



RCFMJ

Research Conference of Faculty of Medicine – Jaffna
4th to 6th August 2022

“Shaping future medical sciences under the new normal”

Organised by
Faculty of Medicine
University of Jaffna

Proceedings and Abstracts of Free Communications

Under the sphere of
JUICE - 2022
Jaffna University International Research Conference





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Prof. K. Muhunthan

Chair-Editorial Committee

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Message from the Vice Chancellor



A university is a knowledge center. It is also a research centre and a centre of culture. The University of Jaffna has sustained a culture of quality research from its inception. Many scholars produced by the University serve as reputed researchers in various institutions across the world.

As a center of excellence in research, the University of Jaffna disseminates knowledge through seminars, workshops, symposia, and conferences, both local and international. We are all proud that SCIMAGO ranked University of Jaffna as a leading higher education institution in Sri Lanka in Research and Innovation.

To further strengthen this culture of research and knowledge dissemination, the faculties of the University of Jaffna have organized a sequence of research conferences under the sphere of the Jaffna University International Research Conference 2022 (JUICE 2022). I congratulate the Faculty of Medicine for organizing the Research Conference of the Faculty of Medicine, Jaffna – 2022 (RCFMJ – 2022) under the theme, “Shaping medical Sciences in the New Normal.”

I am delighted to see the passion among medical and health care professionals to find alternatives to counter the challenges posed by the New Normal. The Organizing Committee has arranged a number of invited talks to quench the thirst for knowledge among conference participants. I congratulate the Dean and Staff of the Faculty of Medicine for their continuous and tireless efforts in organizing RCMFJ-2022, in spite of the prevailing difficult conditions.

All glories to God.

Prof.S.Srisatkunarajah

B.Sc. [Hons] (Jaffna), Ph.D(UK), PGD.

Vice Chancellor

University of Jaffna



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Message from the Conference Chair



Dear Colleagues,

As Dean and Conference Chair, on behalf of the Faculty of Medicine, University of Jaffna, I am delighted to welcome all of you to the Research Conference of Faculty of Medicine Jaffna 2022 (RCFMJ - 2022).

Today, the world is fast changing, and the borders between countries are becoming more and more blurred. The problems occurring in society are more complex than those that existed in the past. In order to solve these problems, we need a multidisciplinary approach on a global scale. This is clearly apparent in the collaboration that is already taking place among academic or research institutions in the country and worldwide, and also evident in this Conference.

RCFMJ - 2022 seeks to further our goal of transforming the Faculty of Medicine Jaffna, in the face of dynamic and disruptive challenges, to take its strategic position as a center of knowledge development in medicine among leading institutions in the world. As per the Faculty's Strategic Plan, we hope to achieve this by producing research-based knowledge, establishing a flipped learning environment, modernising academic services and enhancing the performance of both management and operations.

This Conference brings together the faculty, other stakeholders and international partners, to reflect on our achievements and challenges, which, in turn, will help us to revise and reinvent our strategies. The RCFMJ-2022 theme, "Shaping medical sciences in the new normal," is expected to guide ongoing and new research initiatives to develop the health of people and health care services, including interrelated issues in the region, with the support of the global community. To this end, our faculty is as strong in traditional approaches as they are in adopting innovative practices to confront emerging regional and global health issues.

We are excited and honoured to have this opportunity to work with our co-hosts, discussants, chairs, and moderators, to achieve the objectives of this Conference. I hope that this international and multidisciplinary conference will provide our participants with a truly transformative experience and provide a platform for new knowledge and perspectives that will contribute towards tackling our society's complex health problems.

Prof.R.Surenthirakumaran

MBBS, M.Sc. (Community Medicine), PGD (Applied Statistics) MD (Community Medicine)

Dean, Faculty of Medicine



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Message from the Chief Guest



I am conveying my heartiest congratulations to the Faculty of Medicine, University of Jaffna on this momentous occasion of their first Research Conference of the Faculty of Medicine.

The theme of this conference 'Shaping Medical Sciences in the New Normal' is timely and focusses on exploring innovative ways to recover from the challenge of a prolonged global pandemic. Conferences of this nature would lead to sharing of evidence and experience and networking for shaping policy and future directions to reorient health programmes in the country. I am certain that the Faculty of Medicine also uses this forum to identify novel and state-of-the-art strategies to overcome the challenges caused by the unprecedented economic crisis in Sri Lanka.

WHO Sri Lanka is in partnership with Faculty of Medicine, Jaffna through the Jaffna Healthy City initiative, incorporating global evidence into local practice. A setting - based approach focusing on schools, workplaces and public places has been adopted and activities to create an environment conducive to health are ongoing in the sub-settings of the city. This programme was jointly implemented by the Department of Community and Family Medicine at the University of Jaffna, the Jaffna Municipal Council, other partner institutions and stakeholders who have made their share of significant contributions towards the success of this initiative.

I am confident that the Faculty of Medicine Jaffna will set the benchmark for research standards and academic partnerships and become a knowledge and innovation hub in the country. I hope that the Faculty of Medicine Jaffna will keep contributing to the global body of knowledge through similar endeavors in the future.

I wish all the very best for fruitful deliberations at the first Research Conference of the Faculty of Medicine Jaffna.

Dr Alaka Singh

WHO Representative to Sri Lanka



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PRE - CONGRESS WORKSHOP

Challenges in Common Neglected Tropical Diseases in Northern Province of Sri Lanka and the way forward

Venue: *Thinnai Hotel* on 4th of August 2022

	Topic	Resource Persons
9.00 am- 10.15 am	Session 1: Leprosy	Dr. S. Felicia MBBS, MD - Consultant Dermatologist Dr. S. Sivaganesh MBBS, MSc, MD - Regional Epidemiologist, Jaffna
10.15 am- 10.30 am	Stretch up break	
10.30 am -11.45 am	Session 2: Rabies	Dr. Kanthi Nanayakkara MBBS, MSc, MD - Consultant Epidemiologist, Epidemiology Unit, Ministry of Health - Sri Lanka Dr. Athula Liyanapathirana MBBS, Dip.Med.Micro, MD - Consultant Virologist and Vaccinologist - Medical Research Institute
11.45 am - 12.45 pm	Session 3: Leptospirosis	Dr. Thushani Dabera MBBS, MSc, MD - Consultant Community Physician, Regional Director of Health Services office, Puthalam
12.45 pm- 1.30 pm	Stretch up break	
1.30 pm – 2.45 pm	Session 4: Snake and Scorpion bite	Prof. N. Suganthan MBBS, MD, MRCP, MSc(Med Tox.) Professor and Specialist in Medicine Dr. A. Muruganathan BVSc, MPhil - Senior lecturer in Parasitology
2.45 pm – 4.00 pm	Session 5: Typhus	Prof. K. Muruganathan BVSc, Mphil, PhD - Professor in Microbiology Dr. A. Pradeepan MBBS, MD, MRCP - Senior lecturer and Specialist in Medicine
4.00 pm- 4.15 pm	Stretch up break	
4.15 pm - 5.15 pm	Session 6: Tuberculosis	Dr. M. Athavan MBBS, MD - Specialist in Chest Medicine



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Free Papers – Oral Presentations and Poster Presentations

Venue: Faculty of Medicine - 5th of August 2022

Venue 1 - 8.45 am - 12.30 am

9.00 am- 12 noon

Chairs:

Prof. S. Kannathasan Professor in Parasitology, University of Jaffna

Dr. Thaneswari Sooriyakumar Consultant Haematologist, Teaching Hospital - Jaffna

Judges:

Prof. Vasanthi Arasaratnam Senior Professor in Biochemistry, University of Jaffna

Dr. Vaithegi Kesavan Consultant Chemical Pathologist, Teaching Hospital – Jaffna

Venue 2 - 8.45 am - 12.30 am

9.00 an to 12 noon

Chairs:

Dr. Janaki Arulmoli Consultant Anaesthetist, Teaching Hospital - Jaffna

Dr. Valarmathy Ambalavanar Senior Lecturer in Microbiology, University of Jaffna

Judges:

Prof. Gitanjali Sathiadas Professor of Paediatrics, University of Jaffna

Dr. Nalayini Jegatheesan Consultant Physician, Teaching Hospital - Jaffna



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PROGRAMME - 06.08.2022

Venue - Hoover Auditorium, Faculty of Medicine, University of Jaffna

Time	Session	Resource Person
8.30 am - 8.35 am	Lighting of oil lamps	
8.35 am - 8.45 am	Welcome address	Prof. R. Surenthirakumaran Chairperson, RCFMJ Dean, Faculty of Medicine, University of Jaffna
8.45 am - 9.00 am	Address by the vice chancellor	Prof. S. Srisatkunarajah Vice Chancellor, University Of Jaffna
9.00 am - 9.15 am	Address by the chief guest	Dr. Alaka Singh WHO Country Representative, Sri Lanka
9.15 am - 10.00 am	Keynote address	Prof. Rifat Atun, Professor of Global Health Systems, Harvard University. Director of Global Health Systems Cluster, Harvard T.H. Chan School of Public Health
10.00 am - 10.30 am	Stretch up Break	



