup>2</sup>, Amarasekara AATD<sup>3</sup>, Prathapan S<sup>4</sup>

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#### PP51

### Parental knowledge and associated factors on symptoms and first aid for seizures in children attending a tertiary care hospital in Colombo district

Varatharajah L<sup>1</sup>, De Silva KDS<sup>1</sup>, Ferdinando KPMVDDS<sup>1</sup>, Sanjana KMN<sup>1</sup>, Vidanapathirana DS<sup>1</sup>, Prathapan S<sup>2</sup>, Wijesekara DS<sup>3</sup>

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#### PP52

### Medication-related quality of life among older adults attending medical clinics at Teaching Hospital Kaluthara

Sulakshana UADS, Rodrigo WMD, Disanayake DMTM, Rajapaksha RMTN, Wijesuriya WAIC, Nisansala MWN, Senarath NSASN

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### PP53

#### Knowledge and attitudes towards pulmonary tuberculosis and factors associated among general public aged 20-30 in Colombo District

Sriskandarajah A<sup>1</sup>, Kodithuwakku H.N<sup>1</sup>, Wijeratne H.N<sup>1</sup>, Perera C.M.N<sup>1</sup>, Karunathilaka R.M.P.U<sup>1</sup>, Seneviwickrama K.L.M.D<sup>2</sup>, Kottahachchi J<sup>3</sup>

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### PP54

#### Anaemia in first trimester: proportion and selected causes in Colombo District, Sri Lanka

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### PP55

#### Self-medication practice among undergraduates at KAATSU International University

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### PP56

#### Gender differences in body image and prosthetic satisfaction among below knee amputees in Sri Lanka

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## PP57

### The Associations of Left Ventricular Systolic Dysfunction with Clinico- Epidemiological Characteristics in a Sri Lankan Elderly Population

Rathnayake BMC<sup>1</sup>, Illeperuma RP<sup>2</sup>, Jayasinghe S<sup>3</sup>, Fawcett TN<sup>4</sup>, Jayalath WATA<sup>5</sup>, Ralapanawa U<sup>5</sup>

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## PP58

### Facilitators and barriers to adverse drug reaction reporting from nurses in a selected hospital: A descriptive cross-sectional study

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## PP59

### Clinical profile of patients on maintenance hemodialysis in Monaragala District – Sri Lanka

Sujeewa JA<sup>1</sup>, Maduwage K<sup>2</sup>, Premawardana NP<sup>1</sup>, Ratnapala DUS<sup>3</sup>, Rathnayaka RMDC<sup>1</sup>, Abeysekera RA<sup>4</sup>

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## PP60

### Knowledge, attitudes, and practices towards infection control strategies among nurses at two selected teaching hospitals in Colombo district, Sri Lanka

Ishwariya V<sup>1</sup> Ranasinghe WMDD<sup>1</sup>, Matheews S<sup>1</sup>, Tharanga HMR<sup>1</sup>, Senarathna SPD<sup>1</sup>, De Soyza IKKM<sup>1</sup>, Chameera UWP<sup>1</sup>, Wijesinghe PB<sup>1</sup>, Herath HMCM<sup>2</sup>, Kisokanth G<sup>2</sup>

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### PP61

#### Play-based interventions to assess motor domain, cognitive domain, life skill and pre-learning skill in children with autism of Jaffna district, Sri Lanka

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### PP62

#### Peripancreatic tuberculous lymphadenitis mimicking pancreatic cystic neoplasm

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### PP63

#### An ovarian carcinoid in a mature cystic teratoma; a rare occurrence.

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### PP64

#### Prevalence and factors associated with dysmenorrhea among nurses working at selected government hospitals of Central Province, Sri Lanka

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#### PP65

**Do advanced level students from an endemic district have better knowledge on thalassaemia compared to Advanced Level students from a non-endemic district?**

Thirimanna HDGS<sup>1</sup>, Adithya HDRNK<sup>1</sup>, Silva HHKA<sup>1</sup>, Arambegedara WDIM<sup>1</sup>, Wijesinghe IMJ<sup>1</sup>, Gamage M<sup>2</sup>, Goonewardena CSE<sup>3</sup>

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#### PP66

**Assessment of electrolyte concentrations in plasma and serum and impact of delayed analysis at ambient temperature on serum electrolyte measurements**

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#### PP67

**Population-based reference intervals for haemoglobin and red cell indices for healthy adults in Kandy, Sri Lanka**

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#### PP68

**Knowledge, practices and sources of obtaining information regarding COVID-19 among teachers in selected urban schools, Trincomalee district, Eastern province, Sri Lanka**

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## PP69

### Knowledge of using hair colors, the proportion of side effects of its use, and its associated factors among adults living in Colombo district

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## PP70

### Carbon dot stabilization and photostability as potential factors that alter the cytotoxicity of bactericidal silver nanoparticles

Karunathilake DN<sup>1</sup>, Ranugge CTL<sup>1</sup>, Disanayake SDHS<sup>1</sup>, Mirihagalla MKKM<sup>1</sup>, Jayasekara DMW<sup>1</sup>, SamarakoonDNAW<sup>1</sup>, Peiris MMK<sup>2</sup>

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## PP71

### An evaluation of adulteration in Turmeric powder sold in shops in the Peliyagoda urban council area.

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## PP72

### Depression, anxiety, stress among nurses during the covid-19 outbreak in Sri Lanka: A cross-sectional study

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### PP73

#### Psychological distress among nurses handling patients with psychiatric disorders during the Covid-19 pandemic at in National Institute of Mental Health, Sri Lanka

Deepika AAT, Dulanthika ADI, Prasadini HGS, Rangani KMD, Dinushika KK, Ranaweera, RAND, Nisansala MWN, Senarath NSASN

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### PP74

#### Job burnout with caring for patients with dementia: A Cross-sectional survey among nurses at the National Institute of Mental Health

Madushan AKD<sup>1</sup>, Madushani PAS<sup>1</sup>, Madushani PCDW<sup>1</sup>, Perera GMV<sup>1</sup>, Perera USE<sup>1</sup>, Priyadarshani UGN<sup>2</sup>, Nisansala MWN<sup>1</sup>, Senarath NSASN<sup>1</sup>

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### PP75

#### Awareness of self-care and disease-related quality of life among patients with acute coronary syndrome attending the Cardiology unit, National Hospital Sri Lanka

Silva NGGH, Perera RASG, Nadeeka PW, Sadamali WAK, Hasanthika WWR, Nisansala MWN, Senarath NSASN

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### PP76

#### The association between compassionate love and marital satisfaction among married males and females between the ages of 25-60 in the Kandy District

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### PP77

#### Knowledge and attitudes on postpartum depression among family members of pregnant women attending antenatal clinics in Rathnapura and Colombo districts

Wanigasooriya SLDPA<sup>1</sup>, Mirshan S<sup>1</sup>, Ranasinghe RARC<sup>1</sup>, Gunawardana ADIN<sup>1</sup>, Wickramaarachchi KWIU<sup>1</sup>, Shiyam A<sup>2</sup>, Seneviratne Alles SMP<sup>3</sup>, Seneviwickrama KLMD<sup>2</sup>

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### PP78

#### Anxiety related to exclusive breastfeeding and its associated factors among mothers immediately after delivery in Colombo South Teaching Hospital, Sri Lanka

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### PP79

#### Caregiver burden among family caregivers of advanced cancer patients attending palliative care clinic at National Cancer Institute (NCI), Maharagama – Sri Lanka

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### PP80

#### Prevalence of perceived adverse effects of handling chemotherapy: A cross-sectional survey among nurses at National Cancer Institute Sri Lanka

Rajakaruna RHMG, Karunarathna KSM, Kumari WMN, Wickramaarachchi JM, Arooshiya MMF, Nisansala MWN, Senarath NSASN

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## PP81

### Neuropsychiatric Inventory-Questionnaire: Translation and Adaptation to the Sinhala Language

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## PP82

### Knowledge and associated factors on digital health among nursing officers in Sri Lanka

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# ABSTRACTS OF RAPID PITCH-THESIS CHALLENGE

## RP1

### Investigation of Dengue NS1-specific antibody and memory B cell responses in individuals with varying severity of past infection.

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#### Background

It is important to understand whether dengue NS1 specific antibodies (Abs) are associated with protection or pathogenesis for optimal design of dengue vaccines.

#### Objectives

We sought to understand the role of NS1-Abs in dengue pathogenesis by comparing neutralizing Ab levels (Nabs) with quantitative and functional differences in NS1 specific Abs c memory B cell responses (Bmems) in individuals with varying severity of past dengue infection.

#### Methods

Blood samples of individuals with past dengue fever (DF) (n=22), those with past dengue haemorrhagic fever (DHF) (n=14) and seronegative individuals (n=7) were assessed for Nab responses by Foci Reduction Neutralization Test (FRNT). NS1-Ab and IgG subclass responses were assessed using in-house ELISAs and NS1 specific Bmem responses were measured using B cell ELISpot assays. Ethical approval was obtained from the Ethics Review Committee of the Faculty of Medical Sciences, University of Sri Jayewardenepura.

#### Results

Nab responses were seen to more than one DENV serotype in 15/22 (68.18%) individuals with past DF and 9/14 (64.29%) individuals with past DHF. Nab responses to DENV1 was significantly higher than DENV2 (p=0.0006) and DENV4 (p= 0.0127) in those with past DHF, but there was no difference in responses between serotypes for those with past DF. Individuals with past DHF had significantly higher NS1 specific Ab to all 4 serotypes and IgG1 responses to DENV1, 2 and 4 when compared to those with DF. NS1-specific Bmem responses were seen to >2 DENV serotypes in above 50% of all individuals with past DENV.

## Conclusions

Individuals with past DF had broadly cross reactive Nabs. However, NS1-specific Ab responses were higher in those with past DHF. Thus, it is important to further assess the functionality of the NS1 specific antibody and Bmem repertoire to determine their role in disease pathogenesis.

## Acknowledgement

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## RP2

### Parasitological, serological and molecular-based diagnosis of strongyloidiasis among immunocompromised patients in Sri Lanka and associated risk factors for disease occurrence

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## Background

Strongyloidiasis is caused by *Strongyloides stercoralis*, a soil-transmitted helminth. Most infections are asymptomatic, but can be severe and life-threatening in patients with immunosuppression.

## Objectives

To assess the prevalence of strongyloidiasis infection among immunocompromised individuals using parasitological, molecular and serological methods and to identify the associated risk factors.

## Methods

Adult immunocompromised patients admitted to selected wards in Colombo South Teaching Hospital, National Cancer Institute and Sri Jayewardenepura General Hospital between July 2021 and October 2022 were recruited. A faecal sample and 2 mL of venous blood were

collected from consented patients. Faecal samples were subjected to direct smear examination, agar plate culture, charcoal culture and Harada Mori culture. Qualitative Polymerase Chain Reaction (PCR) was performed from randomly selected stool samples using a *S. stercoralis* specific primer targeting ITS1. *Strongyloides* IgG antibodies were tested in collected serum samples using DRG *Strongyloides* IgG ELISA test kits according to the manufacturer's instructions.

## Results

A total of 260 patients were recruited. However, only 202 patients provided either blood/faecal samples or both. Overall, 16.33% (n=33/202) of patients were positive for strongyloidiasis by one or more diagnostic methods out of which 14 patients were positive by PCR. The ELISA detected 20 positives. Only one patient was positive by cultures. No direct smears were positive. No significant association was observed among the patients who were positive with any of the risk factors (i.e.- occupational or recreational exposure to soil, availability of water sealed latrines, regular usage of foot wear etc.) nor with suggestive clinical features.

## Conclusions

Strongyloidiasis is existent among the immunocompromised population in Sri Lanka, even in absence of regular exposure to risk factors. It is advisable to use sensitive diagnostic techniques such as PCR for early detection of disease, thereby providing timely treatment.

## Acknowledgement

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## RP3

### Microbiological profile of paediatric community-acquired pneumonia and analysis of pneumococcal colonization among healthy children in the Colombo district

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## Background

Hospitalization due to paediatric community-acquired pneumonia (CAP) is a substantial burden on healthcare expenditure, particularly in developing countries. *Streptococcus pneumoniae* is a major pathogen infecting humans worldwide and colonization by *S. pneumoniae* is known to be a prerequisite for invasive disease.

### **Objectives**

The study aimed to investigate the microbiological profile of paediatric CAP and the nasal carriage, serotype distribution and biofilm-forming ability of *S. pneumoniae* among healthy children in the Colombo district.

### **Methods**

Hundred and fifty-nine severe/very severe paediatric pneumonia patients and 350 healthy children were enrolled. In CAP children, demographic, clinical, radiological and laboratory findings were recorded and nasopharyngeal swabs (NPS) were analyzed using a multiplex real-time PCR assay. In healthy children, NPS were processed using conventional laboratory methods to isolate *S. pneumoniae* and confirmed by a PCR assay. The confirmed *S. pneumoniae* isolates underwent capsular sequence typing to detect serotypes. Crystal violet and MTT assays were performed to find the biofilm-forming ability of *S. pneumoniae*.

### **Results**

At least one potential pathogen was detected in 81.8% (n=130). A viral predominance (77.9%) over bacteria (15.7%) was observed. The commonest viral and bacterial pathogens were RSV (37%) and *M. pneumoniae* (13.2%). In NPS pneumococci were detected in 53.9% (75/139). Among healthy children, the pneumococcal colonization rate was 5.7% (20/350). Strong biofilm formation was detected in 80% and 10% in the crystal violet assay and MTT assay respectively. The most predominant serotype identified was 19F (9/20) and 80.0% (16/20) were covered in the 13-valent pneumococcal conjugate vaccine.

### **Conclusions**

This is so far the first study in Sri Lanka to identify the biofilm formation ability of pneumococci and their corresponding serotypes. The PC colonization rate was low (5.7%) compared to previous reports among healthy children. Viruses were the most frequently detected pathogens and RSV was the commonest among CAP children. Detection of bacterial pathogens was low and the presence of multiple organisms in NPS precludes pathogen confirmation in most CAP cases.

### **Acknowledgement**

University Grants- ASP/01/RE/MED/2017/32 and ASP/01/RE/MED/2021/60



## RP4

### Prevalence of carbapenem-resistant *Enterobacteriaceae* among two patient populations and evaluation of selected phenotypic carbapenemase detection methods

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#### Background

The emergence of carbapenem-resistant *Enterobacteriaceae* (CRE) has become a global health problem.

#### Objectives

The study was carried out to determine the bacterial spectrum of three selected infections and their antibiotic susceptibility patterns in cancer patients and non-cancer patients. Further, the common carbapenemase-encoding genes in CRE were identified and performance of four phenotypic tests to detect carbapenemase production in CRE (CP-CRE) was evaluated.

#### Methods

Lower respiratory infections (LRTI), skin and soft tissue infections (SSTI), and urinary tract infections (UTI) were the selected infections. A total of 165 clinically significant positive cultures from each patient population were analyzed. Cultures were obtained from the inpatients at medical and surgical wards of the Colombo South Teaching Hospital and the Apeksha Hospital. Carbapenemase-encoding genes (*KPC*, *NDM*, *VIM*, *OXA-48*, and *IMP*) were identified by the GeneXpert® Carba-R PCR instrument. Modified Hodge test (MHT), CarbaNP test, Modified Carbapenem Inactivation Method (mCIM), and mSuperCARBA™ chromogenic medium were the evaluated phenotypic tests.

#### Results

Carbapenem resistance was found to be 46.8% (44/94) in *Enterobacteriaceae* isolates obtained from cancer patients and 12.2% (12/98) in non-cancer patients ( $P < 0.0001$ ). The highest CRE isolation rate was seen in cancer patients with LRTI (53.1%, 17/32), whereas in non-cancer patients, it was seen in SSTI (21.7%, 5/23). The Majority of CRE were *K. pneumoniae* (71.4%, 40/56). The MHT performed poorly in the detection of *bla*<sub>NDM</sub>, identifying only three of the 16 *bla*<sub>NDM</sub>-harboring isolates. The CarbaNP test failed to identify all nine *bla*<sub>OXA-48</sub> isolates included in the study. The best overall performance for detecting CP-CRE was shown by mCIM with a sensitivity of 98.1%.

**Conclusion:** Timely and accurate detection of CP-CRE is important to implement infection control strategies. Our findings suggest that the mCIM is the most suitable assay for Sri Lankan

setting since it is a highly sensitive and simple test that does not necessitate the use of specialized instruments.

**Acknowledgement:** This study was funded by the University of Sri Jayewardenepura, Sri Lanka (Research grant no. RE/MED/2017/36)

## RP5

### Study of Group B Streptococcus (GBS), their characteristics and vaginal microbiome in pregnant women from tertiary care hospitals in Colombo.

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#### Background

Group B streptococcal (GBS) infection is one of the most prevalent diseases globally and a major cause of neonatal morbidity and mortality in many regions.

#### Objectives

This study investigated to detect GBS carriage, antibiotic resistance gene, serotypes, biofilm formation ability, virulence genes and vaginal microbiome of pregnant women in Colombo Sri Lanka.

#### Methods

This descriptive, cross-sectional study was carried out at antenatal clinics of 4 teaching hospitals. Two low vaginal and rectal swabs were collected from 175 pregnant women. One set of swabs was cultured and other was used for molecular studies. Antibiotic sensitivity tests and minimum inhibitory concentration were performed with isolated colonies. Biofilm formation was assessed under varying pH conditions and 9 serotypes were identified by multiplex PCR. Antibiotic resistant genes and virulence genes were detected using PCR. Thirty vaginal samples were subjected to the next generation sequencing.

#### Results

Proportion of GBS vaginal and rectal colonization was 25.7% by culture and 54.9% by real time PCR. All GBS isolates were sensitive to penicillin. Of 24.4% and 22.2% isolates were resistant to erythromycin and clindamycin respectively. The *ermB* and *ermTR* genes were found in 15.5% and 35.6% isolates respectively and those were significantly associated with iMLSB phenotype. The *mefA* gene was detected in 4.4% isolates, whereas *linB* gene was not detected. Most abundant serotype was type III. Biofilm formation was reduced at pH 4.5. The

ScpB, bac and rib genes were detected in 88.8%, 17.8% and 13.3% isolates respectively. Genus Bifidobacterium strongly correlated with GBS-positive status and Lactobacillus species reduced when compared to GBS negative samples.

### Conclusions

This study showed a high prevalence of GBS colonization among pregnant women. Penicillin was the antibiotic of choice. Serotype III should be predominantly considered in vaccine manufacture. Genus Bifidobacterium was significantly associated with GBS positive group.

### Acknowledgement

University Grant- ASP/1/RE/MED/2017/64

### RP6

#### Selected treatment adherence behaviours and dialysis adequacy among patients undergoing haemodialysis in selected government hospitals in Sri Lanka

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**Background:** Non-adherence to haemodialysis remains a major obstacle in management of patients with chronic kidney disease.

**Objectives:** This study aimed to assess selected treatment adherence behaviours and dialysis adequacy among patients undergoing haemodialysis in National institute of Nephrology, Dialysis and Transplantation, Colombo South Teaching Hospital and The National hospital of Sri Lanka.

**Methods:** This was a descriptive cross-sectional study conducted among 217 consecutive patients. Validated Sinhalese version of End Stage Renal Disease-Adherence Questionnaire was used to assess treatment adherence behaviours. Pre and post dialysis Blood Urea Nitrogen (BUN) levels and post dialysis body weight were obtained to calculate dialysis adequacy based on single pool Kt/V (spKt/V) and urea reduction ratio (URR). Correlational analysis was done with Pearson's and Spearman's correlation coefficients.

**Results:** Approximately 50% had moderate adherence to overall haemodialysis treatment regimen. Self-reported adherence to haemodialysis attendance, prescribed medications, dietary recommendations and fluid restrictions among participants were 97.7%, 90.8%, 48.4% and 30.0% respectively. Majority of patients (73.7%) demonstrated good perception of importance toward adherence to overall haemodialysis treatment regimen while higher percentage (98.6%) reported good perception of adherence to fluid restrictions. There was a significant correlation between overall treatment adherence and overall perception score ( $r = -0.191$ ;  $p = 0.005 < 0.01$ ). Of the participants, more than half had spKt/V greater than 1.2 (59.5%) and URR greater than 65% (50.2%). Mean (SD) of spKt/V and URR were  $1.42 \pm 0.66$  (median-1.30) and  $64.73 \pm 14.70$  (median 65.08%) respectively. There was no significant association between overall treatment adherence and spKt/V or URR ( $p > 0.05$ ), however, low post dialysis BUN was significantly associated with good treatment adherence among participants ( $r = -0.154$ ;  $p = 0.024 < 0.05$ ).

**Conclusions:** Though participants demonstrated good perception towards adherence to haemodialysis treatment, the level of adherence was unsatisfactory. Majority had adequate dialysis which was not associated with treatment adherence of the participants.

**Acknowledgement:** University Research Grant - ASP/ 01/RE/MED/2017/61

# ABSTRACTS OF ORAL PRESENTATIONS

## OP1

### Association of tumour budding and clinicopathological characteristics in colorectal cancer from four tertiary care centres in Sri Lanka

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#### Background

Tumour budding (TB), defined as single tumour cells or clusters of up to four cells at the invasive margin of colorectal cancer, is further classified as peritumoral budding (PTB) at the tumour front and intratumoral budding (ITB) within the tumour. It has been recognized as an independent adverse prognostic factor. It has not been widely studied in Sri Lanka.

#### Objectives

To evaluate association between TB and other selected characteristics in a sample of colorectal cancers in Sri Lanka.

#### Methods

Histology of tumour of 77 colon resections for colorectal cancer from four selected tertiary care centres in Sri Lanka including Teaching Hospital Peradeniya, National Hospital Kandy, Colombo South Teaching Hospital and University Hospital, Kotelawala Defence University, was assessed for TB according to the International Tumour Budding Consensus Conference (ITBCC) 2016 recommendations. The H&E slides were evaluated by the first author in conference with Pathologist authors (slides were transported and returned by authors), at the Teaching Hospital Peradeniya. Tumour budding was assessed by 20x objective, corrected to the recommended field diameter. The associations with selected clinicopathological features were tested using appropriate statistical tests. Ethical approval was obtained from the Ethical Clearance Committee, Faculty of Medical Sciences, University of Sri Jayewardenepura with administrative clearance from all 4 centres and Ministry of Health.

## Results

The samples were of 34 men and 43 women aged 35 to 83 years. TB was noted in 53 (68.9%) cases of which the majority (32, 60.4%) were women. TB was observed in 8 of 11 cases aged below 50 years (72.7%) and in 45 of 66 (68.2%) aged 50 years or more. PTB alone was seen in 36 (67.9%), ITB alone in 1 (1.9%), while 16 (30.2%) had both. Presence of TB was significantly associated with American Joint Committee on Cancer (AJCC) cancer stage ( $p=0.038$ ), tumour size / extent (T stage) ( $p=0.029$ ), infiltrative front ( $p<0.001$ ) and presence of lymphovascular invasion ( $p=0.001$ ).

Interestingly, there was no significant association with nodal (N) stage ( $p=0.746$ ), presence of metastasis ( $p=0.467$ ), or with mean percentage of tumour infiltrating lymphocytes (TILs) assessed according to the International TILs Working Group method ( $p=0.622$ ).

## Conclusions

TB was significantly associated with AJCC stage, T stage, infiltrative tumour margin and lymphovascular invasion. There was no significant association with N stage, metastasis or TILs.

## OP2

### Impact of microlearning on academic performance of students in higher education in theoretical examinations - A systematic review and meta-analysis

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## Background

Microlearning is an innovative pedagogy which is practiced in current higher education. It is the process of learning through small-sized, well-planned learning units and short-term learning activities.

## Objectives

The objective of this study was to conduct a systematic review and meta-analysis to evaluate the impact of microlearning compared to traditional learning on the academic performance of students in higher education in theoretical examinations.

## Methods

Ten databases were searched including SCOPUS, EBSCOhost, Emerald, JSTOR, Taylor & Francis, PubMed (MEDLINE), Oxford University Press, ERIC, ACM and IEEE Xplore. Study

selection was conducted using the Covidence platform. The search retrieved 602 studies and 12 studies were included in the systematic review. Cochrane's risk of bias tool was used for the risk of bias assessment of the included studies. Five studies were included in the meta-analysis. Meta-analysis was conducted using the RevMan 5.4 software.

## Results

Meta-analysis showed a higher academic performance in students learned using microlearning (n=344) compared to the students learned using traditional learning (n=310) (p = 0.03). The overall mean difference in academic performance in relation to post-test scores in theoretical examinations between microlearning and traditional learning groups was 12.6 (95% CI: 1.2 - 23.9). Therefore, the students who participated in microlearning performed higher in theory examination than students who were enrolled in a traditional classroom.

## Conclusion

Microlearning has contributed to a substantial increase in academic performance among students in higher education compared to traditional learning. Microlearning can increase academic performance of students by reducing cognitive load, providing flexible learning environment, promoting self-directed learning and by providing timely feedback. Designing the microlearning lessons according to the adult learning principles can further enhance the positive impact of microlearning on students' academic performance in higher education.

## OP3

### Molecular-based detection of pathogenic and intermediately pathogenic *Leptospira* spp. from the kidneys of swine slaughtered for human consumption in Kegalle district, Sri Lanka.