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<p>10.30 am -12.30 pm</p> <p>Symposium 1</p> <p>Burden of non-communicable diseases: Ongoing research activities and future directions</p>	<p>'Innovation and strategies during the COVID-19 pandemic – what worked for SGH orthopaedics' Prof Darren Tay Keng Jin Senior Consultant Orthopaedic Surgeon, Singapore General Hospital</p> <p>'Is atherosclerosis inevitable? Can we stop/delay/reverse it?' Dr.M .Guruparan Consultant Cardiologist, Teaching Hospital - Jaffna</p> <p>'Endoscopic treatment of GI cancers' Dr. N. Vikneswaran Senior Consultant with the Department of Gastroenterology & Hepatology, Singapore General Hospital</p>
<p>1.30p – 3.00pm</p> <p>Symposium 2</p> <p>Regional issues on maternal and child health and future directions</p>	<p>'Harnessing the power of global-wide birth cohorts' Prof. Debbie A Lawlor Professor of Epidemiology, MRC, Investigator and BHF Chair, Bristol Medical School</p> <p>'Effects of digital media on children's health' Prof. Gitanjali Sathiadas Professor of Paediatrics, Faculty of Medicine, University of Jaffna</p> <p>'Management of subfertility couples- A Sri Lankan perspective' Dr. S. Raguraman Senior lecturer / Consultant Obstetrician and Gynaecologist, Faculty of Medicine, University of Jaffna</p>
<p>3.00pm – 4.30pm</p> <p>Symposium 3</p> <p>Future health development and directions for the Faculty to consider</p>	<p>'DExtER: an automated epidemiology platform for electronic health record research' Prof. Krishnarajah Nirantharakumar Professor in health data science and public health Honorary Consultant in Public Health Medicine Deputy Director of the Applied Health Research, University of Birmingham</p> <p>'Leveraging digital health ecosystem for universal health coverage in India: Learnings so far' Prof. Aanandhi Ramachandran Associate Professor, Health IT, International institute of Health Management Research, Delhi</p> <p>'Optimising the national human potential in early life' Prof. Chong Yap Seng Professor and Senior Consultant, Department of Obstetrics & Gynecology, National University Hospital, Singapore</p>

Keynote Address



Prof. Rifat Atun MBBS, MBA, DIC, FRCGP, FFPH, FRCP.

Professor of Global Health Systems, Harvard University
Director of Global Health Systems Cluster, Harvard T.H. Chan School of Public Health

Building resilient health systems

Health systems worldwide face multiple and converging challenges: rising burden of disease and disability driven by ageing and epidemiological transition, new pandemics, greater demand for health services, higher societal expectations and increasing health expenditures which have outstripped growth of gross domestic products of countries. A further challenge relates to poor productivity in health system with substantial inefficiency and waste. The COVID-19 pandemic has unmasked the magnitude of the underperformance of health systems globally.

These health system challenges exist against a background of pressures on economic growth and fiscal conservatism, which could fuel economic austerity policies that constrain investment in health systems, with adverse health, economic and social consequences. Fundamental transformation of health systems is critical to overcome these challenges and to build resilient health systems.

Innovation is the critical ingredient for transforming health systems: both 'delivery of innovations' in new diagnostics, medicines, health technologies, digital health and data science, but also 'innovation in delivery' to provide more effective, efficient and equitable healthcare services that are responsive to changing needs and citizens expectations and resilient to merging and existing health threats. Innovation is key to building resilience to new and existing health threats, and to ensure sustainability. However, to have population level impact, to reduce widening inequalities, and to realise economic and societal benefits innovations need to be adopted and diffused at scale to reach all those in need.

This session will analyse health systems response to evolving challenges and identify areas of major underperformance and to propose new approaches to building resilient health systems including 'strategic public-private partnerships' to improve population health outcomes, and to achieve economic growth and societal wellbeing.

Symposium 01

Burden of non communicable disease: Ongoing research activities and future directions

Prof. Darren Tay Keng Jin MBBS (S'pore), MRCS (Edin), M Med (Ortho), FRCS (Edin)(Ortho)
Associate professor, Senior Consultant Orthopaedic Surgeon, Singapore General Hospital

Innovation and strategies during the COVID-19 pandemic – what worked for SGH orthopaedics

The pandemic has and continues to pose great challenges to our healthcare system. Delivering orthopaedic care during this time was difficult as we had to episodically curtail non-essential or time-critical medical services. In addition, external deployment of our staff to support Covid-related operations and conversion of wards to manage Covid patients thinned out our manpower resources and inpatient bed availability. As a consequence, many of our patients experienced delayed medical and surgical interventions and deterioration of their conditions.

In order to overcome these challenges, we had to relook at the way we delivered our orthopaedic services. We had to innovate and explore new strategies in order to do more with less and maintain the quality of care expected of us. These strategies included the adoption of enhanced recovery surgery for earlier discharge and reduced inpatient stay and the use of telemedicine to reduce outpatient visits. As we continue to live with COVID-19, we see that this has been a major impetus for us not to remain stagnant but to continue to evolve to allow continuity of clinical care.

Symposium 01

Burden of non communicable disease: Ongoing research activities and future directions

Dr. N. Vikneswaran MBBS (Spore), MRCP(UK), FAMS

Senior Consultant with the Department of Gastroenterology & Hepatology,
Singapore General Hospital

Endoscopic treatment of GI cancers

Gastrointestinal cancers account for a significant proportion of the global burden of cancer. Early diagnosis and intervention improves outcomes. Advances in endoscopic imaging and treatment have enabled cancers to be detected and treated successfully at the precancerous stage with organ-sparing endoscopic interventions. In this regard, colorectal cancer prevention programs have been successful in mitigating the burden of colorectal cancer with the detection and resection of precancerous polyps. A similar paradigm has taken hold in the stomach and the esophagus.

We now recognize that cancers in the upper GI tract arise from precancerous steps that may be detectable on endoscopy thereby facilitating early endoscopic intervention. This would include gastric adenocarcinoma arising in the setting of intestinal metaplasia, esophageal squamous carcinoma and esophageal adenocarcinoma in the setting of Barrett's esophagus. However the diverse cancers that affect the stomach and esophagus give rise to unique organ and disease-specific considerations that need to be borne in mind.

Symposium 01

Burden of non communicable disease: Ongoing research activities and future directions

Dr. M. Guruparan MBBS (SL), MD (SL), FCCP
Consultant Cardiologist – Teaching Hospital - Jaffna

Is atherosclerosis inevitable? Can we stop/delay/reverse it?

Coronary artery disease remains the leading cause of death world over despite significant advances in the management of ischaemic heart disease. The atherosclerotic plaque development and rupture remains the main mechanism for myocardial infarction. The atherosclerotic process begins at a relatively young age and progresses over the years influenced by multiple risk factors including Diabetes Mellitus, hypertension, dyslipidemia, smoking etc.

Considerable research that has been carried out over the years has shed light on the pathogenesis and how and what predisposes for growth and rupture of the atherosclerotic plaques. Multiple trials have shown it is possible to slow and reverse the atherosclerotic process by medications and life style modification measures. At molecular level several mechanisms including avoidance of endothelial injury, LDL reduction, preventing oxidation of LDL, preventing leucocyte adhesion, penetration, retention or proliferation, preventing SMC migration, preventing apoptosis of SMC, preventing degradation of matrix and preventing angiogenesis have been considered beneficial to prevent or delay progression of atherosclerotic plaque.

Another area of interest has been plaque erosion and rupture which lead to Acute coronary syndromes and ways of reducing it by transforming the vulnerable plaques to more stable ones. Newer imaging modalities are being developed to identify the vulnerable plaques and treat them with the goal of reducing cardiovascular mortality.

Symposium 02

Regional issues on maternal and child health and future directions

Prof. Debbie A Lawlor M.Sc (Lon) M.B. Ch.B, PhD (Bristol) M.P.H (Leeds) M.R.C.G.P M.F.P.H.M
Professor of Epidemiology, MRC, Investigator and BHF chair, Bristol Medical School

Harnessing the power of global-wide birth cohorts

Birth cohorts have the unique ability to identify causes of diseases and adverse health outcomes across the life-course. The advent of high through-put genomics, proteomics, metabolomics, epigenomics means population level physiology is possible, and birth cohorts have the ability to determine the interplay between social, environmental, behavioural, genomic and molecular factors in influencing health across the life course and across generations. This includes understanding causes of multimorbidity and the interplay between infectious diseases and chronic physical and mental health. Whilst cohorts in high income countries are harnessing this potential this is not the case in low and middle income countries (LMIC).

In South Asia there are few birth cohorts and those that exist rarely have genomic or molecular data. In this talk I will provide examples of the power of birth cohorts and suggest potential ways of increasing the representativeness of LMIC amongst the existing global birth cohorts, with a particular focus on South Asia.

Symposium 02

Regional issues on maternal and child health and future directions

Prof. Gitanjali Sathiadas MD, DCH, MRCPH, PgDipMedEd.
Professor of Paediatrics, Faculty of Medicine,
University of Jaffna

Effects of digital media on children's health

Digital Media is a tool to promote interactive and social engagement and allow children and teenagers instant access to entertainment, information, and knowledge; social contact; and marketing. Even though it provided engaging experiences there are numerous harmful effects related to increase usage. The benefits are it helps in early learning and Improves language skills, in special needs assistive and interactive help to communicate in youth with Autism, increases the opportunities for social contact and health promotion is facilitated through this media.

The harmful effects are related to impaired sleep due to excessive use, use of device during night, having the device switched on in night, the blue light emitted from the device are detrimental. The lack of sleep increases the chance for obesity in children. Sedentary lifestyle adopted during screen time also enhances the chance of obesity. The long-term effect of the blue light and eye fatigue can lead to long term problems in the eye. Despite the digital medial being a tool of learning it also hinders certain aspects of learning especially cognitive and memory functions. Psychological problems like depression, anxiety, problematic usage, and addiction are some seen with excessive use.

One key problem of the use of digital media is that children can be exploited, and it can lead to cyberbullying. Parents and teachers should be aware of these problems and take measures to overcome these.

One key message is to apply the 20-20-20 rule to children when they are using the digital screen. Take a break every 20 minutes, look at something 20 feet away for 20 seconds. Using the eye comfort option in the screen will help to minimize the blue light. Teachers involved in online teaching methods should give breaks in between classes, limit the class to 45minutes and make it interactive with the students.

In the fast-moving world we are unable to move away from the digital media hence we need to consider what we look rather than the time we spend on the digital screen to protect our children.

Symposium 02

Regional issues on maternal and child health and future directions

Dr. S. Raguraman MBBS, MD(O&G), MRCOG(UK).

Senior lecturer / Consultant Obstetrician and Gynaecologist,
Faculty of Medicine,
University of Jaffna

Management of subfertility couples - A Sri Lankan perspective

Subfertility is recognized as a public health issue by WHO due to its vast impact on individuals and community levels in physical, psychological, financial and social aspects. Causes of subfertility could divide into male factors, female factors, combined factors and unexplained. Worldwide prevalence of subfertility is widely varying and 3.5–16.7 % in low- and middle-income countries. According to the available data and expert opinions, the prevalence of subfertility in Sri Lanka is increasing.

Sub fertile couples must assess with a comprehensive history, examination and appropriate investigations. In Sri Lanka, assessment is carried out in gynaecological clinics by a specialist in Obstetrics and Gynaecology. However, certain hospitals have separate clinics for subfertile couples with specialists in subfertility. Subfertility management could divide in to basic and advanced treatment. Basic treatment starts with lifestyle modification. Female subfertility would treat according to the cause. The ovulatory cause could treat with medical and surgical methods of ovulation induction. Management of tubal factors is challenging, and its outcome is not promising. Endometriosis-related subfertility is mainly managed depending on the severity, but medical management does not enhance fertility. The impact of uterine pathology on fertility should be carefully assessed since a few conditions are treatable with good outcomes. Intrauterine insemination is a treatment option, especially for male factors and is widely used in Sri Lanka. Assisted reproduction technology is pivotal in subfertility management and is now reasonably available in Sri Lanka. The intracytoplasmic sperm injection technique is more popular than conventional In-vitro fertilization, with a success rate.

In Sri Lanka, the main challenges to providing fertility care are inadequate human resources trained explicitly in fertility management, lack of designated fertility centres and financial constraints to provide treatment, including ART treatments. Initiating treatment at primary health care, early referral to specialized care, training medical professionals in fertility treatment and providing an appropriate treatment with financial considerations may overcome the challenges in future.

Symposium 03

Future health development and directions for the faculty to consider

Prof. Krishnarajah Nirantharakumar MBBS MPH MD MRCP MFPH

Professor in health data science and public health,
Honorary Consultant in Public Health Medicine,
Deputy Director of the Applied Health Research,
University of Birmingham

DExtER: An automated epidemiology platform for electronic health record research

The NHS provides healthcare to 66 million people, with over a million people utilising NHS services every day. Each of these encounters is an opportunity to learn, but this data is often poorly accessible and not in research-ready formats. By bringing together experts in epidemiology, data science, and software engineering, we created DExtER (PMID: 32856160), an automated system for efficient, transparent and reproducible research. Studies which used to take months can now be undertaken within days. For example, DExtER enabled analysis of >70,000 serum testosterone measurements in young women, identifying increased risk of non-alcoholic fatty liver disease and diabetes in women with androgen excess. This led to a major new experimental medicine study (DAISy-PCOS) stratifying risk and developing novel treatments to prevent metabolic complications in women with polycystic ovary syndrome, a lifelong condition affecting 1 in 10 women worldwide. DExtER will also support the recently awarded MuMPreDiCT consortium that will study the effect of multiple long term conditions on pregnancy outcomes.

The tool also enables representative recruitment for mechanistic studies by rapidly generating eligible participants based on inclusion and exclusion criteria by searching through millions of electronic patient records within minutes. It is also underpinning data-driven clinical trials, such as RADIANT, a trial to improve testing for diabetes in women with a history of gestational diabetes. Such trials use already-collected NHS health information to reduce the time taken for research, both for patients and NHS staff, with both recruitment and outcomes driven electronically.

Importantly, DExtER also supports better clinical decision-making. Publications arising from DExtER have supported clinical decision-making across varied health conditions including idiopathic intracranial hypertension, a health condition that is common among young women. Furthermore, we have demonstrated that DExtER can answer clinical questions that arise during patient consultations within hours: termed an 'informatics consult', a tailored approach particularly important where there is lack of clinical trial evidence. We are hoping to trial this concept in the Shrewsbury and Telford maternity hospital.

Symposium 03

Future health development and directions for the faculty to consider

Prof. Aanandhi Ramachandran PhD (Madras) PGDM PGDCA PGDPHI.
Associate professor, Health IT,
International institute of Health Management Research, Delhi

Leveraging digital health ecosystem for universal health coverage in India: Learnings so far

Universal Health Coverage (UHC) that focuses on providing affordable and quality health care to everyone, everywhere has been the focus of all WHO member states since 2005. It is also an integral part of sustainable development goals. To provide UHC to the masses in addition to robust health policies and programs, support of financial, human and technological resources is required. India's commitment to achieving SDG and UHC is very much evident with its convergence with development goals and the progress it has made in the health sector. The key drivers have been the launching of Ayushman Bharat Programme (ABP) a national initiative as a part of National Health Policy to achieve UHC and National Digital Health Mission (NDHM) to facilitate the usage of digital health technologies for healthcare delivery. NDHM has recently metamorphosed to Ayushman Bharat Digital Mission (ABDM) and geared towards providing the backbone necessary to support the integrated digital health infrastructure of the country. It aims to bridge the gap between the various stakeholders through initiatives like universal identification number, electronic records, healthcare professionals and facility registry, mobile apps and universal health interface an open protocol for various digital services. ABDM implementation is in progress and has been rolled out in pilot mode. Although ABDM is much needed digital initiative to improve healthcare access there are still issues related like patient-physician trust, technological challenges, and data protection that need to be further addressed.

Symposium 03

Future health development and directions for the faculty to consider

Professor Chong Yap Seng MBBS (S'pore), MRCOG, MMED (O&G, S'pore), MD (S'pore), FAMS
Professor and Senior Consultant, Department of Obstetrics & Gynecology, National University Hospital, Singapore
Dean, Yong Loo Lin School of Medicine, National University of Singapore

Optimising the national human potential in early life

Human potential, defined as the set of intrinsic health and abilities that develop along trajectories influenced by biological, environmental and socioeconomic factors throughout the life course, is potentially modifiable, especially in early life. In this lecture, the example of the Growing Up in Singapore Towards healthy Outcomes (GUSTO) study is used to show how insights gleaned from a birth cohort can be used to identify early life factors that can be modified to improve the human potential of the population.

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OP-01**Outcome of ureteroscopy and laser lithotripsy in the management of ureteral stones at a tertiary care hospital in Jaffna***Balagobi B¹, Niroshan V², Sripandurangana R¹*¹*Faculty of Medicine, University of Jaffna*²*Teaching Hospital Jaffna*

Introduction: Ureteroscopy is the commonest treatment modality for urolithiasis, and its efficacy and safety are improving as technologies continue to evolve.

Objective: The objective of the study was to evaluate the outcome of ureteroscopy and laser lithotripsy for the management of ureteral stones in a single surgical unit at a tertiary care hospital

Methods: A prospective study was conducted on patients with ureteral stones who were admitted to the professorial surgical unit of Teaching Hospital Jaffna for ureteroscopy with laser lithotripsy from December 2021 to April 2022. Data collected included demographic information, stone size, stone site, and complications. SPSS (v26) was used to carry out univariate and bivariate analyses.

Results: A total of 112 patients were treated with ureteroscopy during the study period, with a mean age of 47.3 (SD 15.0, range 13-76) years. Seventy-six patients (67.9 %) were males. The mean size of the stone was 15.4 (SD 6.58, range 4.5-35) mm. Stones were located in the right ureter, left ureter, and bilateral ureters in 54 (48.2%), 50 (44.6%), and 8 (7.1%) patients, respectively, whereas 59 (52.7%) had proximal ureteral stones, 34 (30.3%) distal ureteral stones, and 19 (17.0%) mid ureteral stones. Eighty-nine patients (79.5 %) were treated only with rigid ureteroscopy and laser lithotripsy, while 23 (20.5%) required additional procedures such as flexi-ureteroscopy with retro-integrated renal lithotripsy (n=17, 15.2%) and percutaneous nephrolithotomy (n=6, 5.4 %). The majority in the sample had retrieved stone fragments that were sent for stone analysis (n=76, 67.9%). In the post-operative analysis, 4.5% (n=5) had Clavien Dindo grade II complications due to postoperative fever, treated with an intravenous antibiotic.

No Clavien Dindo III, IV, and V complications were detected in the sample. In total, 26.8% (n=30) had stent-related symptoms (dysuria, haematuria, loin pain, and/or lower urinary tract symptoms).

Conclusion: Rigid ureteroscopy is a safe and effective treatment modality for ureteral stones in any location, and it is also a feasible approach with better outcomes. However, a minority need additional treatment with flexi ureteroscopy or percutaneous nephrolithotomy.

Keywords: Ureteroscopy, Ureteral stones, Outcome

OP-02**Automated COVID- 19 detection system using deep learning***Kumarawadu P¹, Pradeepa S²*¹*E-Soft Metro Campus*²*Asia Pacific Institute of Information Technology*

Introduction: According to the World Health Organization, more than 534 million COVID-19 cases have been recorded globally with more than 6.3 million fatalities by June 2022. Although RT-PCR tests have been widely administered for detection of COVID-19, due to its relatively high false negative rate and time consumption for test administration, an alternative detection technique using chest radiography images could be appropriate.