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## Background

Leptospirosis is an endemic zoonosis in Sri Lanka caused by pathogenic spirochete species of the genus *Leptospira*. The disease can be severe in both humans and animals when left untreated. Many wild and domestic mammals can act as carriers of the pathogen. Swine are reared domestically by small-scale farmers in rural areas of Sri Lanka as sources of income and for human consumption. Thus, these animals are closely interacting with the farmers and

laborers. Furthermore, swine can act as a reservoir for pathogenic leptospires according to research literature, but there are no records from Sri Lanka.

### **Objectives**

To discover the carrier status of pathogenic and intermediately pathogenic leptospires among swine slaughtered for human consumption in Kegalle district, Sri Lanka.

### **Methods**

Kidneys from 76 swine slaughtered for human consumption were collected from butcher shops and slaughterhouses located in Kegalle district, Sri Lanka. The DNA was extracted and subjected to a nested-PCR targeting the flagellin protein B subunit (flaB) gene of pathogenic (P-flaB) and intermediately pathogenic (I-flaB) leptospires. Positive PCR amplicons were sequenced, and a phylogenetic tree was constructed based on partial flaB sequences.

### **Results**

Three swine kidney DNA samples were positive for P-flaB and four were positive for I-flaB out of 76 samples tested. According to phylogenetic analysis, all P-flaB positives were identified as *Leptospira interrogans*, while all I-flaB positives were *Leptospira licerasiae*.

### **Conclusions**

According to the findings of the current study, farmed swine in the Kegalle district are chronically infected with medically important *Leptospira* species, posing a threat to slaughterhouse workers, butcher shop workers, and raw meat handlers. Other farm-associated animals and people living in proximity to the farms are also at risk of acquiring the infection through contaminated soil and water. This study points out the importance of investigating the possible carrier animals to have a comprehensive picture of leptospirosis epidemiology in Sri Lanka.

## **OP4**

**Are we giving enough attention to young people with diabetes? A preliminary analysis of the multicenter database for patients with young-onset diabetes in Sri Lanka (DYOD – SL)**

Step - D Research Group<sup>1</sup>

<sup>1</sup>*Sri Lanka College of Endocrinologists*



## **Background**

The prevalence of young onset diabetes (YOD) is rising globally. Epidemiological data on YOD in Sri Lanka is yet to be elucidated.

## **Objectives**

The objective of the study was to obtain data on disease burden, characteristics, and state of current care in YOD

## **Methods**

A multicenter database for patients with YOD in Sri Lanka (DYOD-SL) was established in 2021. All diabetes centres led by Consultant Endocrinologists were invited to add pre-specified data of the patients diagnosed with diabetes before 25 years of age.

## **Results**

27 centres (26 adult/ 1 pediatric) participated in the study. Preliminary analysis included 1939 patients (male 42.6%, female 57.1%). Median age of the study population was 20 years (IQR 17-24 years). The median body mass index (BMI) and age at diagnosis was 20.67 kg/m<sup>2</sup> (IQR 17.8 – 23.82 kg/m<sup>2</sup>), 15 years (IQR 12 – 18 years).

Type 1 diabetes (T1D) was the commonest subtype (57.5%) followed by type 2 diabetes (T2D) 33.9%, type 3c diabetes (T3cD) 3.7% and MODY 2.1%. Females predominated in all subtypes except T3cD. 44.2% had a positive family history (FH) of diabetes.

Anti-GAD antibodies were assessed in 5.7% of the participants and 79.36% demonstrated positive results. Median HbA1c was 9.6% (IQR 7.6 – 12.0%). 8.61% had diabetic nephropathy, 6.0% had retinopathy, and 0.42% had neuropathy. Macrovascular complications were noted in 0.4%. There was no statistically significant difference among microvascular complications in T1D vs T2D.

Age at diagnosis 13.68 vs 16.43 years ( $p < 0.001$ ), median BMI 19.4 vs 24.46 kg/m<sup>2</sup> ( $p < 0.001$ ), and proportions with positive FH 41.7% vs 73.3% ( $p < 0.001$ ) were significantly lower in patients with T1D. Median HbA1c was higher in T1DM compared to T2D 10.3% vs 9.24%, which was not statistically significant.

## **Conclusions**

T1DM was the commonest subtype among patients with YOD in Sri Lanka. Age and diagnosis, BMI and proportion of positive FH were significantly lower in T1DM. T1D patients demonstrated higher median HbA1c. This highlights the importance of step-up care in T1D patients in Sri Lanka.

## OP5

### Platelet to Lymphocyte ratio: a novel marker for severity prediction in chronic kidney disease

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#### Background

Chronic kidney disease (CKD) is a progressive loss of kidney function with ongoing systemic inflammation that can be independently predicted by inflammatory markers like Platelet-Lymphocyte ratio (PLR), and proteinuria.

#### Objectives

The present study aimed to find the correlation between PLR with proteinuria in different stages of CKD patients.

#### Methods

After getting informed consent, blood and urine samples were collected from 85 randomly selected CKD patients and classified into stages 2 to 4 based on their estimated glomerular filtration rate (e-GFR) values. PLR was determined by values obtained from platelet count, white blood cell count, and differential white blood cell count. Proteinuria was determined using the urine protein creatinine ratio (UPCR) obtained from the measurement of urine protein and creatinine. Statistical analyses were performed using the statistical package for the social sciences version 16, and the p-value <0.05 was considered statistically significant.

#### Results

Amongst the 85 participants, males were predominant (58.8%), with a mean age of 58. Severity analysis based on the e-GFR revealed that 17.64%, 18.82%, 29.41%, and 34.11% of patients were in stages 2, 3A, 3B, and 4, respectively. Bivariate correlation analysis indicates a significant positive correlation ( $r = 0.787$ ,  $p < 0.0001$ ). Furthermore, stage-wise correlation analysis done by Spearman's rank correlation demonstrated that PLR had a statistically significant strong positive correlation with UPCR in stage IIIA ( $r=0.854$ ,  $p< 0.001$ ), IIIB ( $r=0.800$ ,  $p<0.001$ ) and IV ( $r=0.661$ ,  $p< 0.001$ ) albeit it showed a statistically insignificant negative correlation in stage II ( $r=-0.479$ ,  $P=0.071$ ).

#### Conclusions

The findings indicated that PLR has a strong positive correlation with proteinuria in stage IIIA, IIIB, and IV of CKD; therefore, it could be used as a novel predictive marker for identifying the

severity of CKD. However, further large-scale studies need to be performed to find the genetic and demographic variations.

## OP6

### Little Eaters, Big Impact: Preliminary findings on food group patterns and minimum dietary diversity in early childhood in selected MOH areas in Colombo District

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#### Background

Proper nutrition is critical for the healthy growth and development of young children, yet minimum dietary diversity remains a challenge in many low- and middle-income countries.

#### Objectives

In this study, we aimed to explore the dietary diversity of children aged 6-12 months.

#### Methods

These are preliminary findings of a cross-sectional study in the Colombo district, using a pre-piloted questionnaire investigating dietary diversity of children aged 6-12 months. Stratified random sampling was used to select the sample from child welfare clinics in the Colombo district. The classification of food groups was based on the Infant and Young Children Feeding (IYCF) guidelines of the World Health Organization. This includes the consumption of at least five food groups, out of eight (breast milk, grains, roots and tubers, legumes and nuts, dairy products, flesh foods, eggs, vitamin A-rich fruits and vegetables, and other fruits and vegetables).

#### Results

The mean age of the children was 8.18 months, with a male-to-female ratio of 48:52. The proportion of children meeting minimum dietary diversity was only 48%, with the most commonly consumed food groups being breastmilk (96.9%), grains (89.8%) and vitamin A-rich fruits and vegetables (79.6%). Legumes and nuts were consumed by only 57.1% of children, while flesh food and eggs were even less commonly consumed at 44.9% and 14.3%, respectively.

## **Conclusions**

These preliminary findings suggest that minimum dietary diversity remains a significant challenge in early childhood in the selected MOH areas. There is a need for targeted interventions to increase the consumption of key food groups, particularly legumes and nuts, flesh foods, and eggs, in order to improve the nutritional status and overall health of young children.

# ABSTRACTS OF POSTER PRESENTATIONS

## SESSION 1 – MICROBIOLOGY & INFECTIOUS DISEASES-I (PP1-PP9)

### PP1

#### A study of in vitro antimicrobial properties of selected medicinal plants against uropathogenic *Staphylococcus aureus*

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#### Background

Urinary Tract Infections (UTIs) are the most encountered bacterial infection globally and cause the highest rates of morbidity and mortality. *Staphylococcus aureus* is among the common pathogens of complicated UTIs. In recent years antibiotic resistance is a major challenge of *S. aureus* infections. Therefore, we explored plant-based treatment for uropathogenic *S. aureus* infections.

#### Objectives

To interpret the antimicrobial activity of the selected 10 medicinal plants against uropathogenic *S. aureus*.

#### Methods

Agar well diffusion and broth microdilution (MIC) methods were conducted to determine the bacterial activity of methanol extracts of the 10 medicinal plants against *S. aureus* ATCC25923 and *S. aureus* UTI positive strains extracted from positive culture plates. The methanolic extract of all plants were compared to Gentamycin as a positive control and 50% DMSO as the negative control. Selected 10 medicinal plants were *Phyllanthusemblica* (amla) fruit, *Ocimumtenuiflorum* (Heenmaduruthala) whole plant, *Terminaliachebula* (Aralu) fruit, *Zingiberofficinale* (Ginger) rhizome, *Tribulusterrestris* (Heennerenchi) root, *Asparagus falcatus* (Hathawariya) root, *Cucumismelo* (Kekiri) seeds, *Boerhaviadiffusa* (Pita sudu sarana) root, *Tragiainvolucrata* (Welkahambiliya) root and *Aervalanata* (Polpala) whole plant.

## Results

B. diffusa roots showed the highest antimicrobial activity with 28mm inhibition zone and 0.195mg/ml MIC value against S. aureus ATCC25923. Additionally, T. cebula fruit(25mm), P. emblica fruit(18mm), A. lanata whole plant(17mm), Z. officinale rhizome (16mm), T. terrestris root (16mm), T. involucrata root (15mm), A. falcatus root (14mm), and O. tenuiflorum whole plant (12mm) also had antimicrobial activity against S. aureus ATCC25923 and Gentamycin only showed 20mm inhibition zone. T. cebula (25mm) showed the highest antimicrobial activity with 0.098mg/ml MIC value and also, P. emblica (24mm), B. diffusa (22mm), T. involucrata t (17mm), A. lanata (16mm), Z. officinale (14mm), A. falcatus (14mm), O. tenuiflorum (12mm) and T. terrestris (11mm) had the antimicrobial activity against S. aureus UTI Positive strain and gentamycin only showed 16mm inhibition zone. Methanolic extract of C.melo seeds did not show any antimicrobial properties against these strains.

## Conclusions

Methanolic extracts of the all the selective plants except C.melo had antimicrobial activity against the S. aureus ATCC25923 and S. aureus UTI culture positive organisms. B. diffusa roots showed the highest antimicrobial property against S. aureus ATCC25923 and T. cebula fruits showed the highest antimicrobial property against S. aureus UTI positive strain. The antimicrobial activity was changed in ATCC strain and the pathogenic strains, so need future studies for developing a treatment. The results of the present study evidently support the traditional use of plants against UTIs, and this study would pave the way for new plant-based treatment options for UTIs caused by S. aureus.

## Acknowledgement

KIU undergraduate research grant.

## PP2

### Molecular detection of antibiotic resistance genes in farmed prawns collected from selected areas of Sri Lanka

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## Background

Aquaculture farmers in Sri Lanka frequently overuse antibiotics to meet production targets without proper veterinary guidance. It can lead to the occurrence of antibiotic resistant bacteria (ARB) in aquaculture animals. These bacteria and excess antibiotics can enter the environment and promote the occurrence of ARB and poses a human health risk.

### **Objectives**

To detect the presence of specific antibiotic resistance genes (ARGs) harboring in prawn gut bacteria from selected aquaculture areas of Sri Lanka.

### **Methods**

A total of 120 prawns were collected from local fish markets in Chilaw, Trincomalee, Negombo, and Kalpitiya. DNA was extracted from the prawn guts using the boiling-lysis method and PCR was conducted to detect the presence of selected ARGs; tetracycline resistance gene (*tet(M)*), sulfonamide resistance genes (*sul1* and *sul2*), quinolone resistance genes (*qnrB* and *qnrS*), and ampicillin resistance gene (*ampC*). PCR positives were confirmed by gel electrophoresis.

### **Results**

Prawns from Negombo (14/36, 38.89%) had the highest prevalence of *sul1* while *sul2* was prevalent in samples from Negombo (12/36, 33.33%) and Chilaw (4/28, 14.29%). The frequency of *tet(M)* was 9/36, 25% in Negombo, while it was relatively consistent across the other three locations, ranging from 4-7%. Interestingly, out of the 36 samples from Negombo, four were positive for *qnrB*, one for *qnrS*, and five for *ampC*. There was a significant association between the ARG contamination status and the sampling location (Chi-square test,  $p < 0.05$ ). Overall, the results indicated a high level of contamination of ARGs in prawns from Negombo, where 22/36 samples (61.11%) were found to be contaminated with one or more ARGs.

### **Conclusions**

Molecular results indicate that prawns from Sri Lankan aquaculture areas are contaminated with bacteria containing ARGs. To ensure a safe aquaculture industry in Sri Lanka and to control the occurrence of ARB, it is important to manage antibiotic usage.

### PP3

#### Identification of *Leptospira kmetyi* from patients with symptomatic leptospirosis in Kandy district, Sri Lanka

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#### Background

Leptospirosis causes substantial mortality and morbidity in Sri Lanka. *Leptospira* bacterial genus has four subclades, with subclade P1 being pathogenic. P1 may be further divided into 'virulent' and 'low virulent' types. Low- virulence pathogens like *L. kmetyi* are regularly isolated from the environment, although with limited clear evidence of disease causation in humans and animals. Their virulence is debated. However, several reports from around the world show causation of leptospirosis by *L. kmetyi* in humans.

#### Objectives

To characterize pathogenic leptospira from febrile patients suspected of leptospirosis.

#### Methods

Laboratory confirmation of acute leptospirosis was done by flaB-nested PCR for plasma samples of suspected patients, followed by sequencing the amplicons by the dideoxynucleotide chain termination method using the BigDye Terminator v3.1 Cycle Sequencing Kit (Applied Biosystems). and pPhylogenetic analysis was done with 25 reference strains.

#### Results

A total of 158 febrile patients (121 males and 37 females) were included in this study. Majority of the samples (62%) were collected on and before 5th day of fever. Fifteen samples were positive for flaB nested-PCR. Phylogenetic analysis showed a majority (n=10) of samples belonging to *L. kmetyi* species. One patient sample belonged to species *L. wolffi* and remaining 2 samples were *L. borgpetersenii* and *L. interrogans*.

#### Conclusions

According to our knowledge, no previous investigations in Sri Lanka have found *L. kmetyi* in febrile human blood samples. This makes the presence of *L. kmetyi* in multiple patient samples is an intriguing finding in this study. Our findings indicate that there may be a need



to add *L. kmetyi* to the group of species that cause leptospirosis in humans. The previously demonstrated environmental burden could have resulted in the high number of *L. kmetyi* infections in the present study

#### PP4

### Association between HbA1c and, serum electrolytes with the presence of antibiotic resistant pathogens in diabetic foot ulcers in patients with diabetes managed at Teaching Hospital Karapitiya

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#### Background

Poor glycaemic control over a longer period of time and presence of resistant pathogens predispose to chronic diabetic foot ulcers reducing the quality of life of patients.

#### Objectives

We aimed at finding the association between presence of resistant pathogens with long term glycaemic control and serum electrolyte levels.

#### Methods

Altogether, 51 bacterial isolates from chronic diabetic wounds were tested for the antibiotic sensitivity according to CLSI (2022) guidelines. HbA1c and serum electrolyte levels were obtained from patient records. Association of HbA1c and serum electrolytes with the presence of antibiotic resistant pathogens were determined using t test.

#### Results

*Pseudomonas* spp was the commonest organism (n=15,29.4%). Patients with non-ESBL(n=8) organisms had higher mean level of HbA1C (8.83) than patients with ESBL(n=11)-producing organisms (7.75), p-value 0.723. Cases with ESBL-producing organisms had a higher mean level of sodium (141mmol/l, p value-0.095) than cases with non-ESBL (133.36mmol/l). Methicillin resistant *Staphylococcus aureus* (n=10) from wounds was associated with a higher mean level of potassium (4.29mmol/l) than non-ESBL (4.038mmol/l). higher mean level of chloride was associated with ESBL organisms (107.46 mol/l) than with the *Staphylococcus aureus* 100.32 (mmol/l).

## Conclusions

*Pseudomonas* spp was the commonest pathogen isolated from diabetic foot ulcers. Poor long term glycaemic control was detected in patients with non-ESBL organisms. High mean levels of serum electrolytes were detected with ESBL than *Staphylococcus aureus*.

## PP5

### In-vitro susceptibility of clinical isolates of extended-spectrum beta-lactamase (esbl) producing *Escherichia coli* and *Klebsiella pneumoniae* to Dimethyl Sulfoxide (DMSO)

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## Background

Dimethyl sulfoxide (DMSO) is a widely used solvent in plant-based antimicrobial assays. However, DMSO is reported to have a toxic effect on bacteria at high concentrations.

## Objectives

This study aimed to determine the minimum inhibitory concentrations (MIC50, MIC90) and minimum bactericidal concentrations (MBC50, MBC90) of dimethyl sulfoxide (DMSO) against clinical isolates of ESBL-producing *E. coli* and *K. pneumoniae*.

## Methods

Inhibitory effect of DMSO was tested against ESBL producing *E. coli* (n=10) and *K. pneumoniae* (n=10) clinical isolates. The minimum inhibitory concentrations (MIC50, MIC90) and minimum bactericidal concentrations (MBC50, MBC90) of DMSO solvent were tested using the agar well-diffusion method and broth micro-dilution method. Sterile distilled water and meropenem were used as negative and positive controls respectively.

## Results

In the well-diffusion method, the growth of both ESBL-producing *E. coli* and *K. pneumoniae* clinical isolates were not inhibited up to 100% DMSO. In contrast, in the broth micro-dilution method, the inhibition of both ESBL-producing *E. coli* and *K. pneumoniae* was observed at relatively higher concentrations of DMSO. ESBL-producing *E. coli* (MIC50 & MIC90=15%) were

more tolerant to DMSO than ESBL-producing *K. pneumoniae* (MIC<sub>50</sub>=12.5%, MIC<sub>90</sub>=15%). MBC values for both ESBL-producing *E. coli* and *K. pneumoniae* clinical isolates were higher than 25% DMSO concentration (MBC<sub>50</sub> & MBC<sub>90</sub>>25%).

### **Conclusions**

DMSO had an inhibitory effect on clinical isolates of ESBL-producing *E. coli* and *K. pneumoniae*. At high concentrations, DMSO can cause false-positive results. The use of a parallel study to determine the acceptable DMSO concentration is recommended for in vitro antimicrobial testing of plant extracts dissolved in DMSO.

### **PP6**

#### **An investigation of plasmid-based quinolone resistant genes existence in mid-gut contents from pigs farmed for human consumption in Kegalle district, Sri Lanka**

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### **Background**

Antibiotic resistance is an increasing problem worldwide. The administration of massive amounts of antibiotics in animal husbandry has been recognized as an important contributor to the emergence of antibiotic-resistant bacteria. Quinolones are used all over the world to treat a variety of infections. The emergence of quinolone resistance is a complex problem. Despite the fact that quinolone resistance is a global crisis, data from Sri Lanka is scattered and limited.

### **Objectives**

To investigate the occurrence of quinolone resistance bacterial genes in three locations in Kegalle district: Molagoda, Rambukkana, and the Kegalle municipal area, in order to understand the extent of quinolone resistance distribution.

### **Methods**

In total, 51 pig gut samples were collected from randomly chosen meat shops in the Kegalle district. Genomic DNA extraction was performed using a boiling technique. PCR amplification was used to screen *qnrB* and *qnrS* genes. The amplified products were analysed by electrophoresis on a 1% agarose gel.

## Results

Qnr genes were harboured in 30 out of 51 (59%) samples. When separately considering each location, 4.9.7% (3/31) and 38.7% (12/31) DNA samples extracted from Rambukkana showed positive for the qnrB and qnrS genes respectively. The qnrB and qnrS genes were identified in 6.7% (1/15) and 40% (6/15) DNA samples extracted from the Kegalle municipal area respectively. 60% (3/5) and 100% (5/5) DNA samples extracted from the Molagoda tested positive for the qnrB and qnrS genes, respectively.

## Conclusion

This investigation reveals the existence of two qnr genes in the mid-gut contents of pigs farmed for human consumption. This finding highlights the potential risk of antibiotic resistance transfer from pigs to humans through food consumption and the environment and emphasizes the importance of prudent use of antibiotics in animal farming. Further research is needed to assess the extent of this problem and to develop strategies for mitigating the spread of antibiotic-resistant bacteria.

## PP7

### Retrospective analysis of dermatological specimens for fungal studies received at a selected center

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## Background

Superficial fungal infections are infections of the keratinous tissue caused by dermatophytes, yeast and non-dermatophyte fungi causing significant morbidity in a quarter of the world's population. The prevalence and incidence of SFIs vary with socioeconomic and geographic differences. According to the literature, the incidence of superficial fungal infections has increased in tropical countries recently.

## Objectives

The aim was to study the proportion & spectrum of fungi implicated in causing superficial fungal infections received at the Department of Microbiology, Faculty of Medicine, University of Ruhuna.

## Methods

All the request forms (1196) which were received within 5 years (from 1st of January 2017 to 31st of December 2021) were analyzed. Dermatophytes, non- dermatophytes and yeasts

were studied with their proportions. Certain criteria were used for the identification of significant species among them, and other associated factors such as age and gender with each organism were analyzed using Microsoft Excel and SPSS software.

## Results

*Aspergillus niger* was the commonest organism isolated from all the samples. In nail specimens 70.5% were from females and 28.4% were from males. Among skin samples 56.8% were from females and 42.7% were from males. Fifty percent (50%) of hair specimens were from males and 47.4% were from females. Prominent mean ages were 36 and 35 in skin and nail specimens respectively. *Trichophyton mentagrophytes*, *Trichophyton interdigitale*, *Trichophyton rubrum*, *Trichophyton tonsurans*, *Trichophyton erinacei*, *Trichophyton schoenleinii*, *Trichophyton verrucosum* and few other *Trichophyton* species were isolated from skin and nail samples, but no dermatophytes were isolated in hair specimens.  $P > 0.05$  between the organisms isolated and the associated factors in all the specimen types.

## Conclusions

Middle aged women were more likely to be infected in skin and nail but there is no significant difference between male and female in infecting hair, and the commonest causative agents in superficial infection were non-dermatophyte moulds than dermatophytes in this study. According to this study, there was no correlation of age and gender in developing a fungal infection.

## PP8

### Antimicrobial activities of silver nanoparticles biosynthesized by *Lannea coromandelica* aqueous extract

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## Background

Novel approaches are urgently required to reduce the clinical burden in the use of antibiotics. Nanotechnology-based antimicrobials is one of the promising strategies to promote the efficacy of natural products. In Ayurvedic medicine, *Lannea coromandelica* (Indian ash tree, hik, Family: Anacardiaceae) plant leaves, barks and gums are used to treat various disorders with microbial origin.

## Objectives

Biosynthesis of LC-AgNPs and in vitro screening for antimicrobial properties.

## Methods

*L. coromandelica* bark pieces (10 g) derived aqueous crude extracts (LCA) was prepared under sonication (44 kHz, 40°C, 30 min). LCA coated AgNPs (LC-AgNPs) were biosynthesized under different conditions i.e., homogenization, magnetic stirring, exposure to UV or sun light with loading different concentrations (2.5, 5, 7.5 mg/mL). Antimicrobial properties of crude extracts, LC-AgNPs and uncoated AgNPs (U-AgNPs) were screened in vitro (1 mg/per well) in triplicate, using agar well-diffusion method against standard microbial strains *Staphylococcus aureus* (ATCC 25923), *Escherichia coli* (ATCC 25922) and *Pseudomonas aeruginosa* (ATCC 27853). Gentamicin (Intravenous solution at 40 mg/mL diluted to 0.4 mg/mL) 10 µg per well was used as the positive control. AgNPs were characterized using size distribution data, polydispersity index (PDI), zeta potential, Fourier transform infrared spectroscopy, AFM and SEM imaging. However, the overlay of spectra i.e., LC-AgNPs, U-AgNPs and the LCA indicated successful coating of LCA on the surface of the AgNPs.

## Results

SEM and AFM imaging revealed the presence of spherical LC-AgNPs size ranges 50–300 nm. Z-average particle diameter was  $200.2 \pm 1.0$  nm with a PDI of 0.435. Inhibition zone diameter of LC-AgNPs against *P. aeruginosa* was  $12 \pm 0.2$  mm, while it was zero for LCA. Comparable antimicrobial activities were observed for both LC-AgNPs ( $13 \pm 0.8$  mm) and LCA ( $13.3 \pm 0.5$  mm) against *S.aureus*. Both LC-AgNPs and LCA did not inhibit the growth of *E. coli*. U-AgNPs did not exert any bioactivity against the three microbial strains.

## Conclusions

The present study revealed that the novel LC-AgNPs formulation is a promising antimicrobial agent against *P. aeruginosa* and *S.aureus*.

## Acknowledgement

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## PP9

### Efficacy of Alcohol-Chlorhexidine combination in comparison to Alcohol-Povidone Iodine combination in skin antisepsis

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#### **Background**

There is a high chance for the specimens collected for culture including blood cultures to get contaminated by the colonizing bacterial flora present on the skin. Effective skin antisepsis would help to reduce the contamination rates.