Objectives: This study aimed to develop an image-based automatic detection system for COVID-19 related pneumonia using deep learning techniques.

Methods: A publicly available COVID-19 chest x-ray (CXR) and computed tomography (CT) scan dataset totalling 23,563 x-ray images and 194,922 CT images was used to train and test the deep learning model. During preprocessing of images, resizing, contrast improvement, noise control and data augmentation were carried out to improve the diversity of image data. The CXR model was trained in 4 stages. First, transfer-learning and fine-tuning techniques were used on three ImageNet pre-trained models individually: MobileNetV2, EfficientNetB0, and Xception.

Then, the learned features from the last dense layers of these models were extracted—by running the training dataset through them again—and a support vector machine (SVM) classifier was trained on top of those extracted features. Similar to the CXR model, the CT model was also trained in multiple stages. Here, two pre-trained models were used—ResNet50 and VGG16—with a final SVM model. The model performance was evaluated using accuracy, recall, F-score and precision.

Results: Overall accuracy for the proposed CXR model was 98.9% and it provided 98.5% COVID-19 classification accuracy. Overall accuracy for the proposed chest CT model was 93.8% with 99.7% COVID-19 classification accuracy.

Conclusions: In this research, we developed a deep learning based COVID-19 detection model using CXR and CT images. The model was trained, validated and tested using 23,563 CXR and 194,922 CT images that were publicly available. Our proposed model outperformed similar existing models and could be an alternate and reliable candidate for quicker detection of COVID-19 with further enhancements.

Keywords: COVID-19 detection, Deep learning, Transfer learning, Chest x-rays, CT images

OP-03

Nutrient composition and glycaemic response of nine sweet potato (*Ipomea batatas*) varieties in Sri Lanka

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Introduction: Sweet potatoes are an important food crop for many of the world's population due to high energy density and provision of many micronutrients. Although there are a number of sweet potato varieties available in Sri Lanka, only few studies are available on nutritional quality and no data on glycaemic responses (glycaemic indices (GI) and glycaemic loads (GL)).

Objectives: This study aims to determine the nutritional composition, GIs and GLs of 9 sweet potato varieties available in Sri Lanka.

Methods: Samples of *Ama*, *Wariyapola White*, *Wariyapola Red*, *Gannoruwa White*, *Dhawala*, *Hordi Malee*, *Ranabima*, CARI 273, and *Makandura Purple* sweet potato varieties were obtained from the Plant Genetic Resource Center Gannoruwa and Makandura Agricultural Research Center. Proximate composition (moisture, ash, carbohydrates (total and digestible), dietary fibre (soluble/insoluble), crude protein, fat) and fatty acids were determined using standard methods with flour of boiled tubers. GI of 9 selected varieties was determined using the WHO standard procedure. Digestible carbohydrate content in the given portion and average GI values of each variety were used for GL determination. Statistical analysis was done using SPSS software.

Results: Moisture content of boiled flour ranged between 4 to 10%. On dry weight basis (DM), ash ranged between 3% to 5%. Less than 6% crude proteins and crude fats were present (DM) with essential fatty acids, linoleic acid (20-39%) and alpha linolenic acid (5.5-14.5%). Total carbohydrate content of tested samples was 47% to 89% with 29% to 88% digestible carbohydrates (DM). All sweet potato varieties had more than 9% (on DM) of total dietary fibre, and the highest proportion was insoluble dietary fibre.

All varieties had high GI above 80 with high GLs (for portion sizes with 25g of digestible carbohydrates). However, considering the actual edible portions as reported by volunteers, all tested sweet potato varieties contained medium GL.

Conclusions: Based on the nutritive properties and high GI values, sweet potato flour can be utilized for the preparation of energy dense food products targeting growing children and malnourished adults.

Keywords: Glycaemic index, Glycaemic load, Glycaemic response, *Ipomea batatas*, Nutrient composition.

OP-04**How patients who refused radiotherapy in northern Sri Lanka understand radiation as a treatment modality for cancer**

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Introduction: Colloquially referred to as “current treatment”, radiotherapy is a feared cancer treatment modality in northern Sri Lanka. A significant proportion of patients seeking care at Tellippalai Trail Cancer Hospital, either refuse or discontinue radiotherapy, even in the curative setting, leading to poor clinical outcomes.

Objectives: This study explores patient perceptions that underlie decisions to refuse/discontinue radiotherapy in northern Sri Lanka.

Methods: An exploratory descriptive qualitative study was carried out among 14 patients who refused/discontinued radiotherapy at Tellippalai Trail Cancer Hospital. Participants were selected through purposive sampling. Data were collected through in-depth semi-structured interviews by members of the research team who were not directly involved in treating the patients.

The interviews were transcribed in Tamil, translated into English, coded using QDA Miner Lite (v2.0.8) software, and thematically analyzed. Two researchers reached consensus at each stage of the analysis.

Results: All participants referred to radiotherapy as “current” with several understanding the procedure to involve heated rods, hot vapour, and/or electricity being placed on/transmitted to the tumour. Many pointed to gaps in the information provided by healthcare providers. The latter were perceived to focus on side effects of radiotherapy without sufficiently discussing the methods and procedures that radiotherapy entails. While patients trusted the information shared by healthcare providers, in the absence of these crucial details, they relied on family

members, neighbours, and villagers, to fill the gaps, often based on second or third hand (at times terrifying) accounts of experiences with radiotherapy. Many participants indicated that they felt pressured by family members and loved ones to refuse radiation. Others spoke of fearing radiation, feeling ashamed to discuss their treatment plan with family members due to the cancer site (e.g., penis, cervix), and COVID-19, as reasons for refusing or discontinuing radiotherapy. However, all but three patients claimed they would recommend radiation to patients with cancer, especially when it was offered with curative intent, while the remainder were non-committal or felt radiation involved unacceptable side effects and suffering.

Conclusion: Patients with cancer who refused or discontinued radiotherapy in northern Sri Lanka have significant information needs, in particular, regarding the methods and procedures of radiotherapy. Steps need to be taken to address these needs, involving not only the patients but also their family members.

Keywords: Radiotherapy, Misconceptions, Fear, Cancer care, Northern Sri Lanka

OP-05**Maternal factors associated with low birth weight among deliveries registered in 2020 in the Nallur Medical Officer of Health, Sri Lanka**

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Background: Maternal health and care during pregnancy, childbirth and the postpartum period are important determinants of neonatal wellbeing.

Objective: This study aims to describe the maternal and birth profile of deliveries registered in the

Nallur Medical Officer of Health (MOH) Area in 2020 and to determine the maternal factors associated with low birth weight (LBW).

Methods: A community-based cross-sectional analytical study was carried out using secondary data extracted from the “B” portion of pregnancy records and child health development records at the offices of public health midwives (PHM) of the Nallur MOH Area. The details of women who delivered in 2020 (sociodemographic profile, pregnancy profile, family history, delivery details) and their birth details were collected using KoboCollect toolkit. Descriptive analysis was performed using SPSS (v25). Factors associated with LBW were identified with bivariate analysis.

Results: In total, 339 deliveries were included. Mean age of the mothers was 30.2 (SD 4.9) years. A large proportion had studied beyond Grade 11 (33.0%, n=112) and were housewives (71.7%, n=243). At registration with PHM, the median period of amenorrhoea was 7.0 (IQR 6.0-8.0) weeks, mean Body Mass Index (BMI) was 23.4 (SD 4.6) kgm⁻², and over three-quarters (77.9%, n=264) were on folic acid; 8.8% (n=30) and 6.2% (n=21) had a family history of diabetes and hypertension, respectively, while 13.0% (n=44) had a family history of both conditions. Anaemia was recorded at least once during pregnancy among 25.1% (n=85); other diseases diagnosed were gestational diabetes (n=11, 3.2%), respiratory diseases (n=7, 2.1%), and pregnancy-induced hypertension (n=1, 0.3%). Almost all deliveries were live-born (n=337, 98.8%); 53.7% were vaginal (n=182) and 42.8% were by caesarean section (n=145). Most deliveries occurred in Teaching Hospital, Jaffna (n=288, 85.0%). The ratio of male: female babies was 1:1 (169:170). The prevalence of LBW was 13.0% (n=44). There was no evidence of an association between LBW and maternal factors such as age <20 and >35 years (OR:1.26, 95% CI 0.58-2.69), underweight and overweight (OR:1.36, 95% CI 0.75-3.58), comorbidities (OR:1.0, 95% CI 0.50- 2.0) and family history of diabetes, hypertension or both (OR:1.12, 95% CI 0.56 - 2.23).

Conclusions: There was no evidence of an association between LBW and maternal factors. A study with a larger sample size is recommended.

Keywords: Maternal and child health, pregnancy profile, birth profile, low birth weight

OP-06

Phytochemical screening and evaluation of *in vitro* antioxidant potential, total phenolic and flavonoid content of palmyra (*Borassus flabellifer* Linn.) pulp and sprout

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Introduction: The ripened fruit pulp of palmyra is fibrous, yellowish-orange in color, sweet, high in carotenoids, and is consumed fresh. The palmyra sprout is high in fiber and nutrients. Both pulp and sprout have long been used in commercially available foods, domestic feed, and in the treatment of chronic diseases such as diabetes, cancer, and gastrointestinal disorders, with the sprout functioning as an excellent immune system booster.

Objectives: The goal of this study was to determine the phenolic content, flavonoid content, and antioxidant potential of palmyra pulp and sprout.

Methods: The qualitative phytochemical screening and estimation of total phenolic content (TPC) and flavonoid content (TFC) of the aqueous extract of matured palmyra fruit pulp and sprout were performed using standard methods. The *in vitro* antioxidant potentials were determined using DPPH and FRAP assays. Results were analyzed using Minitab software.

Results: The phytochemical screening of the aqueous extracts of matured ripe palmyra fruit pulp and sprout revealed the presence of alkaloids, flavonoids, saponins, tannins, triterpenoids, and phenols. The TPC and TFC of fruit pulp extract were 221mg (SD 13) GAE/1g of pulp extract and 168mg (SD 24) QE/1g of pulp extract, respectively. The TPC and TFC of the sprout extract were 190mg (SD 7) GAE/1g sprout extract and 114mg (SD 13) QE/1g of sprout extract, respectively. Accordingly, both TFC and TPC were significantly high in the pulp extract ($p \leq 0.05$). The mean DPPH scavenging activity of palmyra pulp extract (5.9mg, SD 0.02 AE/1g), and palmyra sprout (4.8mg, SD 0.05 AE/ 1g) were significantly different ($p \leq 0.05$). Similarly, FRAP scavenging power of palmyra pulp (12mg, SD 0.6 AE/ 1g) and sprout (10mg, SD 0.7 AE/1g) were significantly different ($p \leq 0.05$).

Conclusions: The increased TPC and TFC of palmyra pulp positively correlates with the higher free radical scavenging activities. Comparatively, palmyra pulp contributes more to reduce oxidative stress.

Keywords: *Borassus flabellifer* Linn., phytochemical screening, total phenolic content, total flavonoid content, pulp, sprout.

OP-07**Awareness on ergonomics among medical laboratory technologists in tertiary care hospitals in Kandy, Sri Lanka****Wickramasinghe WD¹**¹*Faculty of Allied Health Sciences, University of Peradeniya*

Introduction: Medical Laboratory Technologists (MLTs) play a crucial role in the health care system. They spend long hours in laboratories, handling and analyzing specimens, especially in tertiary care hospitals. MLTs maintain static and awkward postures in performing some laboratory test procedures, while some laboratory tests involve carrying out repetitive steps for a prolonged duration. Hence, knowledge of ergonomics is essential to prevent occupational injuries among MLTs.

Objective: To assess the awareness of ergonomics among MLTs working in medical laboratories of two tertiary care hospitals in Kandy.

Methods: A descriptive cross-sectional study was performed on a convenient sample of 90 MLTs from National Hospital Kandy and Teaching Hospital Peradeniya. Pregnant females and individuals who had undergone recent surgery/disabilities were excluded from the study. A self-administered questionnaire was given to study participants. Descriptive statistical analysis was done using frequencies and percentages, and a chi-square test was applied to determine the association between demographic variables and awareness on ergonomics. Ethical clearance was obtained from the Ethics Review Committee, Faculty of Allied Health Sciences, University of Peradeniya.

Results: Ninety MLTs participated in this study; 51 (57%) were men (mean age 44 years, SD 8) and 39 (43%) were women (mean age 39 years, SD 9). A third of the participants (33%) knew about ergonomics. Awareness on ergonomics was significantly associated with education level where MLTs with an undergraduate/master's degree were more likely than those with a certificate/diploma to know about ergonomics (56% vs. 24%, $p=0.003$).

Conclusions: Awareness of ergonomics was poor among MLTs of National Hospital Kandy and Teaching Hospital Peradeniya in the Kandy district. MLTs with certificate/ diploma qualifications were less likely to be aware of ergonomics. The study findings suggest that there is room for improvement in ergonomics education for MLTs in Sri Lanka.

Keywords: Ergonomics, Medical Laboratory Technologist, Awareness

OP-08**The impact of personal protective equipment on the physical well-being of health care workers**

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Introduction: The SARS-CoV-2 virus' primary modes of transmission have led to an increased drive toward the use of personal protective equipment (PPE). PPE is a physical barrier used by health care workers (HCWs), ranging from a face mask to a full suit with a hood. The heavy workload with the upswing of COVID-19 and discomfort of wearing PPE for long periods could result in considerable short- and long-term physical health problems.

Objectives: To determine the impact of PPE on the physical well-being of HCWs.

Methods: A cross-sectional descriptive study was carried out among 263 HCWs who were randomly selected from various HCW categories, including medical and supporting staff, working at Colombo North Teaching Hospital and three private hospitals in Ragama. Data were collected using a self-administered questionnaire graded on a Likert scale of responses 1-10.

Results: Out of 263, the majority were female (77.6%) nursing officers. The mean age of the sample was 35 (SD 10.2) years. The majority used full-face shields (70.0%), face masks (78.3%), and the same PPE was used by 86.4% for up to 12 hours.

In the sample, 189 (71.9%) used a double mask; of them, more than 50% used surgical masks as both inner and outer. Most felt a hot sensation (89.0%), breath resistance (86.3%), and fatigue (81.7%). Sore throat (34.6%) and a salty sweaty sensation (36.9%) were reported. More than half had discomforts like itchiness, odorous breath, and dizziness. More than two-thirds experienced humidity, facial irritation, and headache. Humidity, breath resistance, fatigue, and headache were reported at a mild level (1-3) by the majority, although many experienced severe overall physical discomfort (7-9). Notably, 68.8% had difficulty concentrating on routine shifts but did not stop working mid-shift due to such an effect (83.3%). The total duration of wearing PPE/same PPE, use of double masks, and the type of mask used as inner, were significantly associated with overall discomfort ($p < 0.05$).

Conclusions: Preventive measures need to be taken to reduce the less desirable effects of PPE on HCWs. Improvements in mask/ PPE design, adopting guidelines for use, and duty of care may help to uplift the wellbeing of HCW in the foreseeable future during such pandemics.

Keywords: Personal protective equipment, Physical well-being, Health care workers, COVID-19

OP-09

Perceptions and barriers to adopting healthy lifestyle modifications among adults in the Kokkuvil Public Health Inspector Area in Batticaloa

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Introduction: Existing data show a rising prevalence of non-communicable diseases (NCDs) among adults. Healthy lifestyle modifications during adulthood have a significant role in preventing the risk of NCDs. This study explored perceptions and existing barriers to adopting healthy lifestyle modifications among adults in the Kokkuvil Public Health Inspector area (university project area) in Batticaloa.

Methods: A qualitative study using grounded theory was conducted among purposively selected adults aged 18-50 years residing in the university project area. Twelve focus group discussions (FGD) were held. A semi-structured interview guide was used to explore perceptions and existing barriers to adopting healthy lifestyle modifications. FGD were transcribed and thematically analyzed.

Results: Low perceived risk of NCDs and less importance given to prevention through lifestyle modification were the two primary perceptions regarding healthy life style modification that emerged from the analysis. Barriers were identified at two levels: personal and environmental. Priority to other commitments, lack of willingness and unsatisfactory results were key personal barriers, while lack of family and cultural support and scarcity of resources were the common environmental barriers.

Conclusions: Adults in the university project area in Batticaloa perceived a low risk of NCDs and gave less importance to NCD prevention through lifestyle modification. In addition, low priority to lifestyle modification and scarcity of resources were barriers to adopting a healthy lifestyle. Designing an appropriate intervention to address these gaps is strongly recommended.

Keywords: Healthy lifestyle, Non-communicable diseases, Adults, Perceptions, Barriers

OP-10

Statistical distribution models of age at natural menopause of Sri Lankan women: A cross-sectional study

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Introduction: The WHO defines natural menopause as the absence of menstruation for at least 12 consecutive months, not due to surgery or other obvious causes. The age at natural menopause (ANM) is a predictive marker for risk of a variety of aging-related diseases.

Objective: To describe the statistical distribution models for ANM among Sri Lankan women.

Methods: A cross-sectional study was conducted between April 2012 and March 2016 among naturally postmenopausal women living in Sri Lanka. Estimated sample size (900) was allocated proportionally to all provinces; one district from each province was selected randomly, and from each selected district one divisional secretariat division was randomly selected. Data were collected at the residence using an interviewer-administered questionnaire and a record sheet. Race, bleeding pattern, number of stillbirths/abortions, education level and BMI were pre-identified as factors associated with ANM, using ordinal logistic regression. Based on the pre-identified factors, the sample was divided into 32 subgroups. Statistical distributions were fitted for ANM using probability plots in subgroups which had at least 30 observations.

Results: In total, 914 observations were obtained. For Sinhala women with $BMI \geq 18.5$, stillbirths/abortions < 3 , low bleeding pattern, who did not follow higher studies, ANM followed a Weibull distribution with shape parameter 17.1 and scale parameter 50.4 ($n=35$, $p > 0.25$). Similarly, for Sinhala women with $BMI \geq 18.5$, stillbirths/abortions < 3 , medium/high bleeding pattern, who followed higher studies, ANM followed the smallest extreme value distribution with location parameter 51.9 and scale parameter 2.5 ($n=47$, $p > 0.25$); for Tamil/Muslim women with $BMI \geq 18.5$, stillbirths/abortions < 3 , medium/high bleeding pattern, who did not follow higher studies, ANM followed the smallest extreme value distribution with location parameter 50.5 and scale parameter 3.4 ($n=126$, $p > 0.25$); for Sinhala women with $BMI < 18.5$, stillbirths/abortions < 3 , medium/high bleeding pattern, who did not follow higher studies, ANM followed a logistic distribution with location parameter 46.5 and scale parameter 2.4 ($n=47$, $p > 0.25$). A distribution for ANM for Sinhala women with $BMI \geq 18.5$, stillbirths and/or abortions < 3 , medium/high bleeding pattern, who did not follow higher studies ($n=521$), was not found. Instead, bootstrap estimates of quartiles of ANM $Q_1 = 46.20 \pm 0.47$, $Q_2 = 49.75 \pm 0.34$, and $Q_3 = 51 \pm 0.13$ were obtained.