#### **Objectives**

This study is aimed at evaluating the efficacy of 70% alcohol-10% povidone-iodine combination and 70% alcohol-2% chlorhexidine gluconate combination in skin antisepsis.

#### **Methods**

Thirty para-medical undergraduates were enrolled in this study. Two skin swabs were taken from antecubital fossae of both arms of each participant before and after the application of different antiseptic combinations. After applying 70% alcohol waited for 30 seconds to dry and after applying 10% PI waited for 2 minutes. On the other hand, 70% alcohol was applied and waited for 30 seconds until dried up, followed by 2% chlorhexidine gluconate which was kept for 2 minutes before swabbing. Skin swabs were inoculated on blood agar plates, dividing the agar plate into two halves for the occasions before and after the application of antiseptic combinations. Culture plates were incubated overnight at 37 °C. Colony counts in the two occasions were counted and the differences were calculated. Data were analyzed using paired t-test and chi-square test. P values less than 0.05 ( $p < 0.05$ ) were considered significant.

#### **Results**

Both 70% alcohol-10% povidone-iodine combination ( $p=0.003$ ) and 70% alcohol-2% chlorhexidine gluconate combinations ( $p=0.016$ ) were able to significantly reduce the number of colonies ( $p < 0.05$ ). In alcohol-povidone iodine group the percentage of skin swabs yielding no growth following application of antiseptics was 70% while in alcohol-chlorhexidine group it was 87%. The percentage of the reduction of colony counts in alcohol-povidone iodine group was 99.5% and in alcohol-chlorhexidine group it was 99.8%. Alcohol-povidone iodine inhibited Gram positive cocci and aerobic spore bearers by 92% and 50% respectively. Alcohol-chlorhexidine inhibited Gram positive cocci and aerobic spore bearers by 100% and 73% respectively. There was no statistically significant

difference of inhibiting Gram positive cocci ( $p=0.14$ ) and aerobic spore bearers ( $p=0.25$ ) between two groups.

### **Conclusions**

Both 70% alcohol–10% povidone iodine and 70% alcohol–2% chlorhexidine combinations significantly reduce the skin flora. Both combinations have similar efficacy in skin antisepsis.



## PP10

### Incidence and characterization of carbapenemase-producing *Enterobacteriaceae* isolated from cancer patients; first evidence of *bla*<sub>VIM</sub> harboring *Enterobacteriaceae* in Sri Lanka

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#### Background

Carbapenem-resistant *Enterobacteriaceae* (CRE) have emerged as an important Gram-negative bacteria responsible for antibiotic-resistant infections in cancer patients

#### Objectives

The prevalence of carbapenem resistance and the types of carbapenemase-encoding genes in *Enterobacteriaceae* isolated from cancer patients were determined in this study.

#### Methods

Bacteria isolated from the adult, in-ward cancer patients with lower respiratory tract infections (LRTI), skin and soft tissue infections (SSTI), or urinary tract infections (UTI) were included in the study. *Enterobacteriaceae* were identified up to the species level by API<sup>®</sup> 20E test kits. Carbapenem resistance was defined as non-susceptibility to either imipenem or meropenem in the disc diffusion test. The minimum inhibitory concentrations (MIC) of meropenem in carbapenem non-susceptible *Enterobacteriaceae* isolates were determined by using Epsilometer strips. Major carbapenemase-encoding genes (*bla*<sub>KPC</sub>, *bla*<sub>NDM</sub>, *bla*<sub>OXA-48-like</sub>, *bla*<sub>IMP</sub>, and *bla*<sub>VIM</sub>) were detected by the GeneXpert<sup>®</sup> Carba-R real-time PCR instrument.

#### Results

*Enterobacteriaceae* were identified as the pathogen in 57% (94/165) of the bacterial isolates. Carbapenem resistance among *Enterobacteriaceae* was 46.8% (44/94). *Klebsiella pneumoniae* (65.9%, 29/44) was the predominant CRE isolate followed by *E. coli* (25%, 11/44). The Majority of CRE isolates (72.7%, 32/44) had a meropenem MIC of  $\geq 32$   $\mu\text{g/ml}$ . Carbapenemase-encoding genes were identified in 43 of the 44 CRE isolates. *bla*<sub>NDM</sub> was the most prevalent carbapenemase-encoding gene and was detected in 29 *Enterobacteriaceae* isolates. No isolate was positive for *bla*<sub>IMP</sub>. Sixteen (37.2%) isolates co-harbored more than one carbapenemase-encoding gene. The co-existence of *bla*<sub>NDM</sub> and *bla*<sub>OXA-48</sub> genes was the most frequent (n=12). Two *Enterobacteriaceae* isolates were found to harbor *bla*<sub>VIM</sub>.

## Conclusion

Nearly all CRE isolated in this study were carbapenemase producers. *bla*<sub>NDM</sub> was the most frequent carbapenemase-encoding gene among carbapenemase-producing *Enterobacteriaceae*. The present study detected *bla*<sub>VIM</sub> in *Enterobacteriaceae* for the first time in Sri Lanka.

## Acknowledgement

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## PP11

### Risk of persistent fatigue following SARS-CoV-2 infection among undergraduates in medical faculties of state universities in Sri Lanka

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## Background

Post-COVID-19 conditions occur in varying frequency in individuals infected with the SARS-CoV-2 virus. Symptoms persist after clearance of virus or develop 3 months from the onset of infection. The prevalence and the range of symptoms that occur following COVID-19 have been shown to vary among populations. Many studies worldwide found persistent fatigue to be the most prevalent symptom of this condition. But there is no data regarding this condition in Sri Lanka.

## Objectives

To determine the risk of persistent fatigue following SARS-CoV-2 infection among undergraduates in medical faculties of state universities in Sri Lanka.

## Methods

We carried out a retrospective cohort study among medical undergraduates in state universities in Sri Lanka, from May to July 2022. Undergraduates who confirmed SARS-CoV-2 infection 3 or more months before (n=160) and those who were uninfected or not known to

be infected (n=160) were selected for the study. Data was collected using a self-administered questionnaire as a Google form, using a modified fatigue impact scale.

## Results

A significantly higher proportion of those who were infected with SARS-CoV-2 reported 'muscle weakness' (RR=4.0, 95%CI=1.800–8.891), 'physical discomfort' (RR=3.75, 95%CI=1.774–7.927), 'limitation of physical activities' (RR=2.444, 95%CI=1.16–5.144) and 'need for rest more often' (RR=1.789, 95%CI=1.067–3.001) in comparison to those who were not infected. As these were physical signs of fatigue, SARS-CoV-2 infection was found to be a risk factor (RR=1.409, 95%CI=1.123-1.768). However, there were no significant differences between the two groups in cognitive and psychosocial fatigue.

## Conclusions

SARS-CoV-2 infection is a risk factor for developing physical signs of fatigue. Therefore, it increases the likelihood of developing persistent fatigue. The high frequency of symptoms of persistent fatigue in a relatively younger population highlights the need for further investigations on the long-term effects of COVID-19, to initiate possible treatment modalities to reduce its occurrence.

## PP12

### Evaluation of antimicrobial activity of modified "Pasyale Seethodaka oil" against common pathogens associated with wound infections

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## Background

Incorporation of evidence-based alternative medicine into conventional medicine is a promising new avenue that has been explored in combating microbial infections and the rapid emergence of antibiotic resistance. "Pasyale Seethodaka oil" is a Sri Lankan traditional medication that has been used for decades to heal external wounds. Because of the establishment of antimicrobial resistance globally, there is a necessity to identify a new formula for enhanced antimicrobial activity. Therefore, a modified oil preparation of

“Pasyale Seethodaka oil” kept as a trade secret was used to evaluate the antimicrobial activity of common wound pathogens.

### **Objectives**

To evaluate antimicrobial activity of modified “Pasyale Sethodaka Oil” against common wound pathogens.

### **Methods**

Agar well diffusion method was used to evaluate the antimicrobial susceptibility of original and improved “Pasyale Seethodaka” oil, on pathogens causing wound infections (*Staphylococcus aureus* [ATCC 23235, Methicillin Resistant *Staphylococcus aureus* (MRSA) [ATCC 33592], *Pseudomonas aeruginosa* [ATCC 27853], *Klebsiella pneumoniae* [ATCC 700603] and *Candida albicans* [ATCC 18804]). Antimicrobial susceptibility was determined by measuring the diameter of the zone of growth inhibitions of the pathogens and the mean value was obtained. Vancomycin (30µg), gentamycin (10 µg), and fluconazole (30 µg) were used as positive controls (PC), and sterile water as the negative control. The experiment was carried out in triplicates.

### **Results**

The original “Pasyale Seethodaka” oil had antimicrobial activity against *Staphylococcus aureus* of  $27.00 \pm 2.00$  mm, MRSA, *Pseudomonas aeruginosa*, *Klebsiella pneumoniae*, and *Candida albicans* showed inhibitory zones of <5mm. However, the improved oil showed mean zones of inhibition as follows: *Staphylococcus aureus* with  $46.00 \pm 2.50$  mm, MRSA of  $29.00 \pm 1.00$  mm while the PC gave  $42.00 \pm 1.50$  mm, and  $14.50 \pm 1.00$  mm respectively. *Pseudomonas aeruginosa* showed a  $19.67 \pm 0.05$  mm, *Klebsiella pneumoniae* showed a  $23.67 \pm 0.07$  mm and the PC gave  $26.00 \pm 1.00$  mm and  $19.00 \pm 1.20$  mm respectively, while *Candida albicans* gave  $52.33 \pm 3.05$  mm and its PC gave  $24.00 \pm 0.07$  mm.

### **Conclusions**

The modified “Pasyale Seethodaka oil” showed significant antimicrobial activity against *Staphylococcus aureus*, Methicillin Resistant *Staphylococcus aureus* (MRSA), *Pseudomonas aeruginosa*, *Klebsiella pneumoniae*, and *Candida albicans* compared to the original formulations.

## PP13

### Antimicrobial activity of Zinc oxide nanoparticles synthesized from *Camonea bifida* leaf extract

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#### Background

The use of metal nanoparticles and their oxides against microbial resistance has gained tremendous attention. Zinc oxide nanoparticles (ZnO NPs) have emerged as a potential therapeutic agent against microbial infections.

#### Objectives

This study was conducted to evaluate the in vitro antimicrobial activity of ZnO NPs synthesized from a medicinal plant *Camonea bifida*.

#### Methods

Aqueous leaf extract of *C. bifida* was prepared by boiling method. The effect of reaction parameters including Zinc acetate ( $\text{Zn}(\text{CH}_3\text{CO}_2)_2 \cdot 2\text{H}_2\text{O}$ ) concentration (0.1-0.5M), leaf extract:  $\text{Zn}(\text{CH}_3\text{CO}_2)_2$  ratio (1:1-1:9) and reaction temperature ( $0^\circ\text{C}$ - $80^\circ\text{C}$ ) were studied and optimized using UV Visible Spectroscopy. Nanoparticles were characterized by Scanning Electron Microscopy (SEM) and Fourier Transform Infrared Spectroscopy (FT-IR). The antimicrobial activity of ZnO NPs was studied by well diffusion method against *Staphylococcus aureus* (ATCC 25923), *Escherichia coli* (ATCC 25922), *Klebsiella pneumoniae* (ATCC 1706), *Pseudomonas aeruginosa* (ATCC 27853), *Candida albicans* (ATCC 10231), *Candida glabrata* (ATCC 90030), *Candida tropicalis* (ATCC 13803). Minimum Inhibitory Concentration (MIC) and Minimum Bactericidal Concentration (MBC) were performed for *S. aureus* and *P. aeruginosa*. Gentamicin (600  $\mu\text{g}/\text{ml}$ ) and Flucanazole (500  $\mu\text{g}/\text{ml}$ ) were positive controls for bacteria and fungi respectively and sterile distilled water was negative control.

#### Results

The optimum conditions were 0.3M  $\text{Zn}(\text{CH}_3\text{CO}_2)_2 \cdot 2\text{H}_2\text{O}$ , 1:3 ratio and  $40^\circ\text{C}$ . UV- Visible spectral peak around 380 nm confirmed ZnO NP formation. Size of NPs was in the range of 60-100nm. FT-IR spectrum revealed the presence of functional groups such as -OH and -C-H. ZnO NPs were stable for 2 months. All organisms were susceptible to ZnO NPs. The highest zone of inhibition was given by *P. aeruginosa* ( $30.7 \pm 0.33\text{mm}$ ), *S. aureus*

(25.7±0.33mm) and among fungi, *C. tropicalis* (27.67mm±0.33mm) respectively. Both MIC and MBC of ZnO NPs against *S. aureus* and *P. aeruginosa* were 3.55 mg/ml.

## Conclusions

*S. aureus*, *P. aeruginosa* and *C. tropicalis* showed higher susceptibility against the NPs. Results suggest that ZnO NPs are an effective antimicrobial agent against pathogenic microorganisms.

## PP14

### Biosynthesis of silver nanoparticles from *Camonea bifida* leaf extract and their antimicrobial activity

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## Background

Silver nanoparticles (AgNPs) have been used in nanomedicine as an alternative antimicrobial agent and disinfectant. Biological synthesis of silver nanoparticles has gained much attention due to its eco-friendly and less-toxic nature.

## Objectives

Present study was focused on the biosynthesis of AgNPs using *Camonea bifida* leaf extract and the investigation of their antimicrobial properties.

## Methods

Aqueous leaf extract (5g/100ml) of *Camonea bifida* was prepared by boiling method. For optimization of synthesis, parameters including AgNO<sub>3</sub> concentration (1-5 mM), plant extract: AgNO<sub>3</sub> ratio (1:19, 2:18, 3:17, 4:16, 5:15) and reaction temperature (0°C-80°C) were studied. The formation of AgNPs was confirmed by UV-Visible absorption spectrum. Particle characterization was performed using Transmission electron microscopy (TEM), Scanning electron microscopy (SEM), Fourier transform infrared spectroscopy (FT-IR). UV-Visible spectra of AgNP solution which was stored at room temperature were obtained for a one month period. Antimicrobial activity was studied using well diffusion method against *Staphylococcus aureus* (ATCC 25923) *Pseudomonas aeruginosa* (ATCC 27853) *Escherichia coli* (ATCC 25922), *Klebsiella pneumoniae* (ATCC 1706) *Candida glabrata* (ATCC 90030), *Candida albicans* (ATCC 10231) *Candida tropicalis* (ATCC 13803).

Minimum Inhibition Concentration (MIC) and Minimum Bactericidal Concentration (MBC) were performed for *S.aureus* and *P.aeruginosa*. Gentamicin (600µl/ml) and Fluconazole (500µg/ml) were used as positive controls.

## Results

Color change and UV Visible peak around 450nm confirmed the formation of AgNPs. FT-IR spectrum indicated the presence of different functional groups of biomolecules such as O-H (3442.79 cm<sup>-1</sup>), C-H (2922.68 cm<sup>-1</sup>, 2852.26 cm<sup>-1</sup>), C≡C (2359.85 cm<sup>-1</sup>, 2341.91), C=C (1743.95 cm<sup>-1</sup>, 1628.05 cm<sup>-1</sup>), C-C, C-N (1466.16 cm<sup>-1</sup>, 1400.96 cm<sup>-1</sup>, 1384.59 cm<sup>-1</sup>), and C-Cl (668.56 cm<sup>-1</sup>) on the surface of AgNPs. TEM and SEM results indicated spherical shaped AgNPs with average size of 34 nm. AgNPs were stable for more than 4 weeks at room conditions. *P. aeruginosa* (15.0mm) and *S. aureus* (16.0±0.58mm) showed the greater sensitivity towards AgNPs while *E. coli* showed moderate results (12.67±0.88mm). *K. pneumoniae* and other *Candida* species did not respond except *C. tropicalis* (10.33±0.33mm). MIC and MBC of AgNPs against *S. aureus* were 20.6µg/ml and 41.3µg/ml. MIC and MBC of AgNPs against *P. aeruginosa* were 5.2µg/ml and 10.3µg/ml respectively.

## Conclusions

This study indicated that *C. bifida* mediated AgNPs have shown antimicrobial properties and they have a potential as a promising antimicrobial agent.

## PP15

### Investigation of antimicrobial activity of secondary metabolites produced by selected *Aspergillus* species against pathogenic microorganisms

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## Background

Antibiotics are drugs that are used for the management of bacterial infections. Improper use of antibiotics creates antibiotic-resistant strains. To overcome this problem, it is a must to discover effective compounds against pathogenic microorganisms.

## Objectives

The present study aimed to investigate the effectiveness of secondary metabolites produced by *Aspergillus fumigatus*, *Aspergillus flavus*, and *Aspergillus niger* against five (05) selected pathogenic microorganisms.

### Methods

The ethyl-acetate extraction method was performed to obtain the secondary metabolites from the dried cultures of *Aspergillus spp.* The efficacy was analyzed against five pathogenic microorganisms namely *Staphylococcus aureus* ATCC 25923, *Burkholderia pseudomallei* ATCC 23344, *Pseudomonas aeruginosa* ATCC 17934, *Escherichia coli* ATCC 8739 and *Streptococcus pyogenes group A* ATCC 2384. The disk diffusion method was performed following standard CLSI guidelines, to assess the antibiotic sensitivity by measuring the average diameter of the clear zone (mm) of the triplicates on both Muller Hinton and nutrient Agar. The analysis was obtained from Microsoft Excel 2010.

### Results:

*Aspergillus fumigatus* showed the maximum average antibacterial sensitivity against all five (05) pathogenic bacteria on Muller Hinton agar: *Staphylococcus aureus* (28.11mm), *Burkholderia pseudomallei* (23.56mm), *Pseudomonas aeruginosa* (16.22mm), *Escherichia coli* (12.44mm), and *Streptococcus pyogenes* (14.89mm). *Aspergillus niger* and *Aspergillus flavus* both show average sensitivity against only 03 microorganisms, *Staphylococcus aureus* (12.33mm and 17.67mm), *Pseudomonas aeruginosa* (10.89mm and 1.11mm) and *Streptococcus pyogenes* (9.67mm and 11.22mm) respectively, while *Burkholderia pseudomallei* was resistant. On Nutrient Agar, all three fungi shown the sensitivity, while *Aspergillus fumigatus* showed the highest average sensitivity against *Staphylococcus aureus* (42.33mm), followed by *Pseudomonas aeruginosa* (30.22mm), *Burkholderia pseudomallei* (21.67mm), and *Streptococcus pyogenes* (20mm).

### Conclusions

The secondary metabolites of *Aspergillus fumigatus* exhibited the most significant antibacterial effect against all five pathogenic microorganisms while the highest average sensitivity was against *Staphylococcus aureus*. *Aspergillus niger* and *Aspergillus flavus* showed less sensitivity compared to *Aspergillus fumigatus*.



## PP16

### Study on isolation and antimicrobial sensitivity of *Escherichia coli* from environmental samples in hospital and livestock farming environments in the Gampaha District, Sri Lanka

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#### **Background**

The emergence of antimicrobial resistance (AMR) has been enhanced due to widespread overuse of antibiotics in humans and animals. Thus, a significant amount of antibiotics are contaminating both man-made environments like sewerage systems and natural water sources. The hospitals and livestock farms, where most antibiotics are misused, are hypothesized to serve as major hotspots for the evolution of antimicrobial resistance. Thus, examining environmental samples is crucial for understanding AMR in the environment.

#### **Objectives**

The study aimed to investigate the contamination with resistant bacteria in environmental samples from hospital and livestock farms in the Gampaha District by isolating *Escherichia coli* from wastewater (open drainage systems), influent and effluent samples from the wastewater treatment-plants, soil samples from dumping sites/ manure-contaminated contaminated soil samples and determining their antibiotic sensitivity (ABST).

#### **Methods**

This descriptive cross-sectional study was carried out by obtaining 40 environmental samples from 4 hospitals and 43 samples from livestock farms (2 pig farms, 3 poultry farms, 2 dairy farms) in Gampaha District. Samples were collected, transported, stored, and processed according to standard operating procedures and inoculated onto MacConkey and salmonella-shigella (SS) agar. Colonies of *E. coli* were identified according to the colony morphology, Gram stain, and biochemical tests (KIA, indole). ABST was done according to the CLSI method using 7 antibiotic disks.

#### **Results**

A total of 37 *E. coli* isolates (hospitals=13, livestock farms=24), were obtained from 83 samples (wastewater (n=60), soil (n=23)). Out of the total 37 *E. coli* isolates, 23 isolates (hospitals=9, livestock farms=14) exhibited resistance to at least 1 out of 7 antibiotics tested. The highest rate of *E. coli* resistance was for ampicillin (20/23, 87%), followed by co-trimoxazole (15/23, 65%), ciprofloxacin (7/23), cefotaxime (4/23), gentamicin (2/23), co-amoxiclav (2/23). None were resistant to meropenem.

## Conclusion

This study demonstrated the presence of AMR bacteria in the environment, indicating the necessity of implementing environmental surveillance for AMR to be adopted as part of One-Health approach.

## PP17

### Serological evidence of exposure to hantaviruses among residents of Kegalle district, Sri Lanka

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## Background

Human pathogenic hantaviruses are naturally maintained in rodent populations and transmitted to humans via inhalation of virus-contaminated aerosols from infected rodent excreta. Human exposure to this infection was first reported in Sri Lanka in 1988 and it appears to be continuing to date. Recent genetic evidence obtained from field rats suggests the presence of two Thailand Orthohantavirus (THAIV)-related viruses (Lanka virus and Anjzorobe virus), in the dry zone of Sri Lanka. The extent of the human exposure to hanta viruses in wet zone of the country is not yet investigated. Kegalle District is located in the Low-country Wet Zone of Sri Lanka with no previous evidences on the presence of hantavirus infection among the residents.

## Objectives

Screening to identify the exposure to hantavirus infection among residents of Kegalle district, Sri Lanka

## Methods

Blood samples and demographic data were collected from randomly recruited 208 individuals living in two divisional secretariats of Kegalle district. First, serum samples were screened using an Indirect Immunofluorescent Antibody assay (IFA) based on Vero E6 cell antigens transiently expressing THAIV recombinant N protein. Positive sera were again screened with Lanka virus recombinant glycoprotein (rGP) antigens and then serotyped using recombinant Gn(rGn) glycoprotein antigens of Lanka and Anjzorobe viruses.

**Results**

Out of the 208 study participants, 26 (12.5%) were positive for assay based on rN protein antigens and out of 26 positives, 7 (3.36%) were harboring anti-GP antibodies. Among these 7 rGp positive sera 3 (42.85%) were serotyped as Lanka virus, 2 (28.57%) were Anjzorobe virus and the remaining 2 (28.57%) were inconclusive.

**Conclusions**

The findings reveal the first definitive serotyping evidence of Lanka virus and Anjzorobe virus infecting humans in Kegalle district. Island-wide serological studies are essential to assess the true prevalence of hantavirus exposure among the general public.

**Acknowledgement**

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## SESSION 2 – MICRO SESSION 3 – NON-COMMUNICABLE DISEASES AND PHARMACOLOGY & TOXICOLOGY (PP18 - PP29)

### PP18

#### A study on clinico-epidemiological characteristics of intentional poisoning patients admitted to a tertiary care hospital in Trincomalee District

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#### Background

Although intentional poisoning is reported as a common method used for suicides in Sri Lanka, there were no specific clinico-epidemiological data related to the Trincomalee area; a multi-ethnic agriculture area in the east cost of Sri Lanka.

#### Objective

To assess the clinico-epidemiological characteristics of victims of intentional poisoning admitted to District General Hospital, Trincomalee

#### Methods

A descriptive cross-sectional study was conducted by extracting the clinico-epidemiological data from the medical records of victims of intentional poisoning admitted to District General Hospital, Trincomalee from January 2019 to December 2020. Statistical analysis was done in terms of frequencies, prevalence calculation and chi-square test, using the SPSS software version 25.

#### Results

There were 142 intentional poisoning victims admitted to the hospital within the above period. The age of victims ranged from 11 to 90 years, with the mean age of 27.63(±12.84 years). The majority (n=104, 73.4%) were in between 11 to 30 years, and females (n=82,57.7%) dominated the reported cases. The associations between both age <30 years and female gender with intentional poisoning by medications and agrochemicals were statistically significant (p<0.05). Medication ingestion (n=66, 46.5%) was the common method of intentional poisoning followed by ingestion of agrochemicals (n=37, 26.1%), poisonous plants(n=23, 16.2%), and household products(n=14,9.9%), while paracetamol(n=33, 23.2%)was the most reported drug taken in overdose. The main reason among married individuals for intentional poisoning was marital conflict (n=46, 32.4%), while unmarried youngers were driven by quarrel with parents (n=36, 25.4%) to have intentional poisoning. A considerable proportion of victims (n=59, 41.5%) delayed more than 2 hours to get admitted to the hospital, and gastrointestinal symptoms were reported by the majority (n=101,

71.1%). Most victims (n=133, 93.7%) were discharged with or without any complications, and there were no deaths reported due to intentional poisoning during the period considered.

### **Conclusions**

As marital conflicts appear to be a main route cause, marriage counseling and family therapy can be recommended as pertinent preventive strategies for intentional poisoning in the idea of suicide among vulnerable individual

### **PP19**

#### **Development and standardization of an antifungal topical formulation from *linguas galangal* rhizome (Zingiberaceae)**

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### **Background**

Rhizome of *Linguas galangal* is traditionally used in Sri Lanka for the treatment of skin infections caused by fungi.