Conclusion: Fitted statistical distributions can be used to estimate the risk of attaining natural menopause at a given age for Sri Lankan women in the relevant subgroup.

Keywords: Age at natural menopause, Statistical distributions, Sri Lankan women, Factors, Risk

OP-11

Impact of demographic and work-related characteristics on using outcome measurements by physiotherapists in Sri Lanka: A cross-sectional online survey

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Introduction: Outcome measurements (OM) are essential for measuring a patient's condition over time, quantifying observations, improving communication, and optimizing patient care efficiency in physiotherapy. Information on the use of OM and the demographic and work-related characteristics associated with the use of OM among physiotherapists in low- and middle-income countries is limited.

Objectives: The objectives of our study were: 1) to investigate the current use of OM by Sri Lankan physiotherapists; and 2) to determine the impact of gender, educational level, work experience, work setting (private/government), and number of patients treated per day, on the use of OM among physiotherapists.

Methods: A descriptive cross-sectional study was conducted online among physiotherapists working in government and private hospitals via consecutive sampling. The impact of demographic and work-related characteristics of using OM were estimated using binary logistic regression. $P < 0.05$ was considered significant.

Results: Out of the 77 participants, a higher proportion were female (67.5%), below 30 years of age (45.5%), degree holders (63.6%), working in the government sector (76.6%), with 1 to 4 years of work experience (55.8%) and treated 11 to 15 patients per

day (31.2%). Ninety-seven percent of the respondents used OM in their clinical practice. OM were mainly used to assess baseline health status (n=59, 26%), diagnosis (n=58, 25.6%), prognosis (n=55, 24.2%), and to evaluate the effect of the intervention (n=55, 24.2%). Gender (p=0.197), education level (p=0.289), work experience (p=0.601) and the number of patients treated per day (p=0.05) were not independently associated with frequent use of OM, while work setting was independently associated (p<0.05). Compared with government sector physiotherapists, private sector physiotherapists were nearly 11 times more likely to use OM frequently [OR (95% CI) 11.1 (2–61.1)].

Conclusions: The majority of physiotherapists in Sri Lanka use OM during treatment. OM is mainly used to evaluate baseline health status, diagnosis, prognosis, and to evaluate the effect of the intervention. Physiotherapists in the private sector are more likely to use OM among physiotherapists in Sri Lanka.

Keywords: Outcome measurements, Physiotherapy, Demographic characteristics, Work-related factors

OP-12

An audit of the consultation-liaison psychiatric services in a tertiary hospital in Sri Lanka: An interim quarterly report

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Introduction: The Mental Health Unit at Teaching Hospital Jaffna is the largest mental health facility in the Northern Province of Sri Lanka, providing all kinds of services from assessments to psychosocial interventions. Being part of a tertiary care hospital, consultation-liaison psychiatry becomes an important element of service provision.

Objectives: This study was designed as an audit to describe the sociodemographic characteristics and clinical profile of patients referred to the mental health unit, and the interventions prescribed to them.

Methods: This is an ongoing institution-based descriptive cross-sectional study. The preliminary data presented here were collected from March to May 2022. Assessment forms of all consultation liaison patients were included. An electronic data extraction form on Kobo Toolbox was used to extract the data. Data analysis was done using R and R Studio software. Ethical clearance was obtained from the Ethics Review Committee, Faculty of Medicine, Jaffna.

Results: During the three-month period, a total of 492 referrals of 203 (41.3%) male and 289 (58.7%) female patients, with a mean age of 35.9 (SD 17.8, range 8-94) years, were received. Most (38.6%) were referred for deliberate self-harm behaviour, followed by depressive disorder (30%), while a considerable proportion (12%) had alcohol or substance related issues. A great majority (94.7%) were new referrals to the Mental Health Unit, while the remaining 5.3% were known to the services. Medications were prescribed to 298 (60.6%) patients, while supportive counselling was offered to 360 (73.2%). Only four (<1%) patients were transferred for inpatient care.

Conclusions: The Mental Health Unit of Teaching Hospital Jaffna handles a huge case load related to consultation-liaison psychiatry, in addition to services to new and follow-up patients and medico-legal assessments. Deliberate self-harm behaviour and depression are the leading reasons for referral.

Keywords: Liaison psychiatry, Mental health services in Jaffna, Deliberate self-harm, Depression, Supportive counselling

OP-13

Economic cost of leprosy for patients and their families in Jaffna District

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Background: Although health services for leprosy are provided free of charge at the point of delivery, patients may have to spend on transport and related matters and/or lose their daily wage on days they visit the clinic.

Objective: The aim of the study is to describe the economic cost of leprosy for patients and their families in terms of direct and indirect cost of accessing services, change in employment status and lost wages in Jaffna district.

Methods: A cross-sectional descriptive study was conducted to describe the economic costs of leprosy among 109 patients using a pre-tested interviewer administered questionnaire. Total cost was calculated by adding direct (medical care, non-medical care and transport for clinic visits) and indirect costs (loss of income of patient and loss of income of accompanying person/family member). Mean or median (when there were extreme values) were calculated for each cost.

Results: Among the 109 study participants, only three had spent money from their pocket for medical care. For transport, they spent Rs.110 on average per visit and Rs.150 for purchasing food or drink (71 out of 109 participants). Due to leprosy, 28 persons stopped their regular work, and lost, on average, Rs. 500 per day due to leprosy. Out of the 64 (62.9%) accompanying persons, 23 (35.9%) had to be absent from their work (15 out of 23) or school (8 out of 23) and only 15 lost their income. Average total loss for a paucibacillary (PB) leprosy patient for clinic visits (maximum) was Rs.6,840.00. For a multibacillary (MB) patient for clinic visits (maximum), it was Rs.13680.00. Total loss for a PB patient's family (if the patient lost the job) for one year was Rs. 189,340.00 and for an MB patient's family (if the patient lost the job) for 1 year was Rs.191,620.00.

Conclusions: Cost of leprosy was relatively high for poor patients.

Keywords: Leprosy, Economic cost, Jaffna district.

OP-14

Trends in the incidence of oesophageal cancer in northern Sri Lanka and the distribution of socio-demographic and tumor-related factors

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Introduction: The incidence of oesophageal cancer is on the rise in Sri Lanka. It is currently the 4th most common cancer, and a disproportionately higher number of oesophageal carcinomas has been reported among the Sri Lankan Tamil population.

Objectives: The aim of the study was to describe the trends in the incidence of oesophageal cancer in the Northern Province where 93% of the population is Tamil speaking and to describe the distribution of demographic and tumor-related factors.

Methods: It was a descriptive correlational trend analysis using retrospective data of patients with oesophageal cancer registered at the Tellipalai Trail Cancer Hospital between the 1st of January 2014 and the 31st of December 2019. Data were analyzed using SPSS (v25) and Joinpoint software (v4.9). The standardized rates of oesophageal cancer per 100,000 population were calculated using WHO standardized populations.

Results: A total of 546 patients were included in the analysis. The mean age was 64 years with a slight male preponderance (male: female 1.02:1). Squamous cell carcinoma (SCC) was the predominant histological subtype (87.9%). Among patients with lower oesophageal cancers, 83.5% were SCCs. The WHO age-standardized incidence of oesophageal cancer in the Northern Province was observed to have increased from 5.38 per 100,000 in 2014 (95% CI 4.10-6.66) to 7.72 per 100,000 in 2019 (95% CI 6.18-9.25). The WHO age-standardized incidence of SCC has increased from 5.0 per 100,000 in 2014 (95% CI 3.76-6.23) to 7.1 per 100,000 in 2019 (95% CI 5.62-8.58).

However, the increase in the incidence of adenocarcinoma was not prominent compared to SCC, rising from 0.39 to 0.43 per 100,000 between 2014 and 2019.

Conclusions: A steady rise in the incidence of oesophageal cancer in the Northern Province was noted, with greater proportional increase in SCC. The increasing trend of oesophageal cancer in the Northern Province is in par with trends based on the National Registry.

Keywords: Oesophageal cancer, Squamous cell carcinoma, Incidence, Age-standardized rate.

OP-15

Clinical audit about knowledge, attitude and practice among healthcare staff in healthcare waste management at Base Hospital Chavakachcheri

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Introduction: Healthcare facilities face major challenges in healthcare waste management (HCWM). In Sri Lanka, the Ministry of Health has introduced a national HCWM guideline for healthcare institutions and organised training programmes on HCWM. Despite these efforts, implementation of HCWM faces many challenges. Knowledge, attitude and practice surveys (KAP) can help find the gaps in knowledge and behaviour patterns of healthcare staff.

Objective: This study aimed to assess the knowledge, attitude and practice in HCWM at Base Hospital Chavakachcheri among selected categories of healthcare staff.

Methodology: This clinical audit was carried out as a descriptive cross-sectional study. A self-administered questionnaire was distributed to all consultants, medical officers, nursing officers, attendants and health service assistants (HSA) of all units (n=105). The questionnaire was designed to assess knowledge with ten true/false questions, attitude with ten six-point

Likert scale questions, and practice with ten frequency questions. The mean points for each section were calculated and expressed in percentages. The standards for each section were set by reviewing similar studies from other countries in a focused group discussion with the medical superintendent and consultants of BH Chavakachcheri. The cut-offs were as follows: knowledge 90%, attitude 90%, and practice 85%.

Results: With 74 responses (consultants 2, medical officers 14, nursing officers 28, attendants 25 and HSA 5), the response rate was 70.5%. For the true or false questions used to assess the knowledge, participants answered 86.4% correctly. While all participants knew about the importance of needle stick injury, only 50% answered correctly about the burial of waste. Likert scale questions to assess the attitude revealed an 84.2% positive attitude. The participants perceived that the contribution of the work improvement teams (WIT) towards improving HCWM practices was not adequate (50.8%, mean score 3.05 SD 1.7). The frequency questions to assess practice showed 77.6% favourable practices. A significant number of participants reported that they hand over infectious waste together with general waste to local authorities always (55.4%) or sometimes (18.9%). The majority (70.3%) stated that they had not attended any training programmes in the past two years.

Conclusion: Most staff had basic knowledge, acceptable attitudes and favourable practices toward HCWM, but did not meet the expected standards. The hospital administration could improve HCWM by appreciating good practices, arranging training programmes, regularising WIT activities and conducting frequent supervisions.

Keywords: Healthcare waste management, infectious waste, clinical audit, healthcare workers, Sri Lanka

OP -16**Distribution of mutations of alpha-thalassaemia in South and Southeast Asia – An update**

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Introduction: Alpha(α)-thalassaemia is a hereditary disorder caused by mutations in the α -globin gene cluster. Such mutations decrease α -globin production causing low haemoglobin production. α -thalassaemias show varying clinical features from non-symptomatic trait to Hb Bart's hydrops foetalis which can be lethal *in utero*. Prevalence of α -thalassaemia is quite high in the tropical belt.

Objectives: The objectives of this study were to provide an update on the prevalence and distribution of α -thalassaemia mutations in South and Southeast Asia during the period 2010 to 2021.

Methods: A literature search was conducted on PubMed to identify studies relevant to this area published from 2010 to 2021. Selected studies were filtered based on specified criteria. The inclusion criteria were: (1) Articles published in English that reported prevalence in South and Southeast Asian countries, including deletional and non-deletional mutations; and (2) original peer-reviewed publications. Case study reports and abstracts were removed. Subjects were considered based on region and not ethnicity. When case content overlapped, the study with the most recent data or largest sample size was included. Studies that did not investigate a minimum of the 6 main α -thalassaemia mutations (deletions– 3.7 kb, 4.2 kb, SEA, THAI; non-deletions– CS, Paksé) were excluded to maintain homogeneity between studies. A change was made to this criterion when screening South Asian studies, to only consider four deletions (3.7 kb, 4.2 kb, SEA, THAI). Studies were analyzed for their heterogeneity using I² index and Q-test followed by a funnel plot to determine publication bias.

A meta-analysis was conducted using Review Manager (RevMan v5.3). Pooled prevalence for each area was calculated using a random effects model. Data from subjects with known genotypes were collected for a follow up allele frequency analysis.

Results: The 21 selected studies provided data from 20,731 subjects. High heterogeneity (I²= 100%, *p*-value<0.00001) and low publication bias were observed. Calculated overall prevalence of α -thalassaemia was 38.67%. Allele frequency analysis revealed deletions to be the major cause of α -thalassaemia and that distribution of mutations in South and Southeast Asia was heterogenous. The prevailing α -thalassaemia mutation in South Asia was the 3.7 kb deletion whereas Southeast Asian (SEA) deletion (19.3 kb) was pervasive in Southeast Asia.

Conclusions: Southeast Asian subjects include a higher number of symptomatic cases than the South Asian cohort. This preliminary study could be used as an initiative to compare global α -thalassaemia mutation status. Study findings could be used to design screening programmes for the considered region for better disease management.

Keywords: Alpha-thalassaemia, South Asia, Southeast Asia, Prevalence, Allele frequency

OP-17**Health-related quality of life in the population aged above 50 years in the Northern Province, Sri Lanka**

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Introduction: Health-related quality of life (QoL) is a multi-dimensional concept commonly used to measure health outcomes.

Objectives: This study aimed to assess health-related QoL and associated factors in the population aged above 50 years in the Northern Province, Sri Lanka.

Methods: A cross-sectional household survey was carried out among residents above 50 years of age in Northern Province, Sri Lanka. Sample size was 10,000. Multi-stage cluster sampling was employed, starting at district level, then the divisional secretariats, followed by *grama niladhari* clusters, based on population size. Data was collected between March 2020 and July 2021 using an interviewer-administered questionnaire. Data on QoL was assessed with the EuroQoL-5 dimension-5 level instrument (EQ-5D-5L) and EuroQoL Visual Analogue Scale (EQ-VAS). Statistical analysis was performed on SPSS (v23). Chi-Square test was used. Ethical clearance was obtained from the Ethics Review Committee, Faculty of Medicine, University of Jaffna.

Results: The response rate was 93.7 % (n=9253). Mean age was 65.3 years (SD 8.9) and 61.9% were females and the majority Sri Lankan Tamil (97.3%). Nearly two-thirds were married (59.3%) and a third had studied at least up to O/L (33.0%). The prevalence of hypertension, diabetes mellitus, ischaemic heart disease, hypothyroidism and chronic kidney disease were 32.8%, 23.0%, 9.3%, 6.3% and 4.2%, respectively. Less than a third (28.1%) had two or more chronic conditions. In the sample, 60.8%, 43.0%, 31.1%, 17.5% and 15.4%, respectively, had pain/discomfort, problems with mobility, anxiety/depression, usual activities and self-care. The mean EQ-VAS score was 71.5 (SD 13.5) and the mean score of self-rated health compared to others of the same age was 73.5 (SD 15.1). Age, gender, civil status, educational status and chronic multi-morbidity were significantly associated with all five dimensions of quality of life ($p < 0.001$). Ethnicity was significantly associated with self-care ($p = 0.012$) and anxiety/depression ($p = 0.039$).

Conclusions: Health-related QoL in the population aged above 50 years is average. Poor QoL indicators were observed among those who were above 70 years of age, female, not in the married category, and those with a low education level and having two or more chronic conditions.

Keywords- Health related quality of life, Sri Lanka

OP-18

Leprosy case detection in Jaffna district: A searching strategy in a low endemic area

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Background: Large scale health education or awareness programmes and active case detection are the most effective activities used to detect new leprosy cases.

Objective: The objective of this study is to describe a modified method of detecting new cases of leprosy in Jaffna district.

Methods: This was a descriptive study with retrospective and prospective data collection. This was done through house to house visits, community-based mobile clinics and the dermatology clinic of Teaching hospital Jaffna, the only hospital diagnosing and treating leprosy in the district.

Results: Overall, 55.9% of the 7792 target population was examined or screened. Medical Officer of Health (MOH) Chavakacheri had the highest and MOH Velanai the lowest target population. Out of 4354 persons examined in the district, 16.4% had some type of skin lesions and 2.0% had lesions suspected to be leprosy. Out of 88 suspected leprosy cases with skin lesions, 50% visited the dermatology clinic in the district. New cases were detected in MOH Chankanai (02), MOH Sandilipay (01), MOH Kayts (01) and MOH Kopay (01), among the screened population.

Conclusions: The new searching strategy detected a significant number of skin lesions and 5 new leprosy cases. The new case detection rate was 6.4/10,000 population whereas the district's new case detection rate was 0.7/10000 during the study period.

Keywords: Leprosy, Jaffna District, new case detection.

OP-19

Subclinical hypothyroidism related dyslipidemia and insulin resistance among females living in a Sri Lankan suburb: A preliminary study

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Introduction: Studies on subclinical hypothyroidism associated cardiovascular disease and lipid and glucose homeostasis among females in Sri Lanka are limited.

Objectives: This study aims to determine the association of subclinical (SCH) or overt hypothyroidism (OH) with lipid parameters and insulin resistance in normal and overweight/obese females in a suburban area of Sri Lanka.

Methods: A community-based case-control study was carried out among 88 normal and overweight/obese females aged 18 to 35 years, who had no past history

of diabetes mellitus (normal BMI: 18.5-22.9 kg/m², overweight BMI: >23-27.5 kg/m², obese BMI: > 27.5 kg/m²). Fasting blood samples were analyzed for blood glucose, insulin, lipid profile, TSH, T4 and T3. Homeostasis model assessment was used to assess insulin resistance (HOMA-IR). Data were analyzed by using ANOVA on SPSS.

Results: Of 88 participants, 59 (67%) were within the normal BMI range (mean 19.56, SD 2.44 kg/m²) and 29 (33%) subjects had a BMI above the normal range (mean 27.18, SD 3.36 kg/m²). The latter were considered the cases. Prevalence of SCH in the overweight/obese group and control group was 51.7% and 18.6%, respectively.

Serum TSH levels in SCH moderately and positively correlated with HOMA-IR in both normal ($r=0.031$, $p=0.02$) and overweight/obese groups ($r=0.485$, $p=0.008$). Moreover, SCH was significantly associated with lipid profile (HDL, LDL, TriG, TC) in both the obese and normal BMI groups ($p<0.05$ at 95% CI). But HOMA-IR did not show any association with lipid profile in either group ($p>0.05$ at 95% CI).

Conclusions: A significant relationship was observed between TSH levels and insulin resistance and also dyslipidaemia in both overweight/obese and normal subjects with SCH. Thus, it is recommended that SCH be investigated and managed to reduce the risk of developing diabetes mellitus and cardiovascular disease.

Keywords: Subclinical hypothyroidism, Cardiovascular disease, Insulin resistance

OP-20

EBV status and oral risk habits among a group of male patients with fibroepithelial polyp (FEP) in Sri Lanka: A pilot study

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Introduction: Epstein- Barr virus (EBV) which is also termed Human Herpes Virus 4 (HPV4) is the causative agent of infectious mononucleosis. This oncogenic virus is strongly associated with a variety of malignancies, including nasopharyngeal carcinoma, Burkitt's and Hodgkin's lymphoma. Nevertheless, oncogenic transformation of this opportunistic pathogen is observed only in high risk groups with oral risk habit, especially smoking.