### **Objectives**

The aim of the present study was to develop and standardize a topical anti-fungal formulation from *Linguas galangal* rhizome.

### **Methods**

Dried powdered rhizomes of *L. galangal* were successively extracted with hexane dichloromethane, ethyl acetate, and methanol using Soxhlet extraction. The Agar well diffusion method was used to assess the antifungal activity of *L. galangal* extracts. Each crude extract was tested against *Candida albicans* and *Aspergillus niger*. The antifungal activities of the extracts were compared with Clotrimazole as the positive control and Dimethyl sulfoxide (DMSO) as the negative control. All tests were carried out in triplicate. The best extract that shows largest zone of inhibition was selected by comparing the zone of inhibitions of each extract. The most active hexane extract that gives largest zone of inhibition was used to prepare the cream. Different concentrations of formulated cream were prepared by dissolving it in DMSO and antifungal activities were tested. The physiochemical parameters such pH, spreadability and homogeneity were evaluated in the formulated cream. A stable and active antifungal cream was formulated.

## Results

Hexane extract of rhizome powder of the *L. galangal* was more effective against *Candida albicans* and *Aspergillus Niger*. The hexane extract of *L. galangal* showed a maximum zone of inhibition against *C. albicans* (31.2mm  $\pm$ 0.46) compared to the other extracts, while Clotrimazole which was used as a positive control, produced a larger zone of inhibition (46.10mm  $\pm$  0.65) and dimethyl sulfoxide (DMSO); negative control did not produce inhibitory zones. Moderate Zone of inhibition showed by methanol extract. Furthermore, all four extracts show higher activity against *C. albicans*. The hexane crude extract of *L. galanga* based antifungal cream showed in-vitro antifungal activity against *Candida albicans* and *Asprgillus niger*. The antifungal activity of the cream was concentration dependent, and zone of inhibition did increase with higher the concentration of cream. The maximum inhibitions are shown in *C. albicans* (32.81mm $\pm$ 0.21) with the highest concentration (100mg/ml). No zone of inhibitions for negative controls. The lowest concentration (10mg/ml) did not show inhibition against *A. niger*.

## Conclusions

In conclusion, hexane crude extract of *L. galangal* based antifungal cream showed in-vitro antifungal activity against *Candida albicans* and *Aspergillus niger*. Formulated cream shows good antifungal activity against *Candida albicans* than *Aspergillus niger*. Stability determinations of formulated cream showed a stable and good appearance. Further evaluation of shelf life, stability and the safety are required.

## PP20

### Prevalence of anaemia and its associated risk factors among type 2 diabetic patients attending the Diabetic Centre, Teaching Hospital Jaffna

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## Background

Anaemia is one of the common complications of diabetes mellitus (DM), which potentially contributes to the progression and development of other diabetic-related complications.

## Objectives

The objective was to evaluate the prevalence of anaemia and its associated risk factors among type 2 diabetic patients, attending the Diabetic Centre, Teaching Hospital Jaffna.

### Methods

This was a descriptive cross-sectional study. A total of 300 patients were recruited for this study by using systematic random sampling method. An interviewer-administered questionnaire was used to collect the data. Haemoglobin levels were measured by the cyanmethemoglobin method. Hb levels of <13g/dl for males and <12g/dl for females were defined as anaemia. Statistical analysis was carried out by multivariable logistic regression analysis. The data were presented as mean  $\pm$  SD.

### Results

The prevalence of anaemia among the study population was 23%. The mean Hb levels of anaemic males and females were 9.98 ( $\pm$  1.38) and 9.36 ( $\pm$  1.68) g/dl respectively. Majority (49.3%) of the anaemic patients were with mild anaemia and 26 were with moderate anaemia. Prevalence of anaemia was highest among the type 2 DM patients who had hypertension (9.6%). Females (AOR= 0.497, 95% CI: 1.20 – 5.17), from rural areas (AOR= 2.327, 95% CI: 1.172– 7.370) having DM for > 10 years (AOR= 2.586, 95% CI: 1.13 – 5.88) were significantly associated with anaemia.

### Conclusions

One out of four diabetic patients had anaemia. Type 2 DM female patients from rural areas, with DM for > 10 years were significantly prone to develop anaemia. Thus type 2 DM patients need to be advised to go for regular anaemia screening for the early diagnosis of anaemia.

### PP21

#### Anti-hypertensive, anti-cholinesterase and anti-cancer potential of *Calendula officinalis* flowers

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### Background

Increasing risk of chronic diseases is associated with the dietary patterns of individuals. Oxidative stress is identified as the major cause for the development of these diseases, and inclusion of natural antioxidants in the diet could reduce the risk of chronic diseases. Edible

flowers are gaining popularity as sources of antioxidants. *Calendula officinalis* (CO) is such one edible flower with potent antioxidants. However, there is no much investigations reported regarding the anti-hypertensive (AH), anti-cholinesterase (ACh) and anticancer potential (AC) of CO flowers.

### **Objectives**

The present study was aimed to investigate the AH, ACh and AC of CO flower extracts (FE) and the associated antioxidants. Also impact of digestion on the antioxidants, AH and ACh activity of FE was evaluated.

### **Methods**

Total phenolic content (TPC), flavonoid content (TF) and carotenoid content (TC) was assessed using colorimetric assays. Angiotensin converting enzyme inhibitory (ACEI) assay and acetylcholinesterase enzyme inhibitory assay were performed to evaluate the AH and ACh activity respectively. AC was evaluated on three cell lines (colon, oral and lung carcinoma cells). Antioxidants in the FE were quantified using liquid chromatography (LC). One-way ANOVA and Tukey's multiple variance test were used for statistical calculations.

### **Results**

Results indicate that at the end of digestion TPC, TFC and TC of the FE has decreased by 50.23%, 61.38% and 90.98% respectively whereas ACEI and ACh of the FE has decreased by 43% and 25% respectively. Considering the AC the FE effectively inhibited 50% of oral carcinoma cell growth at a concentration of 40 ppm after 48 h. The LC study revealed the presence of chlorogenic acid, syringic acid, apigenin, myricetin and kaempferol in the FE.

### **Conclusions**

It can be concluded that CO flowers are rich source of antioxidants and though their contents have decreased after digestion, they were sufficiently available to exert anti-hypertensive and anti-cholinesterase activity after digestion.

### **Acknowledgement**

Financial assistance provided by National Research Council of Sri Lanka. (NRC – 19-033)

### **PP22**

#### **In vitro anti-inflammatory potential of *Terminalia arjuna* (Roxb.) aqueous bark extract**

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## Background

The body's initial response to an infection or damage is inflammation. It can be seen as a complex biological component of the way vascular tissues react to noxious stimuli, an organism's protective response to damaging stimuli, and the beginning of the healing process. Natural herbal medicines are popular in the scientific world since they have little or no side effects. The *Terminalia arjuna* Roxb. (Combretaceae) is an herbaceous, evergreen tree found in Sri Lanka and used in a variety of Ayurvedic preparations. However, its anti-inflammatory activity remains less explored.

## Objectives

This study was designed to investigate the anti-inflammatory activity of *T. arjuna* bark aqueous extract using egg albumin denaturation assay and HRBC (human red blood cell) clot lysis assay.

## Methods and materials

Plants were collected and authenticated, then using the maceration technique, the air-dried bark were powdered and extracted into distilled water in 1:3 ratio. The dilution series was created by diluting one gram of plant aqueous extract powder in one milliliter of distilled water, ranging from  $1\text{g mL}^{-1}$  to  $1.9 \times 10^{-3}\text{ g mL}^{-1}$ . The positive control for the egg albumin denaturation assay was diclofenac sodium, and the negative control was distilled water, and IC<sub>50</sub> values were compared. The Aspirin was used as the positive control for the HRBC assay and DMSO as the negative control, and the percentage of clot lysis was compared with the standard.

## Results

When considering the result of the egg albumin method, plant extract showed IC<sub>50</sub> =  $1.497\text{g mL}^{-1}$  and standard IC<sub>50</sub> was  $4.73 \times 10^{-4}\text{ g mL}^{-1}$ . The HRBC clot lysis assay plant extract showed IC<sub>50</sub> =  $1.402\text{ g mL}^{-1}$ , and standard IC<sub>50</sub> was  $3.91 \times 10^{-2}\text{ g mL}^{-1}$ . When the results of the HRBC assay are taken into consideration, the highest concentration of plant extract ( $1\text{g mL}^{-1}$ ) showed 45% clot lysis activity, with the standard 13.64% clot lysis activity in  $1\text{g mL}^{-1}$  concentration. The highest clot lysis activity of 34.48% in standard was seen with  $250 \times 10^{-3}\text{ mg mL}^{-1}$  concentration.

## Conclusions

This study results indicated that the plant extract of *T. arjuna* has anti-inflammatory properties. Therefore, it is recommended to determine further activity-guided fractionation and toxicity studies to identify less toxic, active compounds present in the plant extract.

## PP23

### Effect of the ethyl acetate soluble proanthocyanidins (EASPA) from the immature inflorescence of *Cocos nucifera* L. on LPS induced inflammatory response in endometrial mesenchymal stem cells derived from women with endometriosis

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#### Background

Endometriosis is a common benign chronic inflammatory disease in women characterized by the presence of functional endometrium-like tissues outside the uterus and it is associated with chronic pelvic pain, dysmenorrhea, and infertility. It affects approximately 10% of women in their reproductive age. However, the exact origin and pathophysiology of endometriosis are unknown.

#### Objective

Inflammation is associated with the development and persistence of endometriosis. Therefore, the present study was carried out to determine the effect of EASPA extracted from the immature inflorescence of *Cocos nucifera* L. (IF) on lipopolysaccharides (LPS) induced cytokine production in primary endometrial mesenchymal stem cells (eMSC).

#### Method

Primary endometrial cultures were established by obtaining endometrial biopsy samples from voluntary women with endometriosis. Cells were continuously passaged in DMEM/F12 supplemented with 10% v/v FBS and 2% v/v penicillin/streptomycin at a 5% humidified CO<sub>2</sub> incubator until uniform eMSC clonal expression was achieved. At the end of the third passage, eMSC were seeded onto a 24-well plate (40,000 cells/well) and grown until approximately 80% confluent. Cells were treated with EASPA in DMEM/F12 complete medium at concentrations of 100 and 50 µg/mL, incubated for 2 hours and stimulated with LPS (1 µg/mL) for additional 4 hours. After the incubation period, cell free supernatants were analyzed for the presence of cytokines using a human XL cytokine array panel as per manufacturers' instructions. Negative and positive controls were maintained by eMSC supplemented with DMEM/F12 complete medium without test material (EASPA) or LPS and with 1 µg/mL LPS respectively.

## Results

Present study confirmed the inhibition of IL-6, IL-10, DKK1, ST2 and MCP3 cytokines mediated by EASPA on LPS-treated eMSC in a concentration dependent manner.

## Conclusion

EASPA from the IF can inhibit cytokine production in eMSC and further studies on the above-mentioned cytokines are recommended in strengthening the observed outcome of the present study.

## Acknowledgement

University Research Grant ASP/01/RE/SCI/2018/20 and ASP/01/RE/SCI/2021/19

## PP24

### A study on in vitro anti-inflammatory potential of *Hemidesmus indicus* R. Br. Aqueous plant extract

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## Background

Being a tropical country, Sri Lanka is rich in herbal plants. Therefore, about 60%-70% of the population relies on the indigenous medicinal system as their main source of primary health care. Natural herbal medicines, which have little or no adverse effects, are the focus of modern science. *Hemidesmus indicus* R. Br. (Periplocaceae) is a natural herbal plant found in Sri Lanka that is used in a variety of Ayurvedic preparations. However, the anti-inflammatory activity of aqueous plant extract remains unknown.

## Objectives

This study was designed to investigate the anti-inflammatory activity of *H. indicus* plant aqueous extract using egg albumin denaturation assay and HRBC (human red blood cell) clot lysis assay.

## Methods and materials

Plants were collected and authenticated, then using the maceration technique, the air-dried plant material (whole plant without roots) was powdered and extracted into distilled water

in a 1:3 ratio. The dilution series was created by diluting one gram of plant aqueous extract powder in one milliliter of distilled water, ranging from  $1\text{g ml}^{-1}$  to  $1.9\times 10^{-3}\text{g ml}^{-1}$ . The positive control for the egg albumin denaturation assay was diclofenac sodium, and the negative control was distilled water, and IC 50 values were compared. The HRBC assay used aspirin as the positive control and DMSO as the negative control, and the percentage of clot lysis was compared to the standard.

## Results

When considering the result of the egg albumin method, plant extract showed  $\text{IC}_{50} = 2.835\text{g ml}^{-1}$  and standard  $\text{IC}_{50}$  was  $4.73\times 10^{-3}\text{g ml}^{-1}$ . The HRBC clot lysis assay plant extract showed  $\text{IC}_{50} = 0.625\text{g ml}^{-1}$ , and standard  $\text{IC}_{50}$  was  $3.91\times 10^{-2}\text{g ml}^{-1}$ . When compared to the highest concentration of the standard,  $1\text{g ml}^{-1}$  plant extract showed 25% clot lysis activity, with the standard 13.64% clot lysis activity in  $1\text{g ml}^{-1}$  concentration. 34.48% highest clot lysis activity in standard showed by  $250\times 10^{-3}\text{mg ml}^{-1}$  concentration.

## Conclusions

This study results indicated that the plant extract of *H. indicus* has anti-inflammatory properties, which proves by the egg albumin method showed the highest  $\text{IC}_{50}$  than the standard  $\text{IC}_{50}$ , and when considering the HRBC clot lysis activity assay which also showed greater  $\text{IC}_{50}$  value than the standard  $\text{IC}_{50}$ . And aqueous plant extract at  $1\text{g ml}^{-1}$  plant extract showed 25% clot lysis activity. Therefore, it is recommended to determine further activity-guided fractionation and toxicity studies to identify less toxic, active compounds present in the plant extract.

## Acknowledgement

KIU undergraduate research fund

## PP25

### Stability of propranolol hydrochloride tablets in amber-colored glass containers

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## Background

Repackaging entails taking medications out of their original packing and placing them in new packaging materials. Medications may not be stable in varied storage conditions and packing materials as in the original package.

## **Objectives**

To assess the stability of repacked propranolol tablets dispensed in amber-colored glass containers.

## **Methods**

A sample of 40 mg propranolol hydrochloride BP tablets (n=1000) which bore the same batch number, was obtained from a selected pharmacy. Physical and chemical stability of the propranolol tablets, repackaged in amber-colored glass containers, were assessed after 30 days of storage at both home (27.3 OC - 46.5 OC; RH 50% - 79%) and manufacturer-recommended storage conditions (20.0 OC - 26.2 OC; RH 57% - 64%) according to the British Pharmacopoeia 2020 specifications. The SPSS 25.0 software was used to analyze data.  $p < 0.05$  was regarded as statistically significant.

## **Results**

Propranolol tablets that had been repackaged in amber-colored glass containers and stored for 30 days under both storage conditions passed the assay, visual inspection, weight variation, friability, and disintegration tests. Therefore, it demonstrated the chemical and physical stability of repackaged propranolol tablets as per BP specifications. However, there was a significant difference in the mean (SD) of disintegration time ( $2.13 \pm 0.028$  vs.  $2.42 \pm 0.021$ ,  $p = 0.008$ ), and propranolol hydrochloride content ( $99.11 \pm 0.39$  vs.  $102.87 \pm 0.07$ ,  $p = < 0.001$ ) between propranolol tablets stored in home storage conditions and recommended storage conditions in amber colored glass containers.

## **Conclusions**

Though the Propranolol tablets repacked in amber-colored glass bottles in both home and manufacturer-recommended storage conditions passed the chemical and physical stability, the significant difference in the assay test result indicated that, under highly changing actual home storage conditions, Propranolol tablets could be unstable. Thus, long-term storage exceeding 30 days should be avoided. Moreover, it is important to advise patients to store repackaged propranolol tablets in amber-colored glass containers under the specified storage conditions suggested by the manufacturer.

## **Acknowledgement**

This study was funded by the research grant/2021 of the Faculty of Allied Health Sciences, University of Ruhuna

## PP26

### Biophysical, behavioural and anthropometric factors in predisposition of non-communicable diseases in adults attending Healthy Lifestyle Centers in Kalutara district

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#### Background

The study was done because NCDs are a major public health challenge to Sri Lanka as a developing country.

#### Objectives

To determine the association of biophysical, behavioural and anthropometric factors predisposing to NCDs in adults attending Healthy Lifestyle Centers (HLCs) in Kalutara district.

#### Methods

Biophysical (SBP, DBP, RBS, FBS, serum cholesterol), behavioural (physical activity level, alcohol and tobacco consumption) and anthropometric (BMI, WC, WHtR) factors, collected using Epicollect5 data collection application were assessed in this study. A descriptive cross sectional study was performed using secondary data of 482. A multistage sampling method was used. Inclusion criteria was HLC records of participants between 30 - 60 years who were previously undiagnosed for NCDs. The exclusion criterion was HLC clinic records with incomplete data. WHO cutoff values were used in classification of risk level of anthropometric and biophysical factors. Ethical approval was obtained from the ethics review committee of Faculty of Medical Sciences, University of Sri Jayewardenepura.

The population was divided as high risk and low risk using mean or median after giving 0 and 1 scores to negative and positive risk factors in development of NCDs respectively and calculating the total. FBS level was not considered in calculation of the risk as its response rate was very low. P value < 0.05 was considered as significant.

#### Results

Of biophysical factors, serum cholesterol level showed significant differences with DBP and RBS.

Of behavioural factors, physical activity showed significant differences with SBP and DBP while tobacco consumption showed significant differences with WC and WHtR of anthropometric factors and RBS and serum cholesterol level of biophysical factors.

Alcohol consumption only showed significant difference with WC and all the other anthropometric factors and all biophysical factors did not show significant differences with alcohol consumption. Of anthropometric factors, BMI was significantly associated with SBP and DBP and only SBP and DBP of the biophysical factors showed significant differences with WC. WHtR showed significant differences with DBP and serum cholesterol level. All the biophysical, behavioural and anthropometric factors showed significant difference with NCD risk. All these biophysical and anthropometric factors were high than normal in majority who had high NCD risk. Majority who had risky behaviours had high NCD risk as well.

### Conclusions

As mentioned above, according to p value, all biophysical, behavioural and anthropometric factors were considerably associated with NCD risk within this population.

### PP27

#### Comparative analysis of the antioxidant activity of *Biophytum reinwardtii*, *Trachyspermum roxburghianum* and *Cyanthillium cinereum* extracts

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### Background

Although oxidation is a normal and essential process in our body, when there is an imbalance between free radical activity and antioxidants oxidative stress occurs damaging the body. An antioxidant is a molecule that donates an electron to a rampaging loose radical and neutralizes it, accordingly reducing its capability to damage. However, *Biophytum reinwardtii*, *Trachyspermum roxburghianum*, and *Cyanthillium cinereum* are plants that have great therapeutic implication in Ayurvedic medicine their antioxidant properties remain unknown.

### Objectives

To evaluate the antioxidant properties of above plants and analyze antioxidant capacity using hexane, ethyl acetate, aqueous and methanol extract comparatively. Method: Selected extracts of dried plants were collected by activity guided fractionation.

Concentration series of all the extracts were subjected to the ferric reducing antioxidant power (FRAP) and Hydrogen peroxide scavenging assay (H<sub>2</sub>O<sub>2</sub>) were analyzed to determine antioxidant activity by using Graphpad Prism 9. Ascorbic acid was used as standard for both the antioxidant assays.

## Results

The methanolic extract of the *Biophytm reinwardtii* showed the highest antioxidant capacity with the IC<sub>50</sub> values of 12.68 ml/mg for FRAP assay, 22.05 ml/mg for H<sub>2</sub>O<sub>2</sub> assay. IC<sub>50</sub> values for ascorbic acid were 26.10 ml/mg for FRAP and 21.42 ml/mg for H<sub>2</sub>O<sub>2</sub>. The methanolic extracts of *Cyanthillium cinereum* and *Trachyspermum roxburghianum* showed low antioxidant capacity with IC<sub>50</sub> values of 30.46 ml/mg for FRAP, 27.92 ml/mg for H<sub>2</sub>O<sub>2</sub> assay and 42.87 ml/mg for FRAP, 61.67 ml/mg for H<sub>2</sub>O<sub>2</sub> respectively. Further, investigation of plant extracts from different solvents; nhexane, ethyl acetate and aqueous showed lowest level of antioxidant capacity.

## Conclusion

The methanolic fraction possessed the highest antioxidant activity, followed by aqueous, ethyl acetate fractions, respectively while showing highest antioxidant capacity by *Biophytm reinwardtii*. The n-hexane fraction showed the lowest antioxidant activity.

## PP28

### Anthropometric parameters of newly diagnosed patients with myocardial infarction admitted to tertiary care hospitals of Western province of Sri Lanka - a case control study

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## Background

Ischemic heart disease(IHD) is the leading cause of death in the world as well as in Sri Lanka. Obesity related anthropometric indices have been recognized as contributing risk factors for IHD. Most of the studies have been done on Caucasians and on healthy people, by following them until development of an acute coronary incident or by calculating CVD risk using cardio-metabolic risk factors.



## Objectives

This study was done to analyze anthropometric indices of people at the time of their first myocardial infarction (MI) and to compare those anthropometric indices with people without myocardial infarction.

## Methods

A case control study was conducted in selected tertiary care hospitals of Western Province of Sri Lanka. Newly diagnosed patients with MI and age and sex matched patients admitted to these hospitals were recruited as cases and controls.

Hundred cases (63% males) and hundred controls (63% males) who fulfilled the inclusion exclusion criteria were recruited. Demographic details were taken using interviewer administered questionnaire and anthropometric measurements were taken adhering to recommendations of the International Standards for Anthropometric Assessment (ISAK). Data analysis was done using SPSS version 24, software. Associations were analysed by using Bivariate test, t test, and Logistic Regression.

Ethical approval was obtained from ERC of PGIM.

## Results

Mean age of the cases was 61.37 years and that of the controls was 61.1 years. Total Cholesterol ( $p = 0.033$ ), Triglyceride ( $p = 0.049$ ), LDL Cholesterol ( $p = 0.001$ ), Waist Hip Ratio (WHR) ( $p = 0.001$ ) showed a statistically significant association with MI, when analyzed using independent t test. With Logistic Regression, thigh circumference (OR = 0.918, 95% CI 0.961 – 0.978) and WHR (OR = 1.96, 95% CI = 1.23 – 2.43) showed a statistically significant association with MI.

## Conclusions

WHR was found to be a risk factors for MI, higher educational status and high thigh circumference were protective factors.

## PP29

### *In vitro* Litholytic Effect of Aqueous Extracts of Selected Plants and Young Coconut Water on Oxalate Stone

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## Background

Stones formed in kidney or any part of the urinary tract contain organic matrix and organic & inorganic crystalloids. The patients are treated by surgical intervention or other techniques. In traditional medicines plant decoctions are used to treat the patients. Extracts of *Aerva lanata*, *Musa sapientum* kuntze inner stem, *Raphanus sativus* and *Tribulus terrestris* as well as young coconut (*Cocos nucifera* L.) water are widely used in indigenous medicine to treat urinary stone patients.

## Objectives

This study was conducted to evaluate the *in vitro* litholytic effects of aqueous extracts of selected plants and young coconut water on oxalate stones.

## Methods

Aqueous extracts of the whole plants of *Aerva lanata* and *Tribulus terrestris*, inner stem of *Musa sapientum* kuntze and *Raphanus sativus* roots were prepared. Seventy-five milligrams of surgically removed oxalate stone (oxalate:46.03%, calcium:22.83%, urate:0.68%, inorganic phosphate:0.5%, magnesium:0.38%) were incubated (at 37°C for 24h) separately with the aqueous extracts of different plants and coconut water (15ml). Every 24h, the extracts were decanted, analyzed for calcium, magnesium, inorganic phosphorus, uric acid and oxalate repeatedly for seven days. Deionized water was used as the control.

## Results

Release of magnesium, inorganic phosphorus and uric acid were minimal. Cumulative release of calcium and oxalate into *Musa sapientum* kuntze [2.414(± 0.14); 1.958(±0.12) mg] was the highest and *Raphanus sativus* [1.505(±0.28); 1.564(±0.32) mg], was the lowest. Litholytic activity on solubilizing oxalate by young *Cocos nucifera* water 1.965(±0.77) mg and *Musa sapientum* kuntze 1.958 (±0.12) mg were almost similar. Calcium and oxalate solubility into the different plant solutions were significantly higher than into deionised water (p<0.05).

## Conclusion

Among the selected herbal plants highest litholytic activity was shown by *Musa sapientum* kuntze. Litholytic activity on magnesium, inorganic phosphorus and uric acid in oxalate stones could not be significantly observed due to their poor concentration.

## Acknowledgement

The Department of Medical Laboratory Sciences, Faculty of Allied Health Sciences, University of Jaffna for the financial assistance

## SESSION 4 - HEALTH POLICY & MEDICAL EDUCATION AND PATHOLOGY/SURGICAL INTERVENTIONS (PP30 – PP38)

### PP30

#### Anatomic variations of insertion of right posterior hepatic duct: Cadaveric and endoscopic retrograde cholangiopancreatography findings

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#### Background

The human biliary tract consists of a duct system that drains the liver. The pattern of these ducts shows anatomical variations across populations. Knowledge regarding the anatomical variations will aid the clinician in treating disorders of the hepatobiliary system.

#### Objective

To describe the anatomical variations in the biliary tract based on the Huang classification through cadaveric dissections and endoscopic retrograde cholangiopancreatography (ERCP) images.

#### Methods

This descriptive study was conducted at the departments of Anatomy and Radiology, Faculty of Medicine, University of Peradeniya and Teaching Hospital, Peradeniya from December 2022 to February 2022. Eight preserved cadavers were dissected at the portahepatis and within the liver substance, while 15 ERCP images were interpreted by a consultant radiologist to identify biliary tract variations.

#### Results

The cadaver specimens were from donors above 65 years of age, and 5 were males (62.5%). The right posterior hepatic duct inserted into the right anterior hepatic duct in 7 cases (87.5%) which is classed as Huang Type A1, while the right posterior hepatic duct inserted into the hepatic confluence in the other (12.5%) which is classed as Huang Type A2.

The age range of the patients who underwent ERCP was 27 – 85 years, with 6 being males (40%). In 11 of the ERCP images (73%) the quality was appropriate to identify the exact anatomy. Huang Type A1 pattern was observed in 7 patients (63.6%), and in 2 (18.2%) Huang

Type A2 was seen. In one case the right posterior hepatic duct inserted into the common hepatic duct classed as Huang Type A4 (9%).

### **Conclusions**

Majority of the biliary tracts showed Huang type A1 which is described as the typical variant, followed by the Huang Type A2. These findings are compatible with reported data. Rather uncommon Huang type 4 variant was also observed.

### **PP31**

#### **Barriers for implementing evidenced-based practice among nurses in selected hospitals in Sri Lanka: A mixed method study**

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### **Background**

Evidence-based practice (EBP), integrates the current best available evidence from studies with clinical expertise, patient preference and values to improve the quality of health care. The maximization of EBP in Sri Lankan nursing context, will lead to the pretension of professional autonomy, improve professional competency and continuous knowledge upgrade.

### **Objectives**

The study aims to identify the barriers to implementing EBP among staff nurses in selected hospitals in Sri Lanka

### **Methods**

This mixed method study was carried out on total population sample of 374 nurses who were attached to medical and surgical units in National hospital Kandy and Teaching hospital Peradeniya. A 5-point Likert barriers scale developed by (Funk et al., 1991) and a validated semi-structured interview guide were used to identify the barriers for utilizing research evidences and implement EBP. The data was analyzed using descriptive and Chi-square test in SPSS, thematic analysis was conducted to analyse the qualitative data.

### **Results**

A total of 301 (responding rate: 80.05%) nurses were participated, whereas 257 (83.7%) were diploma holding nurses, while 47 (15.6%) had a baccalaureate degree. The main factors contributing to the gap in EBP, as agreed upon by the participants, were lack of understanding and authority to change traditional approaches, inadequate support and guidance from

senior nurses and administration, insufficient facilities, staffing, and time. In addition, inadequate time ( $p=0.001$ ) and lack of understanding ( $p=0.015$ ) and authority ( $p=0.002$ ) were significantly associated with nurses' years of experience. Participants identified the need for continuous professional development, better facilities, improved interpersonal collaboration, and dedicated time as the major concerns.

### **Conclusions**

The findings of this study indicate that nurses face various obstacles, which make it difficult to implement evidence-based practice. It is acknowledged that closing the gap requires a collective effort, and examining different viewpoints on the issue would be a logical next step in this research.

### **PP32**

#### **Designed and implementation of a T-ARMS-PCR assay to genotype genetic variants associated with retinoblastoma in a cohort of Sri Lankan population**

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### **Background**

Retinoblastoma (RB) develops from cells that have cancer-predisposing variants in both copies of RB1 gene. About 60% of affected individuals have unilateral retinoblastoma with a mean age of diagnosis of 24 months; about 40% have bilateral retinoblastoma with a mean age of diagnosis of 15 months and RB is the most common intraocular malignancy, characterized by high mortality if not detected early and treated promptly. Due to its familial and sporadic occurrence has led to the identification of the first tumor suppressor gene RB1. The rare childhood malignancy retinoblastoma serves as one of the most important models in modern cancer genetics and is the most common ophthalmic malignancy in children under the age of five years in developing countries. Mutations screening is important for risk assessment in future siblings and offspring of RB patients.

### **Objective**

To design and implement a novel genetic assay to identify genetic variants associated with Retinoblastoma in a cohort of Sri Lankan Patients.

## Methods

A prospective descriptive study was carried out with 59 patients referred to the Eye unit of the lady Ridgeway hospital, Colombo, Sri Lanka. Genomic DNA of 59 patients were genotyped using primers designed for Tetra-primer amplification refractory mutation system PCR (T-ARMS-PCR). Recruitment of donors was carried out after obtaining necessary approval from the Ethics Review Committee of the University of Colombo.

## Results

The median age at diagnosis was 2 year and 7 months. Female to male ratio was 3:2. Out of which, 63% had unilateral retinoblastoma and 36% had bilateral retinoblastoma. Family history of RB was seen in 6.78 % patients. Also, germline mutation was detected in 53% of bilateral/unilateral patients. Most cases were advanced group D at presentation. All patients tested homozygous for the ancestral allele for both rs587776789 and rs121913305 variants of the RB1 gene.

## Conclusion

This assay can be introduced as a sensitive, specific and simple diagnostic technique for screening related genetic variants for Retinoblastoma in the Sri Lankan population.

## PP33

### A Review on Clinical Education in the new era

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## Background

Clinical teaching and learning is the foremost component in medical education. Clinical education has adapted to various ways of learning in the current era. Still most clinicians are still holding on to the traditional way of bedside teaching. However, students need to be trained in different learning methods to achieve learning outcomes and fulfill the needs of society.

## Objective

To explore various teaching and learning methods in clinical education

## Methods

Integrative review was chosen as the methodology to find various methods of teaching and learning in clinical education from different types of research. PubMed and google scholar

were searched between 2015 to 2022 for full text articles regarding terms related to “clinical teaching and perception of undergraduate medical students”

### **Result**

Most students perceived that the different methods of teaching were beneficial in addition to bedside teaching. The identified methods were case based discussions, small group learning, role plays and simulation-based learning. In small group teaching, students actively participate to enhance their understanding and team building skills. In case-based discussions critical thinking and reasoning abilities are achieved by students which are essential for diagnosing and managing patients. Quality communication was considered as an essential component which students could achieve by doing role plays among peers or standardized patients. Simulation based learning methods make the students become confident independent thinkers and make sense of ownership in their learning process. In simulation training, students could learn in a risk-free environment which ultimately trains them to practice in the real clinical environment.

### **Conclusion**

The clinical teaching and learning methods must evolve to adapt to the new environment since physicians may treat patients in different circumstances in future. It is evident that medical education needs to focus on producing competent physicians to face the advances of healthcare globally.

### **PP34**

#### **“Connectivism” as a theoretical framework underpinning social media usage for higher education in the digital age – A scoping review**

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### **Background**

A key trend in the current higher education is the usage of social media in teaching and learning. The integration of social media into formal education should be accompanied by a sound theoretical framework, in order to provide a meaningful education. “Connectivism”, is a learning theory that intends to explain how learning occurs in the digital age. The eight

principles of connectivism explains how learning occurs through formation of connections with information sources.

### **Objectives**

The objectives of this scoping review were to examine how connectivism has been used to incorporate social media into higher education and understand the impact of social media usage, with connectivism as the theoretical framework on the success of student learning.

### **Methods**

Nine databases were searched for eligible publications including, SCOPUS, EBSCOhost, Emerald, JSTOR, Taylor and Francis, PubMed (MEDLINE), ERIC, ACM and IEEE Xplore. The search was conducted from February, 2022 to April, 2022. The review was limited to publications in English language. The search retrieved 1560 records of which 23 articles were selected according to inclusion and exclusion criteria. The studies which were conducted in higher education sector incorporating social media in the teaching and learning process according to the principles of connectivism were included in the review. The review was limited to publications in English language.

### **Results**

13% of studies reported improved academic performance, 13% promoted self-regulation of learning, 17% provided an open and flexible learning environment, 30% enhanced interactions with peers and teachers and 35% fostered collaborative learning as outcomes of using social media in while using connectivism as the theoretical framework. Social media has been used as a platform to encourage communication outside the traditional face-to-face classroom, provided a learning platform where students can easily manage academic resources and has helped to transform the student from passive consumer of knowledge to active social learner.

### **Conclusion**

Bringing connectivism to higher education is a method to incorporate, social media that students use to learn, communicate and socialize in this digital age, to formal education. The successful integration of principles of connectivism into social media usage in higher education has a positive impact on students' learning and promotes collaborative learning.



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### Background

Acute appendicitis is one of the common causes of acute abdomen which is mainly diagnosed on clinical assessment and simple laboratory investigations. Objectives : This study was done to determine the diagnostic accuracy of clinical judgment and its histopathological correlation.

### Methods

A retrospective review of patients with a preoperative diagnosis of acute appendicitis was done at the Department of Surgery at the Teaching Hospital Kuliypitiya. It reviewed patients admitted from 1st of January 2020 to 30th of November 2020. Thus 108 patients with clinical diagnosis of acute appendicitis who underwent operative procedures were included. The histopathological reports were reviewed and correlated with clinical diagnosis. The operative observation of gross appearance of appendix was compared with histological reports.

### Results

Out of 108 patients, 79 (73.15%) patients were found to have some stage of appendicitis histologically. The most common intra-operative finding was acutely inflamed appendix which accounted for 56.48%. It was followed by suppurated appendix and complicated appendix accounting 17.5 % and 12.0 % respectively. The age distribution was between 7 years and 72 years with mean of 31.5 years. Male and female ex distribution were 47.22% and 52.78% respectively. High white cell count seen in 79.50% patients with increased neutrophils in 65.74% patients. CRP was elevated among 70.50% patients. On gross appearance of the appendix intraoperatively 13.88 % had normal looking appendix and the rest of the appendix showed various stages of inflammation ranging from simple appendicitis to complicated appendix.

### Conclusions

Surgeon's clinical skill and basic investigations are good enough in diagnosis of acute appendicitis when auxiliary diagnostic modalities are not available to enhance the diagnostic accuracy. Intra operative gross appearance along with the experience of the surgeon is

enough to establish an accurate diagnosis. The final diagnosis must be made with the histology.

## PP36

### Clinicopathological characteristics of young patients with oral squamous cell carcinoma – A Hospital based study.

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#### Background

Oral squamous cell carcinomas (OSCCs) are the most common malignant epithelial tumours of the oral cavity. Although OSCCs are more frequent among elderly people, recent literature shows an increasing tendency among young individuals. Association between Human Papilloma Virus (HPV) and young patients with OSCC also highlighted in recent literature. This study aims to identify the clinical and pathological characteristics of young patients with OSCCs and the relationship between individual characteristics.

#### Methods

This is a retrospective cohort study of OSCCs over a five-year period starting from 2018 at a tertiary care dental hospital in Sri Lanka. Patients under the age of 45 years with a histologically confirmed diagnosis of OSCCs were selected from cancer registry data. Archival histopathology reports and request forms were used to retrieve clinical and pathological data.

#### Results

A total of seventy-seven patients who were age 45 or younger, with the diagnosis of OSCCs were included in this study. The mean age at the time of diagnosis was 38.83 years with a range of 14 to 45 years. There is a marked male preponderance (85.7%). The most common site of involvement was lateral border of the tongue (40.3%), followed by buccal mucosa (33.8%). Most were well differentiated tumors (67.5%). The presence of individual cells at the invasive front, an adverse prognostic factor was observed in 50.7% of patients, followed by type III pattern of invasion (34.2%). Perineural invasion and vascular invasion have been identified in 20.8% and 7.8% of cases respectively. In 59.7 % the depth of invasion extended up to skeletal muscles, of which 61.3% showed Type IV pattern of invasion. Most of the tumours (51.9%) showed moderate lymphoplasmacytic host response. We could not find

specific histopathological or cellular features in the dysplastic epithelium adjacent to the invasive carcinoma suggestive of any HPV association.

### **Conclusions**

This study showed that OSCCs of young individuals have marked male predilection which is comparatively higher than oral squamous cell carcinomas of older individuals. As such further research is needed to elucidate causative factors.

### **PP37**

#### **Injury patterns and nature of the road traffic crashes reported to the Accident Service Unit in Colombo South Teaching Hospital and its associated factors**

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### **Background**

Road traffic crashes add an additional burden to healthcare systems worldwide.

### **Objectives**

To describe the injury patterns and nature of road traffic crashes (RTC) reported to the Accident Service Unit in Colombo South Teaching Hospital (CSTH) and its associated factors.

### **Methods**

A descriptive cross-sectional study was carried out among the systematically sampled 384 patients admitted to the Accident Service Unit of CSTH during 2020 and 2021. Injury Severity Score (ISS) was calculated in each patient and those above 15 were considered as having major trauma. The ISS score was obtained by the sum of the 3 highest squares of the score. The level of significance was taken at  $P \leq 0.05$ . Data was analyzed using SPSS software (27.0).

### **Results**

Almost half were less than 40 years (54.4%) and the majority were males (86.2%). The most affected body part was the lower limb (54.2%) followed by the head and neck (39.8%). The commonest injuries were lacerations (51.8%) and fractures (51.3%) respectively. According

to the ISS scale, most were minor injuries (90.9%). There were only 35 major injuries. The clinical aspects of injury severity were assessed by FAST scan and the majority were negative (96.6%). Of the total, 87.5% were not under the influence of alcohol on admission. Most RTCs occurred at night (52.3%) and during weekdays (64.8%). The most affected party was drivers (67.2%) and the type of vehicles involved were motorcycles (65.9%) and three-wheelers (20.3%). A positive mild correlation was observed between the age and the duration of hospitalization ( $r=0.15$ ,  $p=0.002$ ). A moderate positive correlation was observed between the duration of hospitalization and the ISS score ( $r= 0.50$ ,  $p<0.001$ ). There is a statistical significance between age and the duration of hospitalization ( $p=0.007$ ) and being a male and the affected body area ( $p<0.001$ ).

### **Conclusions**

The majority were minor injuries according to the ISS score and were motorcycles. The commonest were lacerations and followed by fractures. Motorcyclists and male gender have the highest risk of contracting RTCs. Lower extremities are more prone to be injured and increasing age lengthens the hospital stay.

### **PP38**

#### **Anomalous insertion of an inferior mesenteric vein varix: A cadaveric case report**

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### **Introduction**

Inferior mesenteric vein (IMV) is a large tributary of the portal vein formed by the union of the superior mesenteric vein (SMV) and splenic vein.

### **Case report**

During a routine cadaveric dissection of an adult Sri Lankan male, an enlarged, varicose IMV was observed. Proximally the IMV was attached to the SMV forming the portal vein by joining the splenic vein. Distally it directly joined the left renal vein, forming a venous arch, connecting the systemic and portal venous systems. The superior rectal, sigmoid, and left colic veins were draining into this arch. Left testicular vein was draining into the IMV prior to its connection with the left renal vein. The liver showed gross morphological features of cirrhosis.

### **Discussion**

IMV usually drains the large intestine, sigmoid colon, and rectum. During development, IMV is formed by the fusion of several veins in the mesentery of the hindgut, and they don't have

connections with renal veins. While there can be different end-drainage patterns, the common variations are drainage to the SMV and to the SMV-splenic vein confluence. Literature reports varicose formation in IMV as well as SMV.

Development of portal varices is a result of elevated pressure gradient between systemic and portal circulations. In cirrhosis of the liver, hepatocytes undergo fibrosis leading to nodular formation, gross distortion of liver architecture and impairment of its function. The end result will be portosystemic collateral formation with or without varicosities.

The index case reports a direct connection between the systemic and portal circulation through IMV as it joins the portal vein and left renal vein at its ends, thus forming a venous arch. An additional portosystemic connection is present through the left testicular vein. As no other varicose veins could be detected, this can be considered an isolated case of giant IMV varix.

PP39

**Descriptive study of 132 primary oral squamous cell carcinomas from the oral pathology diagnostic service in Teaching Hospital Karapitiya, Galle, Sri Lanka**

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**Background**

Cancer of the oral cavity, lip and pharynx is the most common cancer among Sri Lankan males, and the oral cancer mortality rate of Sri Lanka is one of the highest in the world.

**Objectives**

The main aim of this study was to outline the selected clinico-pathological characteristics of primary Oral Squamous Cell Carcinomas (OSCC) reported at the oral pathology diagnostic service in teaching hospital Karapitiya, Galle, Sri Lanka over a period of 22 months.

**Methods**

132 biopsies diagnosed as primary OSSCs at the oral pathology unit in teaching hospital Karapitiya, from August 2019 to May 2021, were included in the study sample.

**Results**

The study sample comprised of 132 primary OSSCs. Majority of OSSCs (62%) were reported in the patients in the 5th to 6th decades of life, with a male predilection (86%). The most common sites of occurrence of primary OSCC were tongue (34%) and buccal mucosa (25%) respectively. A considerable proportion of primary OSSCs (49.2%), were in stage III & IV. Out of 132 of primary OSSCs, 14 patients developed recurrences within 18 months following completion of primary treatment.

**Conclusions**

This study confirms previously established epidemiological data of OSSCs in Sri Lanka with respect to age, gender and site of distribution. In addition, the late initial presentation of OSCC patients to the hospital emphasizes the importance of implementing more awareness programmes and early detection strategies at the community level.

## PP40

### Analysis of chemicals present in slaked lime used with betel quid in Jaffna District: Presence of carcinogenic chemical Rhodamine B

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#### Background

In 2019, the crude incidence rate for Oral Cancer (OC) was 20.6 and highest was seen in Jaffna district. Betel chewing has been identified as one of the leading risk factors for OC. The betel quid contains betel, slaked lime, tobacco and arecanut. The natural slaked lime is off-white in colour. The varying colour of the slaked lime from off white to bright pink is suggestive of a colouring pigment.

#### Objectives

To investigate the chemicals incorporated in slaked lime.

#### Methods

Eighteen slaked lime samples were obtained from different geographical locations covering entire Jaffna district. Slaked lime samples were dissolved in distilled water and pink colour was extracted. The mixture was centrifuged and the supernatant was subjected to UV visible spectroscopic test (absorbance at 554nm), fluorescence excitation and emission tests. A mixture of laboratory grade calcium hydroxide with Rhodamine B was used as the reference. Tests were triplicated.

#### Results

Out of the 18 test slaked lime samples 15 were positive for Rhodamine B (83.3%). Results of the UV visible spectroscopic test of the slaked lime extract and laboratory reference of Rhodamine B spectrum were similar. Both test samples and the laboratory reference gave similar lambda max( $\lambda_{max}$ ) peak at 554nm wavelength indicating the presence of Rhodamine B. Fluorescence excitation and emission test result for slaked lime extraction was also similar to the reference Rhodamine B sample. Concentrations of Rhodamine B in slaked lime ranged between 9.72-124.38  $\mu\text{g/g}$  (mean  $45.84 \pm 36.89$ )

#### Conclusions

Rhodamine B were detected on 83.3% of samples taken from Jaffna district. Rhodamine B is carcinogenic chemical which is officially prohibited to be used in food industry. The Ministry of Health has been officially informed about the presence of Rhodamine B in slaked lime.

More detailed investigations are in progress to detect whether any other carcinogenic elements are present in slaked lime.

#### PP41

### Multidisciplinary management of patients with severe generalized periodontitis: A case series

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#### Introduction

Health of the periodontium is of paramount importance in functionally stable, esthetically pleasing dentition. Periodontitis is the irreversible destruction of periodontium, as an inflammatory response to persistent, dysbiotic oral biofilm in susceptible individuals. Clinically, this can be presented as bleeding gums, halitosis, mobility and pathological migration of teeth and ultimately tooth loss. These negatively impact the esthetic, functional and psychosocial aspects of oral health related quality of life. Severe periodontitis affects 11% of adults worldwide, making it the sixth most prevalent inflammatory disease of mankind.

#### Case report

This case series describes the clinical journey of three patients with severe generalized periodontitis to achieve esthetically pleasing and functionally stable dentition using multidisciplinary dentistry. Following Non-Surgical Periodontal Therapy (NSPT) and surgical care, patients were followed up regularly and provided necessary maintenance care including reinforcing oral hygiene instructions, prophylaxis scaling and RSD. Once the periodontal stability is achieved, Orthodontic and advanced restorative treatments were provided under the guidance of a multidisciplinary team to elevate their oral health related quality of life.

#### Discussion

Management of periodontitis is always challenging as it is a multifactorial disease and largely relies on the compliance of the patient. Periodontal management is done in two main phases. Non-surgical periodontal therapy (NSPT) includes controlling the biofilm through optimizing oral hygiene measures, risk factor control and non-surgical root surface debridement (RSD). NSPT is the cornerstone of the management and adequate time and care should be spent achieving the best outcome. Following a successful NSPT, surgical interventions can be performed for indicated cases aiming at disinfection and/or regeneration. Since periodontitis is a lifelong disease, regular maintenance is vital. Once the periodontal condition is stabilized,



functional and esthetic issues can be addressed under careful planning with other disciplines, such as orthodontics, restorative dentistry and prosthodontics.

## PP42

### Giving the living hope-Prosthetic rehabilitation after maxillectomy; A case series

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#### Introduction

Acquired defects in the palate, lead to altered speech, deglutition, and facial form thus possessing a deep impact on the individual. Postoperatively, these patients are in a vulnerable state as the trauma of surgery added up with the actual loss of part of the 'self' in them. Altered facial symmetry, loss of speech, loss of ability to masticate, nasal regurgitation, and esthetics are pushing them to major distress. Therefore, prosthetic rehabilitation of these defects is important to restore both function and esthetics thus improving the patient's quality of life.

#### Case Report

Case 01 - A 17-year-old male patient presented following a left-side maxillectomy procedure, diagnosed with hemangiopericytoma in his nasal cavity. The patient was provided a surgical obturator in his early healing phase. Following the successful completion of chemotherapy and radiotherapy he was provided a metal-based definitive obturator prosthesis.

Case 02 - A 51-year-old male patient presented requesting a solution for his palatal defect following the surgical resection of a squamous cell carcinoma 3 years ago. He had a great psychosocial impact with his lost function and had neglected his oral hygiene too. His oral hygiene was improved and provided an intermediate acrylic-based obturator followed by esthetic restorations to improve the esthetics.

Case 03 - A 74-year-old female patient presented with a surgical defect and was using her previous intermediate surgical obturator for more than 6 years. She neglected her oral hygiene and had trouble eating and mastication due to a poorly retained maxillary obturator and missing lower teeth.

#### Discussion

Maxillofacial defects leave a residual defect intraorally and extraorally, subjecting the patient to a deep psychosocial impact. Therefore, oral health negligence can be seen in patients who had unrestored oral defects. Adjuvant oncotherapy following surgery makes prosthetic

management a challenge. However, giving them meaningful hope for the living can be granted with successful prosthetic rehabilitation.

### PP43

#### Avulsed teeth: why those should be replanted? A case series

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#### **Introduction**

Tooth avulsion is considered as one of the serious dental injuries and a real dental emergency. Avulsion constitutes 0.5-16% of all dental injuries. Unless in few specific individual situations, the treatment of choice is to replant the tooth even if it is delayed.

#### **Case Report**

The Five cases described here are avulsed and replanted central incisors followed up in Restorative Dentistry Unit B, Institute of Oral Health, Maharagama. Upon review all teeth were found to undergo different complications which were managed promptly. Three teeth are still serving in the dental arch whilst the other two were removed and replaced.

#### **Discussion**

Prognosis of an implanted tooth largely depends on the emergency treatment carried out. Young permanent teeth with open apices can have good prognosis while some teeth, particularly when replanted later and with closed apices might have poor outcome and later deemed for extraction. Though the prognosis is unpredictable, replantation is the recommended management option for an avulsed tooth due to several reasons. Replanted tooth will immediately restore the esthetics while maintaining bone and gingival contours. It is not uncommon the replanted teeth to have complications such as non vitality, replacement root resorption and inflammatory root resorption. Close monitoring of all replanted teeth is essential. Timely management of the complications will improve the prognosis of replanted teeth and preserve both hard and soft tissue profiles so that many available prosthetic replacement options would be less complicated if those teeth are lost one day.

## PP44

### Management of post traumatic pathological root resorption; two case reports

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#### **Introduction**

Root resorption is non-bacterial destruction of dental hard tissue due to the interaction of clastic cells and dental hard tissues (Tronstad,1988). Pathological root resorption has been broadly divided into two categories as internal and external (Andreasen and Andreasen). Although the aetiology remains unknown, there are multiple predisposing factors for root resorption. Dental trauma is one of the commonest causes which contributes 15% cases of root resorption (Heithersay, 1999).

External cervical resorption and internal inflammatory resorption are two main entities which can compromise the prognosis of traumatized teeth. Early lesions are asymptomatic in both instances unless it has progressed into advanced stages where pulp is involved.

#### **Case report**

Case one is a 24-year-old male patient presented to the clinic complaining of discoloured maxillary central incisor. He had a history of trauma which was not followed up. The tooth was symptomatic and was nonvital. Radiological features of external cervical resorption were evident. Root canal treatment was initiated with calcium hydroxide and obturation was done simultaneously with surgical repair of the resorptive defect.

Case two is a 23 year old female patient complaining of discoloured maxillary central incisor. She also had a previous history of trauma which was not followed up. Tooth was non vital. Radiologically internal resorption was confirmed and root canal treatment was initiated with calcium hydroxide and canal was obturated with mineral trioxide aggregate (MTA). Discolouration was managed with a crown restoration.

#### **Discussion**

Early diagnosis is critical in root resorption because treatment outcome varies depending on the severity of the lesion. Special techniques such as parallax radiographs or CBCT aid in diagnosis and evaluating the extent of the lesion. Differentiate external resorption from internal is important as treatment options depend on the type of resorption. Material selection is another crucial factor for successful treatment outcome in these lesions.

**PP45**

**Distribution of delivery complications and their association with antenatal obesity/overweight among pregnant women in Anuradhapura, Sri Lanka**

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**Background**

Sri Lanka is targeting to achieve a maternal mortality ratio of 16/1000 live births by 2025 which was 29.2 in 2019. Addressing non-communicable diseases and indirect obstetric causes is crucial and a substantial proportion of adverse perinatal outcomes can be prevented by pre-pregnancy weight optimization.

**Objectives**

To describe the distribution and determine the association of vaginal tears and induction of labour with antenatal obesity/overweight among women delivered in Teaching Hospital Anuradhapura (THA), Sri Lanka

**Method**

An unmatched case-control study nested in a population-based cohort study was conducted in Anuradhapura. Pregnant women (N=676, Cases: Controls =1:4) who attended booking visit at 12 weeks of gestation within a 3 month period and delivered at Teaching Hospital were recruited. Pre-pregnancy overweight and obesity was defined as per the Asia Pacific thresholds for BMI, overweight ( $\geq 23$  Kg/m<sup>2</sup>) obesity ( $\geq 25$  Kg/m<sup>2</sup>). Underweights excluded. Delivery data were collected from hospital records. Proportions, OR 95% CI and Chi-square tests were computed at 5% level of significance.

**Results**

Sample mean age at conception was 27.9 years (95% CI;16 to 46 years) where 7.6% were teenagers. Postpartum hemorrhage was recorded as 4.6% (n=41). Induction of labor was among 36.4%. Out of total inductions 31.8% had multiple methods used and was high among overweight and obese. (OR 1.64; 95%CI 1.02-2.26, p=0.05). Of the total sample studied, 12.8 % (n=113) had vaginal tears among which 7.5% and 4.5% were first- and second-degree respectively. There was an increased risk of vaginal tears among obese and overweight but insignificant, OR 1.34 ((95% CI 0.98-1.99, p $\geq$ 0.05).

## Conclusion

Despite the numerous measures to reduce maternal morbidity and mortality, vaginal tears and failure of induction of labor have high incidence, more among overweight/obese and less attention was paid up to now. Thus, need further explorations on the topic for ending preventable maternal deaths in Sri Lanka.

## PP46

### Investigation of knowledge regarding antimicrobial resistance among general public living in the Northern and Eastern provinces of Sri Lanka: A descriptive cross-sectional survey

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## Background

Antibiotics are essential for the treatment of bacterial infections. Antimicrobial resistance (AMR) is a global public health problem that threatens the treatment and prevention of bacterial infections. Excessive and irrational use of antibiotics leads to antimicrobial resistance evolution.

## Objectives

To explore the knowledge regarding antimicrobial resistance among the public living in the Northern and Eastern provinces of Sri Lanka.

## Methods

A descriptive cross-sectional study using convenience sampling technique was conducted between October 2021 and January 2022. A self-administered and pre-tested questionnaire was distributed among 780 participants. We have investigated the knowledge of antimicrobial resistance among the public attending the Teaching Hospital Jaffna (THF) and Kalmunai base hospital (KBH). Descriptive data analyses were undertaken including frequencies and percentages. Chi-square analysis was used to test the significant associations between different categorical variables.

## Results

The samples comprised more females (61.9%) than males, the median age of the participants was 26-34 (IQR 20-25), the majority (33.5%) were aged between 26-34 years and 43.1% completed secondary education. The terms antibiotic resistance, superbugs, antimicrobial

resistance, AMR and drug resistance are known by the majority of the respondents who have college/ university education level knowledge ( $p < 0.05$ ). The majority of the participants (58.3%) incorrectly reported as true for the statement: “antibiotic resistance occurs when your body becomes resistant to antibiotics and they no longer work as well”. The majority of respondents agreed strongly with the statements “People should use antibiotics only when they are prescribed by a doctor” (47.9%),  $p = 0.000$  and “People should wash their hands regularly (64.4%),  $p = 0.000$ ). One-third of the respondents strongly agreed for the statement “Antibiotic resistance is one of the biggest problems the world faces”  $p = 0.000$ . A higher level of education was significantly associated with better knowledge of antimicrobial resistance ( $p = 0.001$ ).

### **Conclusion**

These findings identify some misconceptions about antibiotics and the development of AMR. However, a good understanding on the knowledge of AMR was identified among the higher educational population in the Northern and Eastern provinces of Sri Lanka.

### **Acknowledgment**

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### **PP47**

#### **Adherence to statin and factors associated with adherence among patients with ischemic heart disease at Teaching hospital, Jaffna, Sri Lanka**

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### **Background**

Cardiovascular disease is a major public health issue that accounts for 30% of all fatalities worldwide. Poor adherence to statin medication has been linked to poor clinical outcomes and increased healthcare costs.

### **Objectives**

To assess the adherence to statin and factors such as socio-demographic and socio-economic factors, health care team and system-related factors, disease-related factors, therapy-related factors and patient-related factors associated with adherence among the patients with Ischemic Heart Disease, attending Cardiology clinic, Teaching hospital, Jaffna.

## Methods

A descriptive cross-sectional study was conducted among 430 patients with Ischemic Heart Disease at the Cardiology clinic, Teaching hospital, Jaffna. An interviewer-administered questionnaire was used to collect data. A non-validated questionnaire with three questions was used to assess the medication adherence. Medication adherence was categorized as high, medium, and poor levels. The Chi-Square test was used to assess the association between adherence and factors at the 95% confidence interval and a P value less than 0.05 was considered as a significant level. Data was analysed using SPSS version 25. Ethical clearance was obtained from the Faculty of Medicine, University of Jaffna.

## Results

The response rate was 96.51% (N=430). 43.7% of patients showed medium adherence, 38.4% showed high adherence and 17.9% showed low adherence to statin. Consultation (p=0.042), clinic visit (p=0.023), using reminders (p=0.023), polypharmacy (p=0.038), support from caregivers (p=0.014) and co-morbidity diseases (p=0.034) showed statistical significance with medication adherence. However, socio-demographic factors, duration of disease/treatment, lifestyle modification, patients' beliefs and using traditional methods didn't associate with adherence. Patients should be encouraged to attend the clinic regularly, get adequate consultation from their physician & to use appropriate reminder system to improve the adherence. Common reasons for non-adherence were being busy/late for work (19.3%), having side effects (7.9%), lack of reminders (7.4%), taking too many medications (6.7%) and being away on weekends/vacations (5.1%).

## Conclusion

The majority of the participants had medium adherence to statin. The major reason for the non-adherence was busy or late for work.

## PP48

### Dietary practices and associated factors among pregnant women in Nugegoda, Maharagama and Borelesgamuwa Medical Officer of Health areas in Colombo district

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## **Background**

During pregnancy, intake of an adequate and nutritious diet is important for successful pregnancy outcomes.

## **Objectives**

To describe the dietary practices and associated factors among pregnant women in selected Medical Officer of Health areas (MOH) in Colombo district.

## **Methods**

A descriptive cross-sectional study was conducted among 150 pregnant women in Nugegoda, Maharagama and Borelesgamuwa MOH areas in all trimesters of pregnancy. Multistage random sampling method was used to select the antenatal clinics and study participants were selected consecutively during their routine antenatal follow-up. Data was collected using a pretested interviewer-administered questionnaire. Good knowledge, positive attitude and good practices were categorized to scores above or equal the median values of 82.5, 62.3, and 90.0 respectively. The possible maximum score for each component was 100 points. Statistical significance was taken as  $P < 0.05$ .

## **Results**

Of the study participants, mean age of the study population was 29.41 (SD=4.1). Only 11 participants (7.7%) had a family income less than Rs. 30,000 and only 9 (5.9 %) had an education level below O/L. Majority [n=96, (64%)] were currently employed. Majority of the population (n=78;52%) were in their first pregnancy. Almost half had good knowledge (n=80; 53.3%), positive attitudes (n = 82; 54.7%) and good practices (n = 89; 59.3%) on nutrition during pregnancy. Higher education level and higher income of the pregnant woman were significantly ( $p < 0.05$ ) associated with good dietary practice. There was a significant association between good levels of nutritional knowledge and good dietary practices among the study population ( $p = 0.004$ ). Assessment of the attitude of pregnant women on myths and beliefs on certain types of food intake during pregnancy revealed that of the women with positive attitudes showed good dietary practice ( $p = 0.026$ )

## **Conclusions**

Nearly half of the study population demonstrated good dietary practices and, with increasing levels of knowledge about nutrition, it has a positive impact on the dietary practices. Education level and income have positively affected dietary practices during pregnancy.



## PP49

### Cardiovascular disease risk level and associated factors among medical clinic attendees between 40 to 70 years attending Colombo South Teaching Hospital

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#### Background

Cardiovascular diseases (CVD) are increasing, and it has been on a rise all over the world with Sri Lanka being no exception.

#### Objectives

To determine the cardiovascular disease risk level and associated factors among medical clinic attendees between 40 to 70 years attending Colombo South Teaching Hospital (CSTH).

#### Methods

A descriptive cross-sectional study was conducted among 173 patients between 40 to 70 years attending the medical clinic at CSTH. Systematic random sampling was carried out to recruit the participants. Study sample only included patients without established CVD. Data was collected using a pretested interviewer administered questionnaire and data extraction form to collect information from the clinic book. The cut off levels for associated factors were adapted from Non communicable disease risk factor survey (STEPS survey) Sri Lanka – 2015 and WHO/ISH risk prediction charts. P = 0.05 was considered as statistically significant.

#### Results

Majority was females (57.2%, n=99) and 56.1% (n=97) of the sample was between 56 - 70years. Median age was 58 (IQR=15). When the cardiovascular disease risk level for this study sample was calculated, a majority was at a low risk of CVD (78.6%, n=136) while 15.6% (n=27) of them had a moderate risk and only 5.8% (n=10) were at a high risk. When considering the associated factors, Diabetes mellitus status (p=0.000) showed a statistically significant association with CVD risk level in this study sample. Non modifiable risk factors did not show any significant association with CVD risk level.

## Conclusion

Although the majority was at low risk, a considerable proportion was at moderate and high risk. It is required to give proper advice and guidance by the healthcare sector to high-risk individuals to prevent further burden of cardiovascular diseases.

## PP50

### Vitamin D deficiency and gestational diabetes mellitus: A preliminary study among pregnant mothers attending antenatal clinics at Colombo South Teaching Hospital, Kalubowila

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## Background

During pregnancy, maternal vitamin D status plays a crucial role in maintaining calcium homeostasis and regulating glucose metabolism in the body. Thus, it is an important determinant that should not be overlooked. Recent studies indicate that maternal vitamin D deficiency may increase the risk of developing gestational diabetes mellitus (GDM).

## Objectives

To compare maternal vitamin D level between pregnant mothers with and without GDM, attending antenatal clinics at Colombo South Teaching Hospital (CSTH), Kalubowila.

## Methods

Sixty pregnant mothers with GDM and 60 without GDM) at 24-28 weeks were recruited in the nested case control study using convenience sampling. Pregnant mothers having multiple pregnancies and pre-existing diseases were excluded. Participants were selected according to IADPSG criteria for diagnosis of GDM (Fasting  $\geq 92$  mg/dl, 1- hour  $\geq 180$  mg/dl, 2 hour- 153 mg/dl). About 3.0ml of blood samples were collected to analyze serum 25(OH)D levels. Ethical approval for the study was obtained from the Ethics Review Committee, USJ and CSTH. Binary logistics and other descriptive statistics in SPSS version 23.0 was used in statistical analysis.

## Results

Mean ages were 30.47±5.03 years and 29.72±5.23 years, and mean Booking BMI was 27.77±4.23 Kgm<sup>-2</sup> and 26.94±5.79 Kgm<sup>-2</sup> in case and control groups, respectively. Mean 25(OH)D level was lower among GDM group than controls (15.57±4.97 ng/mL vs 19.77±5.94 ng/mL). The proportion of pregnant mothers having vitamin D deficiency (<10 ng/mL) was higher among those with GDM compared to controls (11.7% vs 5.0%). According to Binary Logistic Regression analysis, a significant association was observed only between incidence of GDM and maternal 25(OH)D level (p<0.01).

## Conclusion

Present study shows that maternal vitamin D level is lower among pregnant mothers with GDM. More randomized controlled trials and prospective cohort studies must be conducted to determine role of vitamin D in the development of GDM.

## Acknowledgement

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## PP51

### Parental knowledge and associated factors on symptoms and first aid for seizures in children attending a tertiary care hospital in Colombo district

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## Background

Seizures are the most common neurological emergency among children. Stigma, misconceptions and malpractices regarding seizures among parents affects children physically and psychologically. Simultaneously it also has an impact on their growth and development. Appropriate first aid minimizes the probability of harm during seizures and therefore it is prudent to identify the common malpractices regarding seizures among the parents of children with seizures.

## **Objectives**

To describe the parental knowledge on symptoms and first aid for seizures and associated factors of parents with children experiencing seizures attending a tertiary care hospital in Colombo, Sri Lanka.

## **Methods**

A descriptive cross-sectional study conducted among parents of children who experienced seizures attending Colombo South Teaching Hospital. Data was collected through an interviewer administered questionnaire.

## **Results**

Majority (75.4%) had an above average knowledge on symptoms of a seizure. This was affected significantly by the age of the parent. Majority of the respondents (98.4%) had good knowledge on first aid in the event of a seizure. The gender of the parent was found to be significantly associated with the knowledge on first aid. A significant association was also found between the parental knowledge on first aid and their confidence level in performing first aid. Majority (>90%) of parents were aware of the importance of hospitalization but only 34.9% were aware on the recommended timing after which hospitalization was essential.

## **Conclusions**

Most of the participants had good knowledge on symptoms and on first aid for seizures. The knowledge on first aid was significantly better than identifying a seizure. Parents above 35 years had significantly better knowledge of symptoms while the females were better in performing first aid for seizures.

## **PP52**

### **Medication-related quality of life among older adults attending medical clinics at Teaching Hospital Kaluthara**

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## **Background**

Population aging, chronic diseases, an increased number of prescriptions, and Medication-related quality of life (MRQoL) among older adults are public health concerns and

interconnected with each other. Poor levels of MRQoL are widely reported and MRQoL directly links with medication adherence and health outcomes. Thereby exploration of MRQoL is vital among older adults.

### **Objectives**

The study aimed to assess Medication-related quality of life (MRQoL) among older adults attending Teaching Hospital Kaluthara

### **Methods**

A descriptive cross-sectional study was carried out among randomly selected 410 volunteer older adults (>65 years) attending medical clinics at Teaching Hospital Kaluthara. A pre-tested, interviewer-administered research questionnaire consisting of the MRQoLS-v1.0 questionnaire was used to assess the MRQoL. The study was ethically approved by the ethical review committee at KIU. Data were analyzed using SPSS statistical software (version 23).

### **Results**

The age ranged between 65-95 years and the mean age was 73.0 +6.8 years old. The majority were female (61.4%), Sinhalese (71.8%), unemployed (51.2%), married (47.4%), and educated up to secondary education (70.1%). Hypertension (62.9%) and Diabetes (42.9%) were highly prevalent. Commonly prescribed medicines are included Angiotensin-2-receptor antagonists (60%), GTN (70.1%), Anti-diabetics (73.6%), Analgesics (55.6%), blood coagulation-related drugs (61.4%) and Hyperlipidemia (52.2%). Polypharmacy was prevalent among 89.9% of participants. The majority reported poor MRQoL (75.7%). Further, moderate, and severe level of impairment of MRQoL was reported among 51.8% and 48.2% respectively and mild impairment of MRQoL was not reported. MRQoL was not associated with gender, ethnicity, education level, employment status, income source, self-income level and prevalence of polypharmacy at 95% confidence interval. However, it was associated with a having myocardial infarction ( $p=0.031$ ), use of Angiotensin-converting enzyme inhibitors ( $p=0.029$ ), and antimicrobials ( $p=0.011$ ).

### **Conclusions**

Poor level of MRQoL was reported among older adults. Demographic characteristics are not associated with the MRQoL. Strategies need to be taken to improve the MRQoL.

## PP53

### Knowledge and attitudes towards pulmonary tuberculosis and factors associated among general public aged 20-30 in Colombo District

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#### Background

Pulmonary tuberculosis is one of the leading respiratory diseases in Sri Lanka. After the COVID-19 pandemic, people's knowledge and attitude towards respiratory diseases has been improved.

#### Objectives

The objective of this study was to describe the knowledge, attitudes and factors associated towards pulmonary tuberculosis among general public aged 20-30 in Colombo District.

#### Methods

A descriptive cross-sectional study was conducted by snowball sampling method on a sample of 408 participants aged between 20-30 years residing in Colombo District. Data was collected using a validated, pre-tested, self-administered, structured Google form in English, Sinhala and Tamil languages consisting of 3 separate entities on sociodemographic factors, knowledge and attitude towards pulmonary tuberculosis. The knowledge level of the participants were categorized as good knowledge, average knowledge and poor knowledge and the attitude of the participants were categorized as positive attitude, neutral attitude and negative attitude. Results were analysed using SPSS software. Association of socio-demographic and other factors with the level of knowledge and attitudes were analyzed using chi square tests. Level of significance was considered as  $p < 0.05$ .

#### Results

394 persons consented to participate in this study. The response rate was 96.6%. Good level of knowledge on pulmonary tuberculosis was observed among 32.5% (n=128) of the participants where as 41.4% (n=162) had a positive attitude towards it. There were statistically significant associations between participants level of knowledge and their gender, occupation and educational level. And also, there were statistically significant

associations between participants attitude towards pulmonary tuberculosis and their age, gender, occupation and educational level.

### **Conclusions**

The level of knowledge and the attitude towards pulmonary tuberculosis affected by the participants socio demographic factors and participants who had more knowledge on the disease had more positive attitude towards the disease and it is recommended to more awareness about respiratory diseases including pulmonary tuberculosis among general public.

### **Acknowledgement**

University of Sri Jayewardenepura for funding the research

### **PP54**

#### **Anaemia in first trimester: proportion and selected causes in Colombo District, Sri Lanka**

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### **Background**

Anaemia in pregnancy is a significant global health issue that affects maternal and fetal health outcomes. In Sri Lanka, though anaemia is a public health problem among pregnant women, its prevalence and causes during the first trimester is not much explored.

### **Objectives**

The study aimed to determine the proportion of anaemia and selected causes among pregnant women in selected Medical Officer of Health (MOH) areas in Colombo District, Sri Lanka.

### **Methods**

A descriptive cross-sectional study was conducted using consecutive sampling among 355 pregnant women in their first trimester attending antenatal clinics of 4 selected MOH areas in Colombo district. Data was collected using a structured pretested interviewer-administered questionnaire and blood samples were collected for full blood count and blood picture. WHO defined cut-off values were used to categorize the severity of anaemia (non-anaemic: Hb $\geq$ 110g/L, mild:100-109g/L, moderate:70-99g/L, severe<70 g/L). Serum Ferritin was done

for anaemic mothers. Those who had blood picture findings suggestive of a haemoglobinopathy had High Performance Liquid Chromatography after correction of any iron deficiency to identify Beta thalassaemia trait. Data was analyzed using SPSS 26.0. Continuous data was described using mean  $\pm$ SD, while categorical data was described using percentages.

## Results

Mean age was 29.25 years (SD=5.51). Mean POA was 8.66 weeks (SD=2.32). Prevalence of anaemia during first trimester was 13.52% (N=355). Among anaemic, the majority (65.96%) had mild-anaemia, followed by moderate (31.91%) and severe (2.13%) anaemia. The most common cause of anaemia was iron deficiency (77.27%) followed by thalassaemia trait 11.36% vitamin B12, folate deficiency 4.55%, other 6.82%. The percentage of anaemia was higher among primigravida and multigravida with a birth space <2 years.

## Conclusions

Anaemia is an important health concern among women in their first trimester attending antenatal clinics in Colombo District. More than 75% of it is due to iron deficiency.

## PP55

### Self-medication practice among undergraduates at KAATSU International University

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## Background

Self-medication (SM) impacts both negatively and positively. However, adverse effects are common despite the safety. Undergraduates' SM practice is less explored, and evaluation of SM practice and its characteristics is vital to encourage the safe use of medicines.

## Objectives

The study aimed to assess SM practice and its characteristics (types of medicines, medical indications, and reasons for SM) among undergraduates at KAATSU International University

## Methods

A descriptive cross-sectional survey was carried out among undergraduates at KIU. A web-based research questionnaire (Google form) was circulated through official outlook email and Viber messages from January to March 2022 and 320 volunteered during the data collection



period. The stratified-random sampling method was used, and data were analyzed using SPSS version 25. The study was ethically approved by the ethical review committee at KIU

## **Results**

The mean age was 29.58 + 6.84 years. The majority were unmarried (56.9%), employed (71.6%), Sinhalese (93.1%), female (87.5%), and registered for BSc in Nursing degree (71.6%). SM practice was observed with the use of medicines for self-diagnosed disease (30%), purchasing medicines without prescriptions (22%), using previously used medicines (20%), sharing medicines (23%), and using prescribed medicines without medical consultations (23%). The majority used paracetamol against headache (78.9%), muscle and joint pain (52.1%), fever (66.7%), and menstrual symptoms (46.7%). Omeprazole and Pirton were used against gastritis (73.7%) and allergies (54.2%) respectively. Azithromycin combination preparations were used for cold/flu (37.9%) and fever (20%). Common reasons for SM were having knowledge about medication (47.27%), feeling minor issues (39.09), easy access to medicines (28%), and having similar experiences (34.5%). SM practice was not associated with age, gender, ethnicity, religion, degree program, and social status ( $p>0.05$ ). Further t-test reported a significant mean difference for the use of prescription medicines without prescription ( $P=0.001$ ) and reuse of previously prescribed medicines ( $P=0.001$ ) among nursing and other undergraduates.

## **Conclusions**

SM with antibiotics may be harmful due to the possibility of developing antibiotic resistance. Use of prescription medication without prescription and reuse of medicines are significantly associated with the degree program. Further studies and educational sessions are recommended to improve awareness of safe drug usage.

PP56

**Gender differences in body image and prosthetic satisfaction among below knee amputees in Sri Lanka**

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**Background**

A Below knee amputation is a procedure that removes below the knee of a limb. It significantly affects body image resulting in various complications. A prosthesis is expected to compensate for this loss.

**Objectives**

This study determined the interconnection of prosthesis satisfaction and body image with the duration of prosthesis use among unilateral below knee amputees based on their gender.

**Methods**

In this descriptive cross-sectional study 223 unilateral below knee amputees were interviewed at two rehabilitation centers receiving patients from all areas of Sri Lanka. Validated versions of Amputee Body Image Scale (ABIS) to measure the body image disturbance (BID) and Trinity Amputation and Prosthesis Experience Scales—Revised (TAPES-R) to assess prosthetic satisfaction were used with an IAQ to gather socio-demographical data. Ethical permission was obtained from Ethical review committee of Faculty of Medical Sciences, University of Sri Jayewardenepura (43/19).

**Results**

Majority were males (70%), married (69%) and had a transtibial amputation (54%). The mean age was 47.6 ( $\pm 14.9$ ). Patients' mean score for ABIS was 45.39 ( $\pm 16.67$ ). Prosthetic satisfaction had a positive correlation with the BID in both the genders but more strongly among females ( $r = -0.446$ ) than males ( $r = -0.279$  ( $p = 0.00$ )). The hours of prosthesis use and time with a prosthesis were not significantly correlated with overall satisfaction in any gender. Females also had a significant correlation between the aesthetic satisfaction and the body image ( $r = -0.631$ ) than males ( $r = -0.342$  ( $p = 0.00$ )). Only females had a significant correlation between hours of prosthesis use and aesthetic satisfaction ( $r = 0.462$ ,  $p = 0.00$ ). Females showed

significant correlations between functional satisfaction and BID ( $r=-0.571$ ) than males ( $r=-0.203$ ) ( $p=0.00$ ). Females also showed a significant correlation between hours of use and functional satisfaction ( $r=0.411$ ) than males ( $r=0.184$ ) ( $p=0.01$ ).

### **Conclusions**

Disagreeing with the popular belief that females look for aesthetic appearance while males look for functional aspect of prosthesis, both genders required both the aspects for prosthetic satisfaction and reduced BID. But females wanted better aesthetic and functional prosthetic satisfaction to have a better body image than the males. They also showed the need for longer period of prosthetic wear for better prosthetic satisfaction. Results suggest the need of gender specific prosthetic production and rehabilitation.

### **PP57**

#### **The Associations of Left Ventricular Systolic Dysfunction with Clinico- Epidemiological Characteristics in a Sri Lankan Elderly Population**

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### **Background**

Left Ventricular Systolic Dysfunction (LVSD) is a major cause of heart failure globally. Due to the rapidly aging population, the prevalence of LVSD in Sri Lanka may also higher, however such data are rare to locate.

### **Objectives**

To assess the clinico-epidemiological characteristics, risk factors and their correlations with LVSD and Left Ventricular Ejection Fraction (LVEF) in a Sri Lankan elderly group, compared to non-LVSD individuals.

### **Methods**

Hundred LVSD patients (LVEF  $\leq 50\%$ ) as cases and 100 non-LVSD individuals (LVEF  $\geq 60\%$ ) as controls were recruited from a tertiary care hospital from November 2020 to October 2021.

With informed written consent, data were extracted from the study participants' medical records.

## Results

82% and 80% were 65 years or older in case and control groups respectively, while the majority was males in both groups. The frequent comorbidity in LVSD patients was coronary heart disease (75%) followed by hypertension (69%) and hypercholesterolemia (60%), with statistically significant associations of those comorbidities with LVSD ( $p < 0.001$ ) as compared to non-LVSD individuals. A minor proportion of LVSD patients (7%) smoke tobacco with no statistically significant association ( $p = 0.416$ ) with LVSD. Orthopnea was the regular presenting complaint as was in 20.6% of mild and all moderate to severe LVSD patients. When comparing LVSD and non-LVSD groups, systolic blood pressure ( $145.5 \pm 18$  vs  $118.1 \pm 8.9$  mmHg), diastolic blood pressure ( $90.4 \pm 11.5$  vs  $77 \pm 7.3$  mmHg) and mean arterial pressure ( $107.4 \pm 13.9$  vs  $90.7 \pm 7.1$  mmHg) showed significant mean differences ( $p < 0.001$ ) in between two groups. While serum Potassium level ( $r = -0.405$ ,  $p < 0.001$ ) negatively correlated with LVEF, Hb level showed a positive correlation with LVEF ( $r = 0.607$ ,  $p < 0.001$ ).

## Conclusions

The periodic screening should be emphasized to detect LVSD and associated risks such as hypertension, anaemia and hyperkalaemia at an earlier stage of the disease process, thus more effectively safeguarding the quality of life of affected elderly population.

## PP58

### Facilitators and barriers to adverse drug reaction reporting from nurses in a selected hospital: A descriptive cross-sectional study

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## Background

Nurses' role in adverse drug reaction (ADR) monitoring and reporting is essential to improve patient safety. However, lower rates of spontaneous reporting seem to be a problem in the hospital setting.

## Objectives

This study aimed to evaluate the facilitators and barriers to ADR reporting among nurses in a selected public hospital setting in Sri Lanka.

## Methods

A descriptive cross-sectional study was undertaken using a self-prepared, validated, self-administered questionnaire from June to August 2022 among 423 nurses. Participants were selected by cluster sampling representing all wards and units in the teaching hospital Karapitiya.

## Results

Among the participants, 46.8 % (n=198) had more than ten years of work experience. All nurses agreed that nurses should monitor and report ADR. Only two (0.5%) participants had reported an ADR during the past six months. None of the respondents had received any training on ADR during their education or work placement. Analysis showed that 74.5% (n=315) of nurses had low-level knowledge but positive attitudes (100%) on ADR reporting. Of the participants, 412 (97.4%) were aware of the ADR reporting system in the hospital, but 88.2% (n=373) did not know where to report. ADR reporting forms were absent in 13 wards. The majority (96.2%) stated there was no proper distribution of ADR forms. Most participants (59.3%) did not know the availability of ADR reporting forms online. Other reasons for low reporting were: the perceived idea of breaching patient confidentiality (n=15, 3.5%), lack of time (n=22, 5.2%), and lack of knowledge of the method of reporting (n=13, 3.1%). All suggested the need for a training program on ADR.

## Conclusions

Overall, nurses knew the importance of ADR reporting and their responsibility, though many correctable barriers prevented them from frequent reporting. Proper education and training on the ADR reporting system can be used to facilitate the spontaneous reporting of ADR in a hospital setting.

## PP59

### Clinical profile of patients on maintenance hemodialysis in Monaragala District – Sri Lanka

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## Background

Each region in Sri Lanka faces challenges when providing hemodialysis (HD) for patients with endstage kidney disease (ESKD). Monaragala, the second largest district in Sri Lanka, has only two HD units and 11 machines to cater to local needs.

### **Objectives**

To describe the baseline clinical profile at the time of study recruitment of all patients with ESKD on maintenance HD in Monaragala District, Sri Lanka.

### **Methods**

All adult patients undergoing maintenance HD at two HD units in Monaragala District were enrolled from January 2022 to September 2022.

### **Results**

One hundred patients were on maintenance HD. The mean age was 53.8 (SD 11.8) years. 82% were in the productive age group of 27 to 64 years. 75% were males, and 99% were Sinhalese (45%). 41%, 25%, and 10% of patients had hypertension, diabetes, and cardiovascular disease, respectively, at the time of enrollment. 4% had a past history of acute kidney injury. 51% had an arteriovenous fistula (AVF) created, 37% had temporary central vascular access devices (CVAD), and 12% had permanent CVAD as vascular access. The mean duration of HD was 89.4 (SD 123.2, range 1832) weeks. Baseline investigations identified mean hemoglobin of 9.4 (SD 1.6) g/dl, serum sodium 136.2 (SD 4.3) mmol/L, serum potassium 4.8 (SD 0.8) mmol/L, serum calcium 2.1 (SD 0.4) mmol/L, serum phosphate 4.8 (SD 1.6) meq /L, and uric acid 6.4 (SD 1.5) mg/dl. 54% were farmers, and 63% were involved in farming for 10-30 years. Monthly income was less than 50000 rupees (155 \$) for 63% of patients.

### **Conclusions**

Most maintenance HD was in the productive age group of 27 to 64 years (82%). 41% had hypertension, 25% had diabetes, and 10% had cardiovascular disease at the time of study recruitment. Nearly 50% had AVF created at the time of enrollment.

### **PP60**

#### **Knowledge, attitudes, and practices towards infection control strategies among nurses at two selected teaching hospitals in Colombo district, Sri Lanka**

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## **Background**

Healthcare-associated infections are a significant issue affecting all populations globally, including Sri Lanka. Infection prevention involves implementing measures to reduce the spread of infectious diseases by creating barriers between vulnerable individuals and microorganisms. It encompasses all strategies, processes, and actions aimed at reducing the transmission of infection within healthcare settings.

## **Objectives**

To assess the knowledge, attitudes, and practices toward infection control strategies among nurses at Colombo South Teaching Hospital and Sri Jayewardenepura General Hospital.

## **Methods**

A descriptive cross-sectional study was conducted among a total of 350 nurses in both selected hospitals. The proportionately divided sample was selected from each hospital by using systematic sampling. A pre-tested and validated self-administered questionnaire was used for data collection. Descriptive and inferential statistics were used to analyze the data by using SPSS v 25. A p-value of  $< 0.05$  was considered significant at all levels.

## **Results**

The response rate was 94%. Nearly, 94% were females and 70% of them had a Diploma in Nursing as the highest educational qualification. Around 80% and 58% of participants had scored a moderate level of knowledge and positive attitudes towards infection control strategies respectively. However, only 66% of participants had scored a good level of practice. In addition, the mean scores for knowledge, attitudes, and practices were 61.2% ( $\pm 10.84$ ), 65.25% ( $\pm 18.71$ ), and 75.34% ( $\pm 22.10$ ) respectively. The level of knowledge was significantly associated with gender ( $p=0.01$ ) and working hospital ( $p=0.00$ ) and the level of practice was significantly associated with the age of the participants ( $p=0.01$ ). The scores for knowledge ( $p=0.00$ ), attitudes ( $p=0.28$ ), and practices ( $p=0.06$ ) towards infection control were significantly higher among nurses in Sri Jayewardenepura General Hospital compared to nurses in Colombo South Teaching Hospital.

## **Conclusions**

Most of the nurses in both teaching hospitals had moderate knowledge, positive attitudes, and good practices regarding infection control and its strategies. Regular health education sessions need to be arranged in order to improve the nurses' knowledge, attitudes, and practices.

## PP61

### Play-based interventions to assess motor domain, cognitive domain, life skill and pre-learning skill in children with autism of Jaffna district, Sri Lanka

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#### **Introduction**

Alarming prevalence of Autism Spectrum Disorder (ASD) is challenging the child and its family members about their future life expectations. In Sri Lanka, 1 in 93 children are affected by ASD. Play activities give chance to Children with Autism Spectrum Disorder children (ASD) for exploration of social interactions.

#### **Case Report**

An institutional based cross sectional descriptive study was carried out among seventeen children with ASD in pediatric center, Green Memorial Hospital, Manipay, Sri Lanka to assess the status of motor domain, cognitive domain, life skill and pre-learning skill using a comprehensive tool developed according to literature review. Majority (64.7%, n=11) were males. Mean age was 7.5 ( $\pm 2.4$ ) years. The scores of the dependent variables, viz., fine motor, gross motor, life skill, creativity/ cognitive, and pre-learning skill were measured. The result indicated that majority (82.4%, n=14) of the children were found to be independently performed well in gross motor, while 17.6% (n=3) of the children only didn't need help in fine motor activities. Life skills have to be developed with further modification (35.3%, n=6). Guidance was needed in creativity assessment (70.6%, n=12) and pre-learning (52.9%, n=9).

#### **Discussion**

This study represents the first attempt to assess motor domain, cognitive domain, life skill and pre-learning skill of children with ASD following play activities. It was obvious that gross motor domain was good regard to age appropriated. Ultimately pre-test, post-test design may evaluate effectiveness of traditional play activities to build up self-care, socialization, and learning in children with autism. Further, to provide a comprehensive care to the child partnership should be developed with other institutions to handle the issues of limited resources in the primary care settings.



## PP62

### Peripancreatic tuberculous lymphadenitis mimicking pancreatic cystic neoplasm

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#### Introduction

Involvement of peripancreatic lymph nodes by tuberculosis is rare and the clinical picture varies among reported cases. We report an unusual case of an isolated tuberculous lymphadenopathy of the peripancreatic region, mimicking a cystic pancreatic neoplasm on radiology.

#### Case Report

A 33 year old woman was investigated for vague abdominal pain of short duration. Abdominal examination was normal. CECT revealed an enhancing, lobulated mass suggestive of a cystic pancreatic tumour. Per-operatively, an exophytic, hard, mobile mass was seen attached with a stalk to the pancreatic head and hepatoduodenal ligament. The planned Whipple resection was not performed. The nodule was excised and sent for histology and TB-PCR. The histology of the nodule revealed a lymph node with tuberculoid-type granulomatous inflammation and extensive caseous-type necrosis. Although acid fast bacilli were not seen on histology, TB-PCR was positive.

#### Discussion

Although pulmonary and extra-pulmonary tuberculosis is common in South-East Asia, involvement of a solitary, peripancreatic lymph node is uncommon. It can mimic a solid pseudopapillary neoplasm (SPN) of pancreas on radiology due to the extensive caseous-type necrosis occurring in the tuberculous lymph node. SPN is a low grade malignant tumour occurring in young women. As a Whipple resection may be required when it is located in the pancreatic head region, morbidity from such a surgery can be avoided by excision of the nodule for histology and TB-PCR, even in the absence of a significant contact history or clinical features suggestive of tuberculosis

## PP63

### An ovarian carcinoid in a mature cystic teratoma; a rare occurrence

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#### **Introduction**

Mature cystic teratoma (MCT) is a common benign tumour arising in the ovary. However, a carcinoid tumour within a MCT is rare with only a few reported cases.

#### **Case report**

A 66 year old woman presented with chronic constipation, abdominal fullness, bloating and increased urinary frequency of a few months duration. A midline mass was felt on abdominal examination and the abdominal ultrasound showed a large, complex left ovarian cyst. Tansabdominal hysterectomy, bilateral salphingo-oophorectomy and omentectomy was performed. Macroscopy showed a tumour with solid and cystic areas, focal calcification, a mural nodule and an 8.5cm fleshy nodule. Histology revealed a MCT. The fleshy nodule was composed of a tumour with monomorphic cells arranged in a trabecular pattern. Nuclei were uniform with fine, stippled chromatin. Nucleoli were inconspicuous. Immunohistochemistry showed diffuse cytoplasmic positivity for synaptophysin and focal cytoplasmic positivity for chromogranin. Ki67 proliferation index was 1%. Based on the morphology and immunohistochemistry, the tumour was diagnosed as an ovarian carcinoid with trabecular morphology arising in a mature cystic teratoma.

#### **Discussion**

Although malignant transformation of the various components of a MCT can occur, carcinoids are rare and usually encountered in the elderly. A metastatic origin needs to be excluded in such cases with carcinoid syndrome occurring more frequently in patients with metastatic tumours. Chronic constipation has been reported with the trabecular histology which was seen in this patient. The prognosis of these tumours is excellent. Adverse prognostic features include poorly differentiated, insular or mucinous morphology which were not seen in this case.

## SESSION 8 – MISCELLANEOUS-I (PP64 – PP71)

### PP64

#### Prevalence and factors associated with dysmenorrhea among nurses working at selected government hospitals of Central Province, Sri Lanka

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#### Background

The majority of women at reproductive age experience dysmenorrhea, defined as pain that accompanies menstruation.

#### Objective

The study aimed to assess the prevalence and factors associated with dysmenorrhea among nurses who are working at selected government hospitals of Central Province, Sri Lanka

#### Methods

A descriptive cross-sectional study was carried out among 212 nurses who are working at the hospitals located in Kandy (n=137), Matale (n=25), and NuwaraEliya (n=50) districts. Ethical approval was obtained from the Ethics Review Committee of KIU. The nurses who reported menopause were excluded from the study. Verbal Multidimensional Scoring System was used to assess the level of dysmenorrhea. The Chi-square test was performed to identify associated factors for dysmenorrhea. IBM SPSS Version 23 was used as an analytical tool.

#### Results

Most of the participants (n=132, 62.3%) belonged to the 26-30 age group. The majority (n=177, 83.5%) were educated up to diploma level and grade III nurses (n=151, 71.2%). Above half of the participants (n=118, 55.7%) were married. The prevalence of dysmenorrhea among nurses was 86.8%, (n=184), and most of the nurses (n=106, 50%) reported grade 1 level of dysmenorrhea while grade 2, 3 respectively were 31.6% (n=67), and 5.2% (n=11). The majority of the participants used analgesics (n=132, 71.7%) and reported intermittent pain (n=144, 78.2%) during the menstruation period. Age (p=0.002), marital status (p=0.047), type of pain (n=0.001), and use of analgesics (p<0.01) were associated with dysmenorrhea among nurses.

#### Conclusion

The study revealed that most of the nurses working at government hospitals of Central Province experienced dysmenorrhea and age, marital status, type of pain, and use of analgesics were associated with dysmenorrhea. The evidence-based interventions are to be implemented to relieve the pain that accompanies menstruation.

## PP65

### Do advanced level students from an endemic district have better knowledge on thalassaemia compared to Advanced Level students from a non-endemic district?

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#### Background

Thalassaemia is a single-gene disorder and a health-care burden in Sri Lanka. It can be controlled by preventive health services and education. Advanced Level (A/L) students need to have good knowledge on thalassaemia prevention to reduce the burden of disease.

#### Objectives

To describe and compare the knowledge and associated factors regarding prevention of thalassaemia among biology stream A/L students of from two selected districts in Sri Lanka.

#### Methods

A descriptive cross-sectional study was conducted among total of 221 biology stream A/L students in selected tuition classes in Kurunegala (n= 110) (endemic to thalassaemia) and Colombo (n= 111) (non-endemic to thalassaemia) districts. A non-probability snowball sampling was used for recruitment and a self-administered pre-tested google-form based questionnaire was used for data collection through social-media. Each correct statement was given one mark and a score above and equal to the total median score was considered as adequate knowledge on prevention. Median was used because the score distribution was positively skewed. Chi-square test was used to analyze data.

#### Results

Median score was 7 out of 10. Interquartile range was 3. Scores equal to or above 7 was considered as adequate knowledge. Knowledge on thalassaemia prevention was adequate in

91.8% (n= 101) and 45.9% (n= 51) from Kurunegala and Colombo districts respectively. Majority, 85.1% (n=188) of students correctly stated that genetic counselling is essential in preventing thalassaemia, of which 44.8% (n=99) was from Kurunegala and 40.3% (n=89) was from Colombo district respectively. Majority, 62.8% (n=139) of students correctly stated that pre-marital screening is essential in preventing thalassaemia, of which 35.7% (n=79) was from Kurunegala and 27.1% (n=60) was from Colombo district respectively. Majority 90.9% (n=201) stated that screening is important when there is a family history of thalassaemia even if the individual is asymptomatic. Only 43% (n=95) stated that “thalassaemia can be prevented by selecting the correct partner for marriage, and out of them, 29.4% (n= 65) were from Kurunegala district. Residential district, number of attempts for A/L examination, and thalassaemia awareness programs showed statistically significant association with knowledge ( $p<0.05$ ) whereas socioeconomic factors and medical history were not significant ( $p>0.05$ ).

### **Conclusions**

Compared to A/L students in Colombo district, nearly double the number of students in Kurunegala district had exhibit sufficient knowledge on prevention of thalassaemia, which could be addressed by awareness programs.

### **PP66**

#### **Assessment of electrolyte concentrations in plasma and serum and impact of delayed analysis at ambient temperature on serum electrolyte measurements**

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### **Background**

Laboratory investigations of plasma/serum electrolytes are subjected to errors due to various reasons and accurate laboratory test results are crucial in diagnosis of particular diseases.

### **Objectives**

To assess the electrolyte concentrations in plasma and serum and to investigate the impact of delayed analysis at ambient temperature on serum electrolyte determinations.

### **Methods**

An analytical observational cross-sectional study was conducted among 32 healthy individuals between 22-35 years. The 6 mL of whole blood was collected from each individual and plasma

and serum were separated immediately. The serum was divided into four aliquots. One aliquot was analyzed for Na<sup>+</sup>, K<sup>+</sup>, Cl<sup>-</sup>, iCa<sup>2+</sup> immediately after the serum separation. Other three serum aliquots were analyzed after keeping for 1, 3 and 5h at ambient temperature. Whole blood, plasma and serum were collected into plain tubes. Electrolyte concentrations were measured by ST-200 Plus Electrolyte Analyzer. Data was analyzed by SPSS software version 25. The p value of <0.05 was considered statistically significant.

## Results

The results showed that there was no statistically significant difference in Na<sup>+</sup> level in plasma (142.75±2.23 mmol/L), serum obtained immediately after the blood collection (142.60±2.31 mmol/L) and serum kept for 1h at ambient temperature (142.63±2.27 mmol/L). There was a significant difference between K<sup>+</sup> levels in plasma (4.09±0.31 mmol/L) and serum immediately after the separation (4.21±0.31 mmol/L). There were no statistically significant differences among Cl<sup>-</sup> levels in plasma (101.54±1.33 mmol/L), serum immediately after the separation (101.27±1.46 mmol/L) and 1h (101.43±1.48 mmol/L) and 3h (101.55±1.39 mmol/L) kept serum under the ambient temperature. Statistically significant difference was observed between iCa<sup>2+</sup> levels of plasma (1.25±0.03 mmol/L) and serum immediately after the separation (1.27±0.03 mmol/L).

## Conclusions

Immediately separated plasma after the blood collection can be suggested as the specimen of choice in determination of Na<sup>+</sup>, K<sup>+</sup>, Cl<sup>-</sup> and iCa<sup>2+</sup> in a single specimen.

## PP67

### Population-based reference intervals for haemoglobin and red cell indices for healthy adults in Kandy, Sri Lanka

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## Background

Reference intervals of laboratory tests are essential to interpret results and to differentiate normal values from abnormal values. Complete blood count is the most frequently performed haematology test in clinical practice, while reference limits differ with populations' topographical, social, and health status. However, haematological reference values have not been established for the Sri Lankan population to date, and hence normal standards of western countries are being utilized.

## **Objectives**

This research, part of an extended study carrying out across the country, was aimed to establish reference values for selected red cell parameters of healthy individuals in Kandy district.

## **Methods**

This cross-sectional study includes 252 males and 251 females aged between 18-60 years. EDTA anticoagulated blood samples were collected between 7.00-11.30 a.m. Hb concentration (Hb), red cell count (RCC), mean corpuscular volume (MCV), mean corpuscular haemoglobin (MCH), mean corpuscular haemoglobin concentration (MCHC), haematocrit ratio (HCT) and red cell distribution width (RDW) were determined within 6 hours of collection using Mythic 22 OT-5 part automated haematology analyzer. (ORPHEE S.A., Switzerland). The methodology was developed according to CLSI guidelines, and reference values were determined at 2.5<sup>th</sup> and 97.5<sup>th</sup> percentiles.

## **Results**

According to the results, Hb, RCC, MCV, MCH and HCT were lower than those of Caucasian values stated in the Western literature, with 11.1;23.9%, 31.3;13.1%, 7.1;13.1%, 17.1;12.7% and 24.2;34.6% of male; female participants outside the western reference values, respectively. MCHC showed the maximum percentage of outliers (43.6; 21.9%), followed by HCT (24.2%; 34.6%). Interestingly, statistically significant gender-based differences were observed for all RBC parameters.

## **Conclusions**

In conclusion, Western reference intervals are not compatible with those of the study cohort. Thus, the establishment of population-specific reference ranges, including WBC and platelet parameters for the entire country is highly recommended.

## **Acknowledgement**

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## PP68

### Knowledge, practices and sources of obtaining information regarding COVID-19 among teachers in selected urban schools, Trincomalee district, Eastern province, Sri Lanka

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#### Background

COVID-19 is an infectious disease caused by the SARSCo-V2 virus, and being well informed is the best way to prevent and slow down its spread. Teachers must have good awareness to build a well-informed generation.

#### Objectives

The objectives were to evaluate knowledge, assess self-care practices, and assess sources of information about COVID-19.

#### Methodology

This is a descriptive cross-sectional study conducted in October 2022 in the Trincomalee District, Eastern Province of Sri Lanka. Data were collected through a pre-validated self-administered online questionnaire among 288 teachers in urban schools in Trincomalee District. Knowledge on COVID-19, COVID-19 preventive practices and important sources of obtaining information among teachers were assessed. SPSS version 25.0 was used to analyze the data.

#### Results

Among the total participants 98.9% and 1.1% participants expressed good knowledge and moderate knowledge of COVID-19 respectively. Only 24.6% of the total participants have reported changing mask frequently every 6 hours. Teachers reported significant impact from newspaper, TV/radio, government agencies, social media, family and friends.

#### Conclusion

A majority of teachers have good level of knowledge, favorable practices and main sources of information on COVID-19 prevention were newspaper, TV/radio, government agencies, social media, family and friends. Male predominance could be seen in knowledge on COVID-19 results by using chi-square test through SPSS to assess the correlation. A significant association was noted between gender and knowledge on COVID-19. The schools need to serve as a best platform for the promotion of COVID-19 among teachers and the future generation. Organizing health promotion regarding the research study and mask changing frequency awareness with the survey will be effective for the investigator and population.



## PP69

### Knowledge of using hair colors, the proportion of side effects of its use, and its associated factors among adults living in Colombo district

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#### Background

The use of hair colors has gained increasing popularity in the modern world and is used for a multitude of purposes.

#### Objectives

To describe the knowledge of using hair colors, proportion of side effects of its use, and its associated factors among adults living in Colombo district.

#### Methods

A descriptive cross-sectional study was conducted among 423 adults aged 18-60 years living in the Colombo district. Non-probability convenient sampling was used. Self-administered questionnaires in all three languages (Sinhala, English & Tamil) were provided via Google form to the participants. Knowledge was categorized as good and poor according to the mean score and attitude was categorized to positive and negative according to the mean score. A p-value less than 0.05 was considered as significant.

#### Results

Half (51.1%, n=216) were female and majority 65.7% (n=278) were less than 40 years and employed (58.4%, n=247). A majority (90.3%, n=382) had poor knowledge regarding the use of hair colors. Most (58.6%, n=248) stated the reason for using hair colors was that it made them more self-confident. A large proportion (93.4%) of the participants had positive attitudes towards hair coloring. More than half (54.6%, n=231) of the responders apply hair colors at home and 53.9% (n=228) have been using hair colors for 1-5 years. Majority (143, 57.4%) had developed side effects after using hair colors. Increased hair fall (25.3%), hair dryness (21.7%), split ends (13.2%) allergic reactions (12.5%) and skin rashes (11.8%) were side effects respectively. Those less than 40 years had positive attitudes towards hair colors (p =0.000). More side effects were reported those under the age of 40 years (p=0.009), educated above advanced level (A/L) (p=0.003) and unemployed (p=0.017).

## Conclusions

Majority had poor knowledge about hair colors and their uses. Most used hair colors to gain self-confidence. Main side effect was increased hair fall.

## PP70

### Carbon dot stabilization and photostability as potential factors that alter the cytotoxicity of bactericidal silver nanoparticles

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## Background

Despite having pronounced antibacterial properties, silver nanoparticles (AgNPs) have cytotoxic effects on humans. To be applied in a clinical setting, cytotoxicity assessments and the implementation of proper stabilizing techniques are essential.

## Objectives

This study aimed to use a novel carbon-based nanostructure (carbon dots) as a stabilizer to reduce the cytotoxicity of AgNPs.

## Methods

Carbon dots were synthesized via microwave irradiation. AgNPs were formed by adding carbon dots into 1mM of AgNO<sub>3</sub> until a color change was visible. Scanning Electron Microscopy (SEM), Fourier-transform infrared spectroscopy (FT-IR), Particle size analysis, and UV-visible spectroscopy were performed for characterization. The antibacterial activity of the nanoparticles was tested on *Staphylococcus aureus* (ATCC 25923) and *Pseudomonas aeruginosa* (ATCC 27853) via agar well diffusion assay. Antibacterial efficacy was determined against Clindamycin (20µg/ml) and Gentamycin (100µg/ml) which were used as positive controls. The toxicity of carbon dot-stabilized silver nanoparticles (CD-AgNPs) was investigated on brine shrimp nauplii against citrate-stabilized silver nanoparticles (C-AgNPs) at bactericidal doses ranging from 0.02-10 mg/ml.

## Results

The formation of CD-AgNPs was indicated by a color change to blackish brown. UV-visible spectroscopy showed a peak at 410nm which confirmed the presence of colloidal AgNPs. The average particle sizes were 28.01nm and 136.27nm for C-dots and AgNPs respectively. SEM images confirmed the spherical shape. FT-IR stretching vibrations at 3288.79cm<sup>-1</sup>, 1638.06cm<sup>-1</sup>, and 1077.04cm<sup>-1</sup> revealed the presence of -OH groups, beta-sheet structures, and -C-N bonds correspondingly. The percentage Zones of Inhibition at 10mg/ml of CD-AgNPs and Citrate-AgNPs were 87.5% and 81.25% against *Staphylococcus aureus* while that against *Pseudomonas aeruginosa* stood at 83.33% and 75% respectively. Lethal concentrations (LC<sub>50</sub>) were 3.34 mg/ml and 4.2 mg/ml for CD-AgNPs that were stored in dark and light respectively. C-AgNPs stored in dark showed an LC<sub>50</sub> of 0.21 mg/ml while light-exposed C-AgNPs showed 0.77 mg/ml. Carbon dots exhibited the least toxicity (LC<sub>50</sub> = 23.97 mg/ml). Outcomes suggest that carbon dot stabilization reduced the cytotoxicity of AgNPs (P<0.05). According to UV-visible spectroscopic data, CD-AgNPs are more photostable than C-AgNPs (P<0.0001). CD-AgNPs further exhibit higher stability when stored in dark (P<0.05) and at 4°C temperature (P<0.0001) compared to samples that were stored under light and at room temperature.

## Conclusions

Carbon-dot stabilization is an effective way of improving the biocompatibility of bactericidal AgNPs mitigating issues related to cytotoxicity.

## Acknowledgement

KAATSU International University, Sri Lanka for (committed) funding

## PP71

### An evaluation of adulteration in Turmeric powder sold in shops in the Peliyagoda urban council area.

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## **Background**

Food adulteration is the intentional addition of non-food ingredients to a food product in order to enhance its quality and quantity before being sold. Asthma, cancer, and other health issues also cause by such food adulterants in the body of the consumer.

## **Objectives**

To identify the adulteration of turmeric powder in shops in the Peliyagoda urban council area

## **Methods**

An analytical cross-sectional investigation was carried out to Turmeric powder samples which were taken from 79 stores in the Peliyagoda urban council region. Out of the 79 stores 25 stores generate sales using the branded samples and, 54 of them offer non-branded goods. As a physical approach for the research, a water test was performed to determine whether the turmeric powder sample is pure or contaminated, the presence of artificial color. Iodine and HCl tests were used to identify to check whether the turmeric powder sample contains starch and chalk powder contamination.

## **Results**

Physical testing revealed contaminated turmeric powders in all of the samples. There were samples with artificial colors in 49/54 (90.74%) of the non-branded samples, whereas 19/25 (76%) of the branded samples included artificial colors. All samples, both branded and non-branded, contained starch and were free of chalk powder contamination.

## **Conclusions**

Based on this investigation, it can be concluded that the turmeric powder being marketed in the Peliyagoda urban council region is somewhat tainted. The majority of the samples, both branded and non-branded, revealed the presence of starch. In comparison to branded samples, non-branded samples included more artificial coloring. Testing for chalk powder was negative in every sample, both branded and unbranded. We believe that further study could uncover the types of substances and dosages utilized as adulterants.

## **Acknowledgement**

KIU undergraduate research fund

PP72

**Depression, anxiety, stress among nurses during the covid-19 outbreak in Sri Lanka: A cross-sectional study**

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**Introduction**

The impact of coronavirus disease 2019 (COVID-19) on the psychological well-being of frontline health workers is significant. Evidence related to stress, anxiety, and depression among nurses who cared for patients with COVID-19 is limited in Sri Lanka.

**Objective**

To examine the prevalence and factors associated with depression, anxiety, and stress among nurses who cared for patients with COVID-19 in Sri Lanka.

**Method**

An online survey through Google form was conducted among a convenience sample of 257 nurses who worked in COVID-19 wards/units. Participants were recruited through social media and websites related to nurses. Depression, anxiety, and stress were measured by Depression, Anxiety, and Stress Scale -21.

**Results**

From the sample, the majority were females (89.5%). The mean age was 39.29 years (SD±8.076). The majority of the nurses have worked in COVID-19 units for more than three months (40.8%) and reported that they had adequate personal protective equipment (PPE) (83.3%). It reported mild to severe levels of depression (35%), anxiety (41.2%), and stress (27.2%) levels. The levels of mild depression, moderate depression, severe depression and extremely severe depression were 11.35%, 12.1%, 5.4% and 6.2%, respectively. There is a significant positive relationship between depression and anxiety ( $r = .747, p = .001$ ), depression and stress ( $r = .752, p < .001$ ), and anxiety and stress ( $r = .731, p = .001$ ). Depressive symptoms were associated with marital status ( $p < 0.001$ ) and availability of PPE ( $p = 0.025$ ). Anxiety was associated with marital status ( $p = 0.004$ ) and availability of PPE ( $p = 0.044$ ). Stress

was associated with marital status ( $p < 0.001$ ), availability of PPE ( $p = 0.035$ ) self-rated physical well-being ( $p < 0.001$ ), and self-rated mental well-being ( $p = 0.001$ ).

### **Conclusion**

Depression, anxiety, and stress are prevalent among nurses who cared for patients with COVID-19 and these symptoms are associated with several factors. In resource-limited countries like Sri Lanka, well-planned educational programmes, policies, and guidelines are essential to improve the psychological health of frontline health workers during pandemics like COVID-19.

### **PP73**

#### **Psychological distress among nurses handling patients with psychiatric disorders during the Covid-19 pandemic at in National Institute of Mental Health, Sri Lanka**

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### **Background**

Nurses enrolled in caring for patients with psychiatric illnesses have to experience a wide range of stressful events due to patient violence, aggression, and relapses and this was aggravated during the Covid-19 pandemic.

### **Objectives**

The study aimed to assess the level of psychological distress and its associated factors among nurses handling patients with psychiatric disorders during the Covid-19 pandemic at the National Institute of Mental Health (NIMH), Sri Lanka.

### **Methods**

A descriptive cross-sectional study was carried out among volunteered 150 nurses who engaged in patient care at NIMH. Data were collected by using a pre-tested, self-administered questionnaire consisting of the Perceived Stress Scale and Strait Trait Anxiety Inventory. The study was ethically approved by the ethics review committee at Kaatsu International University. Data were analyzed using descriptive and inferential statistics using SPSS statistical software (version 25).

## Results

Among 150 respondents, the majority were female (83.3%), Sinhalese (95.3%), married (60.7%), and Diploma holders (66%). Also, 53.4% worked in the Covid-19-positive and suspected patient units. The mean age of the study sample was  $33.9 \pm 6.12$  years old. Mean night shifts  $8.23 \pm 1.65$  days per month. The majority reported a moderate level of stress (98%), high-level stress (2%) and moderate to severe anxiety (94.7%), mild to moderate anxiety (4%), and severe anxiety (1.3%). Significant associations were found among the level of stress with the working experience and family support,  $p=0.04$ ,  $p=0.00$  respectively. The level of anxiety significantly associated with religion, the number of leaves, availability of personal protective equipment, and social acceptance,  $p=0.006$ ,  $p=0.007$ ,  $p=0.015$ , and  $p=0.000$  respectively.

## Conclusion

The majority of nurses suffered from a moderate level of stress and a moderate to severe level of anxiety. Periodical surveys need to be conducted to assess psychological distress among nurses. Also, strategies need to be taken to reduce the stress and anxiety among nurses in handling patients with psychiatric disorders.

## PP74

### Job burnout with caring for patients with dementia: A Cross-sectional survey among nurses at the National Institute of Mental Health

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## Background

Dementia is a syndrome of deterioration in memory and cognitive function beyond expected levels of functions and beyond biological aging. Caring for patients with dementia is most challenging with the nature of the disease condition. Deterioration of disease, the complexity of the caring process, lack of knowledge, and negative clinical experience negatively impact harmful behaviors such as neglect, withdrawal of care, frustration, and job burnout. Nurses' job burnout is not well explored and identification of the level of job burnout and its associated factors are vital to improving quality care and productivity of the nursing profession.

## Objectives

The study aimed to assess the nurses' job burnout with caring for patients with dementia.

## Methods

A descriptive cross-sectional study was carried out among 190 volunteer nurses who were involved in dementia care at the National Institute of Mental Health. A pre-tested, self-administered research questionnaire consisting of the 16-item Oldenburg inventory (OLBI) was used to assess job burnout. It included subdomains of disengagement burnout and exhaustion burnout. The study was ethically approved by the ethical review committee at KIU (KIU/ERC/21/119). Data were analyzed using SPSS statistical software (version 23).

## Results

The mean age of the study sample was 30.96  $\pm$  6.46 years old. The majority were female (74.2%), Sinhalese (98.4%), and married (47.4%). The mean total job burnout was 38.06  $\pm$  4.54. Mean values for disengagement and exhaustion job burnout subdomains were 18.54  $\pm$  2.39 and 19.52  $\pm$  2.89 respectively. The majority (77.4%) reported medium-level job burnout and higher-level job burnout was not reported. The disengagement job burnout was associated with age ( $p=0.022$ ) and exhaustion job burnout was associated with gender ( $p=0.028$ ). Job burnout (disengagement or exhaustion) was not associated with working experience, education level, and breadwinner.

## Conclusion

Medium-level job burnout is common in caring for patients with dementia. Age and gender were associated with the disengagement and exhaustion job burnout respectively. Periodical surveys are recommended to assess nurses' job burnout and its associated factors. Strategies need to be taken to minimize job burnout and educational interventions/ training programs including pre and post-tests may be effective.

## PP75

### Awareness of self-care and disease-related quality of life among patients with acute coronary syndrome attending the Cardiology unit, National Hospital Sri Lanka

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## **Background**

ACS is a cause of major morbidity and mortality worldwide resulting in atherosclerotic plaque formation in the vessel lumen. Prompt identification, treatment, and self-care are vital to improve the survival rate and reduce complications.

## **Aim**

To identify factors associated with the awareness of self-care and disease-related quality of life among patients with acute coronary syndrome attending the Cardiology unit, National Hospital Sri Lanka.

## **Methods**

A descriptive cross-sectional study was conducted among 317 volunteered patients having CAD who attended the Cardiology unit, at National Hospital Sri Lanka. Critically ill patients with psychiatric disorders were excluded from the study. Data were collected using the simple random sampling method and the self-care questionnaire developed by the IFM in 2016. The questionnaire consists of 40 items marked on a 6-point Likert scale representing four main domains of self-care. Data were analyzed by Chi-square tests using SPSS version 25. The ethical clearance was obtained from the Ethical Review Committee of KAATSU International University.

## **Results**

Mean age was  $59.08 \pm 8.75$  years old. The majority were female (60.4%), Sinhalese (88%), married (84.4%), unemployed (50.5%), and belonged to rural and semi-urban areas (57.5%). Except for having family support (n=135, 49%), more than half of patients reported inadequate self-care (score < 3) for the remaining 39 items self-care measure questionnaire on managing CAD.

Each domain of self-care was associated with gender, age, religion, race, marital status, education level, and living area at the 95% confidence interval.

## **Conclusion**

There is a significant impact on HRQL, particularly in physical functioning, among younger patients without personal antecedents or coronary risk factors.

## PP76

### The association between compassionate love and marital satisfaction among married males and females between the ages of 25-60 in the Kandy District

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#### Background

Compassionate love has been a positive factor for smooth marital functioning in both males and females. Several studies have shown that males and females report compassionate love in marital satisfaction. It helps reduce marriage distress among couples and can lead to long-lasting relationships.

#### Objectives

This study aims to determine the association between compassionate love and marital satisfaction among married males and females between the ages of 25-60 in the Kandy District.

#### Methods

A cross-sectional descriptive study was conducted. Participants were selected through convenient sampling from the Kandy District and those who belonged to districts other than Kandy were excluded from the study consisting of 242 married individuals. The participants completed the Compassionate Love Scale for Specific Close Other and ENRICH Marital Satisfaction Scale. Both scales have high reliability of .09 and .86 respectively and have convergent validity. The responses of the married individuals were recorded. Independent T-test and regression analysis were carried out using SPSS version 25. Ethical approval was obtained from the Ethics Review Committee of KIU (KIU/ERC/21/13).

#### Results

Most participants were females (n=130), and males were only (n=119). The Independent T-test revealed no statistical significance difference ( $p=0.058$ ) in compassionate love between males (M=6.07 SD=±0.98) and females (M=6.28, SD=±0.70). Similarly, there is no statistically significant difference ( $p=0.948$ ) in marital satisfaction between males (M=53.10, SD=±11.14) and females (M=51.90, SD=±11.53). The linear regression test revealed a weak positive significant correlation between compassionate love and marital satisfaction among men ( $r^2=0.134$ ,  $p<0.01$ ). Comparably, the linear regression test revealed a weak positive significant correlation between compassionate love and marital satisfaction among women ( $r^2=0.075$ ,  $p=0.002$ ).

## Conclusions

The independent t-test revealed that there is no gender difference in exhibiting compassionate love and expressing marital satisfaction. Further, despite gender, the study revealed a significant association between compassionate love and marital satisfaction in both males and females.

## PP77

### Knowledge and attitudes on postpartum depression among family members of pregnant women attending antenatal clinics in Rathnapura and Colombo districts

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## Background

Postpartum depression (PPD) is a complex mix of physical, emotional and behavioural changes that occur in postpartum mothers within the first 2-4 weeks of childbirth. It has a global prevalence of 17.22%. It originates in the latter part of the pregnancy. A sound knowledge on PPD among the close family members is important to avoid negligence and provide the necessary care for PPD.

## Objectives

To describe knowledge and attitudes regarding PPD and its associated factors among family members of pregnant women attending antenatal clinics in selected Medical Officers of Health (MOH) areas in Ratnapura and Colombo districts.

## Methods

A descriptive cross-sectional study was conducted among 216 immediate family members in two antenatal clinics in Ratnapura (Ratnapura divisional council) and Colombo (Homagama) districts selected through multi-stage sampling using a validated, pretested, interviewer-administered questionnaire. The questionnaire was validated through expert opinion from the field. Knowledge and attitude were dichotomized using means of the pilot test (knowledge 67% and attitudes 65%) after converting to a percentage score. Data analysis was done using SPSS version 25 and associations were determined with chi-square test using  $p < 0.05$  as the level of significance.

## Results

The response rate was 97.7% (n=211). 68.7% (n=145) were males. Majority (61.6%, n=130) had a good level of knowledge and positive attitudes 64.9% (n=137) towards PPD. Knowledge was significantly higher among those with positive attitudes ( $p=0.0001$ ) and those who have seen a mother with PPD ( $p=0.0001$ ). Religion was also statistically significantly associated with knowledge ( $p=0.039$ ). Only good level of knowledge was significantly associated with positive attitudes towards PPD.

## Conclusion

Good knowledge and positive attitudes prevailed among most of the family members regarding PPD.

## Acknowledgement

University of Sri Jayewardenepura for funding the research

## PP78

### Anxiety related to exclusive breastfeeding and its associated factors among mothers immediately after delivery in Colombo South Teaching Hospital, Sri Lanka

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## Background

Exclusive breastfeeding for six months is recommended by WHO. Anxiety related to breastfeeding is an important factor that contributes to early cessation which is often ignored.

## Objectives

To determine the anxiety related to exclusive breastfeeding (EBF) and its associated factors among postpartum mothers immediately after delivery in Colombo South Teaching Hospital (CSTH).

## Methods

A cross-sectional analytical study was carried out among 120 postpartum mothers (less than one day), above the age of 20 years admitted to the Professorial unit postnatal ward of CSTH. Systematic random sampling was carried out to recruit the participants. Data was collected using a pre-tested interviewer-administered questionnaire. Anxiety related to EBF was assessed by a questionnaire developed based on the Li's self-rating feeding anxiety scale. This tool was modified and translated to Sinhala and validated by the supervisors. Data was analysed using SPSS software version 25.  $P < 0.05$  was considered statistically significant.

## Results

Out of the 120 participants, 49.2% (n=59) participants were aged between 26-34 years. 29.2% (n=35) were between 20-25 years and 21.4% (n=26) were 35 or above. The majority of the participants were Sinhalese (85.8%, n=103). Majority of the mothers were found to have anxiety related to EBF (52.5%, n=63). Knowledge about exclusive breastfeeding ( $p=0.03$ ), having children less than 3 years of age ( $p=0.001$ ), type of delivery ( $p=0.02$ ) and social media influence ( $p=0.000$ ) showed a statistically significant association with anxiety related to EBF. Other factors did not show any significant association with anxiety related to EBF.

## Conclusions

Majority of the participants had anxiety related to EBF. Hence effective programs should be carried out in the relevant institutions to educate postpartum mothers about anxiety related to exclusive breastfeeding and possible methods to overcome it.

## PP79

### Caregiver burden among family caregivers of advanced cancer patients attending palliative care clinic at National Cancer Institute (NCI), Maharagama – Sri Lanka.

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## Objective

Family caregivers (FC) of advanced cancer patients under palliation (ACPP) have many challenges and caregiver burden is one of them. A FC is defined as "a family member who regularly looks after the terminally ill patient". This study was conducted to determine the caregiver burden (CB) among FC of ACPP attending the palliative care clinic of the NCI.

## Methods

Cross-sectional descriptive study was conducted with 266 FCs. The Zarith caregiver burden interview (ZBI) which is a validated questionnaire was used to assess CB. Significant CB was defined as a ZBI score  $\geq 21$ . Socio-demographic data was collected and the relationship between the CB and associated factors were studied. SPSS version 20 was used for data analysis. Ethical approval obtained from ERC-PGIM.

## Results

Majority of caregivers were females (66.9%), mean caregiver age was 46.86years. Mean ZBI score was 25.7(SD-9.8). Most caregivers reported CB (53.8%).

Increased educational status ( $p=0.040$ ), income ( $p=0.017$ ), religiousness ( $p=0.003$ ), and receiving additional help ( $p=0.032$ ), was associated with a reduced CB, while comorbidities in FC's ( $p=0.045$ ), time spent caregiving ( $p=0.05$ ), relationship to patient ( $p=0.016$ ), functional status of patient ( $p=0.088$ ), living arrangements ( $p=0.128$ ), and limitation of activities due to caregiving ( $p=0.000$ ) were found to be associated with a higher CB.

With logistic regression, reduced functional status of patient (95%CI 1.2-6.4  $p= 0.024$ ), increased time spent caregiving (95% CI 1.1-4.7  $p=0.015$ ), was associated with a higher CB while religiousness (95% CI 1.2- 5.1  $p= 0.013$ ) receiving additional help ((95% CI 1.3-5.6,  $p= 0.006$ ) was associated with lower CB.

## Conclusion

Most FCs experience CB. FCs should be assessed for CB on a regular basis and support should be extended to minimize CB among FCs of ACCP.

## PP80

### Prevalence of perceived adverse effects of handling chemotherapy: A cross-sectional survey among nurses at National Cancer Institute Sri Lanka

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## Background

Cancer is a global health concern, and the incidence is gradually increasing. Anti-cancer chemotherapy is a widely used, effective treatment in the eradication and mitigation of cancer. Adverse effects are widely reported even among healthy subjects with non-selective

mechanisms of drugs. Nurses are a high-risk group for developing related adverse effects with chronic low-dose occupational exposure.

### **Objectives**

The study aimed to assess the perceived adverse effects of handling chemotherapy among nurses at the National Cancer Institute Sri Lanka.

### **Methods**

A descriptive cross-sectional study was carried out among randomly selected 232 nurses at the National Cancer Institute Sri Lanka. A self-administered research questionnaire was used to collect data and data were analyzed using SPSS version 25. The study was ethically approved by the ethical review committee at KIU.

### **Results**

The mean age and working experience in the oncology unit were  $35.84 \pm 4.28$  and  $7.01 \pm 3.14$  years old respectively and the mean patient count of the unit was  $45.61 \pm 50.81$ . The majority were female (81.9%) and diploma holders (72.8%). Perceived common adverse effects were headache (48%), loss/of fragile hair (42.8%), and menstrual cycle irregularities (64%). Subsequently, miscarriages (32.1%), low birth weight (39.7%), pre-term labor (15.8%), genetic defects in children (10.1%), stillbirths (10.6%), subfertility (16.4%), dizziness (17.2%) breathing difficulties (14.2%), sore throat (15.1%), unusual fatigue (16.9%), skin rashes/changes (12%), and gastritis (33.2%) also were reported.

Menstrual cycle irregularities were associated with working experience in the oncology setting ( $P=0.04$ ). The patient count was associated with gastritis, unusual fatigue, loss/ fragile hair, sore throat, cough, hot flushes, hiccups, preterm birth, low birth weight, stillbirths, genetic defects in children, infertility, menstrual cycle irregularities ( $<P=0,05$ ).

**Conclusion:** Headache, loss of fragile hair, and reproductive adverse effects are common among nurses who handled chemotherapy. Most probably it may be chronic low-dose occupational. Comparative studies are recommended to assess the perceived adverse effects compared to non-exposure groups. Also, identification of further associations, moderator, and mediator effects with the perceived adverse effects are vital.

## PP81

### Neuropsychiatric Inventory-Questionnaire: Translation and Adaptation to the Sinhala Language

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#### Background

Behavioural and psychological symptoms are common among people with dementia. However, there is no tool to assess these symptoms in Sinhala language, one of the local languages in Sri Lanka. The neuropsychiatric inventory questionnaire (NPI-Q) is a widely-accepted informant-based tool to provide a brief assessment of the “prevalence and severity” of behavioural and psychological symptoms of dementia (BPSD) over the previous month.

#### Objectives

To translate, cross-culturally adapt and linguistically validate the 12-item NPI-Q to Sinhala language.

#### Method

The translation and adaptation process included (1) forward translation, (2) backward translation; (3) the calculation of content validity index (CVI), (4) cognitive interviews, and (5) proofreading. Ethics approval was obtained from the Ethics Review Committee, National Institute of Mental Health, Sri Lanka.

#### Results

The NPI-Q in English was independently translated and linguistically validated into Sinhala. Two bilingual translators who were experts in medicine performed the forward translation, while the research team reconciled forward translations into a pre-final version. The backward translation was performed by a bi-lingual expert who had no expert knowledge in medicine or dementia, and the research team compared it against the original version. The conceptual translation was assured. The CVI was assessed, ranging from 0.87-1 for each item, based on the nine dementia experts' responses. Cognitive interviews were performed with informal carers of people with dementia whose mother tongue was Sinhala to ensure the acceptability and understandability of the NPI-Q-Sinhala. An expert in Sinhala conducted proofreading. The NPI-Q-Sinhala was evaluated by the research team during each step of the study. Its layout resembles the original version, including 12 items to assess BPSD. The



development process was communicated with the original developer, and the Sinhala Version of NPI-Q was copy-protected by the original developer.

## **Conclusion**

The NPI-Q-Sinhala is a semantically adapted and linguistically validated informant-based tool available to assess the BPSD of people with dementia. Further testing and assessment of psychometric properties are recommended.

## **PP82**

### **Knowledge and associated factors on digital health among nursing officers in Sri Lanka**

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## **Background**

Digital health is a growing concern globally. Since nurses are the largest workforce in health care, they require to adapt to digitally enabled environments identifying factors that hinder this adaption for safe and efficient care.

## **Objectives**

This study aimed to assess the level of knowledge and associated factors for digital health among nurses.

## **Methods**

A descriptive cross-sectional study was conducted among randomly selected 350 nurses in 13 hospitals. A self-administered questionnaire consisting of five main components (uses of digital technologies, health information systems, telehealth, nursing informatics and computer literacy) was used to collect data. Higher scores indicated higher knowledge in each component indicating poor (< 50%), moderate (51%-75%) and good (> 75%). Correlations were assessed between each component with total knowledge. Associated factors were identified using sociodemographic data and knowledge scores. Data were analyzed using SPSS

version 25. Ethical approval obtained from the Ethics Review Committee, FMS, USJ (Ref No:17/21).

### **Results**

The majority (n=297, 85%) were female with a mean age of  $32 \pm 5.6$  years. Most of them (n=246, 70%) had a basic nursing diploma and 70% (n=244) were Grade III nurses. More than half (64%, n=223) had moderate knowledge while 19% (n=66) were having good knowledge and 17% (n= 66) were having poor knowledge. The knowledge in nursing informatics ( $r=0.740$ ), computer usage ( $r=0.652$ ) and health information systems ( $r=0.590$ ) showed a positive correlation with overall knowledge. Lack of education and training was the main barrier (64%, n= 223) to improving digital health knowledge. English language proficiency ( $p=0.02$ ), level of education ( $p < 0.01$ ) and experiences ( $p=0.001$ ) had associations with overall knowledge.

### **Conclusion**

Nurses have average knowledge on digital health and English language proficiency, education level and experiences were associated with knowledge. Since knowledge in nursing informatics, computer literacy and health information systems have a positive correlation with overall knowledge, measures need to be taken to improve these areas.

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