Objectives: This pilot study aimed to describe EBV positivity and its association with oral risk habits among a group of male patients with fibroepithelial polyps (FEP) in Sri Lanka.

Methods: The subsample consisted of 23 male patients with FEP selected from 134 clinically diagnosed controls with benign oral mucosal lesions namely, FEP, lipomas, keratosis without dysplasia and mucoceles. Excisional biopsies of 23 FEP were collected, transported, stored and dispatched as frozen tissues at -80° C. DNA was extracted from frozen specimens using the Gentra Puregene Tissue Kit (Qiagen, Germany) solid tissue protocol. The DNA extracts were stored at -80° C and real time PCR was performed to detect EBV. A pretested interviewer-administered questionnaire was used to collect socio-demographic data and details of oral risk habits: betel quid chewing, tobacco smoking and alcohol consumption (current status, duration and type). These data were entered and analysed using SPSS (v21). Descriptive statistics and Fisher's exact test were used to compare groups (expected cell counts <5).

Results: EBV positivity in the present study was 56.5% (n=13) compared to a global EBV seroprevalence of up to 90% among healthy adults. Of the 13 EBV positive cases, 5, 7 and 1 individual(s) were in the age group of 28-45, 46-65 and 66-72 years, respectively. In contrast, EBV negativity was 43.5% (n=10). There was a statistically significant association between EBV positivity and type of alcohol consumed. However, current status and duration of alcohol consumption was not significantly associated with EBV status. Similarly, betel chewing and smoking habits did not show significant associations with EBV status.

Conclusions: This study provides preliminary evidence of a statistically significant association between type of alcohol consumed and EBV positivity. Absence of evidence of an association between EBV positivity and oral risk habits may be due to the small sample size. Hence, further studies with larger sample size are recommended to test this association.

Keywords: Epstein-Barr virus (EBV), Oral risk habits, Fibroepithelial polyps (FEP)

PP-01**Treatment response to imatinib mesylate in chronic phase chronic myeloid leukaemia: A single centre experience**

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Introduction: Imatinib has transformed the outcome of chronic myeloid leukaemia (CML). However, there is a paucity of data from Sri Lanka on long-term patient outcomes.

Objectives: The objectives of this study were to assess the cytogenetic response in patients diagnosed with CML in the chronic phase and to correlate the outcome with risk group based on the EUTOS Long Term Survival (ELTS) score, from January 2017 to July 2021 in Teaching Hospital Jaffna.

Methods: Thirty-six (n=36) adult patients (over 18 years) diagnosed to have BCR: ABL positive CML in the chronic phase were included. All patients received Imatinib 400 mg once daily as upfront treatment. Three months after recruitment of the last patient, the molecular response was assessed by real time quantitative Reverse Transcription-Polymerase Chain Reaction (RT-PCR) method.

Results: During the period of 55 months, 36 patients with a median age of 49 years (range 27-76 years) and a male to female ratio of 19:17 were diagnosed to have CML in the chronic phase. According to the ELTS score, 38.9% (n=14), 33.3% (n=12) and 27.4% (n=10) were in the low, intermediate and high-risk groups, respectively. Among them, 30.6% (n=11) failed to continue clinic follow-up and 13.9% (n=5) died (four died due to disease progression with a median follow-up period of 11.5 months and one due to treatment related severe myelosuppression at 16 months). Molecular response was assessed in the remaining 20 patients (median follow-up 33.5 months, range 3-51 months); 65 % (n=13) showed optimal responses, 30% (n=6) showed failure and 5% (n=1) was indicated as equivocal. Among the 13 patients showing optimal response, 9 were in the low-risk group. Among the treatment failure category, 3 and 2 patients were in the intermediate and high-risk groups, respectively.

Conclusions: Patient outcomes in Sri Lanka could be improved by maximizing patient adherence by effective communication, consideration of second-generation tyrosine kinase inhibitors for intermediate and high-risk patients as upfront treatment and sequential monitoring of molecular response to detect treatment failure at an early stage.

Keywords: Chronic myeloid leukaemia, Imatinib, Molecular response

PP-02**Numerical variation of parathyroids in the thyroid gland**

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Introduction: Parathyroid glands are usually four in number. Anatomy text books describe that four parathyroids are found in 90% of the general population. Normally two parathyroids are located in each thyroid lobe. The superior parathyroid is constant in position in the middle of the back of the thyroid lobe but the inferior parathyroid is variable in position and might be found in the lower part of the neck, superior or posterior mediastinum, as an ectopic parathyroid. The size of the ordinary parathyroid is in millimeters and incidental removal is common.

Objectives: To describe the variation in number of parathyroid glands present around the thyroid gland in a selected Sri Lankan population.

Methods: A total of 212 (142 males, 70 females) autopsy samples of thyroid glands were obtained from persons between 18-90 years from the Judicial Medical Officer, Colombo South Teaching Hospital. The patients with a history of thyroid or parathyroid diseases were excluded from the study. Ethical clearance was obtained from the Ethics Review Committee, Faculty of Medical Sciences, University of Sri Jayewardenepura.

Results: A total of 734 parathyroid glands were identified from 212 thyroid samples. The number of parathyroids identified in each sample ranged from 1 to 7 glands;

40.6% (n=86) had 4 parathyroids, 27.4% (n=58) had 3, 20.3% (n=43) had 2, 6.1% (n=13) had 5, 3.3% (n=7) had 6 and 1.41% (n=3) had 7 parathyroid glands, respectively. A maximum of 7 and 6 parathyroid glands were noted in the male and female samples, respectively.

Conclusions: The majority of thyroid samples had either 4 or 3 parathyroid glands. Careful exploration of these glands during thyroid or parathyroid surgery is recommended to avoid their destruction.

Keywords: Number of parathyroid glands, Thyroidectomy, Ectopic parathyroid

PP-03

Inequalities in nutritional status among children below five years from disadvantaged and 'normal' communities in Jaffna District

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Background: Several indicators have been used to describe the health status of people at the national level. Most of them are average values for the whole country. However, the problem with average values is that they hide disparities and inequalities existing in the population.

Objectives: This study aims to describe inequalities in nutritional status among children below five years from disadvantaged and 'normal' communities in Jaffna District.

Methods: A community-based cross-sectional comparative study with children 3 to 59 months of age was carried out in Jaffna District. The sample was selected by multi-stage systematic random sampling based on MOH area; 75 disadvantaged communities (DC) and 75 adjacent 'normal' communities (NC) were selected using a validated rapid assessment tool. Eleven children were recruited from each community. Data were collected with a pre-tested interviewer-administered questionnaire, which contained socio-demographic variables and space to record anthropometric data. Descriptive statistics and Chi square test were used in the analysis.

Results: In total, 818 and 594 children were recruited from DC and NC, respectively (some NC had less than 11 children). Sociodemographic characteristics of children were similar in both communities except in relation to the sector of residence and educational level of parents where the differences were favourable to NC and statistically significant. Chronic undernutrition was more prevalent in DC (36.4 %) than in NC (28.9 %; p=0.002). Normal weight for age was lower in DC (66.2 %) than in NC (75.2 %; p<0.0001). Severe underweight was higher in DC (9.2 %) than in NC (4.6 % ;p=0.001). Moderate underweight was 23.3 % in DC compared with 18.5 % in NC but the difference was not statistically different.

Conclusions: Except moderate underweight and acute undernutrition, all other types of undernutrition were significantly higher in DC than in NC.

Keywords: Inequalities, disadvantaged communities, undernutrition, Jaffna District

PP-04

Extensor indicis brevis muscle replacing extensor indicis: A case report

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Introduction: Variations of hand muscles are valuable from an anatomical standpoint and in interpreting rare clinical presentations and in surgical interventions. This report discusses a rare presentation of the extensor indicis brevis muscle and its clinical relevance.

Case presentation: During routine dissection for undergraduate teaching at the Department of Anatomy, University of Jaffna, an intrinsic muscle, extensor indicis brevis, was found on the dorsum of the left hand in a male cadaver, replacing the extensor indicis muscle. The abnormal muscle arose from the extensor retinaculum and continued as a small fusiform belly medial to the extensor digitorum tendon of the index finger, superficial to the extensor carpi radialis muscles, towards the index finger. Its distal attachment was to the extensor expansion of the index finger and it was supplied by the posterior interosseous nerve.

Discussion and conclusion: The extensor indicis is a narrow, oblique muscle, originating from the ulna and interosseous membrane, located on the dorsum of the forearm, medial to the extensor pollicis longus. It passes with the extensor digitorum under the extensor retinaculum and inserts into the extensor expansion. It extends the index finger independently without affecting the remaining fingers. The extensor indicis may be replaced by the extensor indicis brevis or the extensor brevis muscle may be present as an accessory muscle. This variation has been described in earlier studies with an incidence of 1 to 4%. Those reports describe its origin from the distal radius, carpal bones or adjoining joint ligaments and capsule and its insertion into the distal phalanx or extensor expansion. It also may be present as two bellies and a tendon in-between. It has been documented that this abnormal muscle may be an incidental finding or associated with pain and swelling at the dorsum of the hand after repeated exercise. This may lead to misdiagnosis of other clinical conditions like synovial cysts, ganglions, exostosis and benign tumours. This muscle may be easily damaged in minor injuries owing to its superficial location. Extensor indicis is widely utilized in surgeries for tendon transfer to restore a variety of finger movements. The preference for using this muscle is because the index finger also receives the extensor digitorum tendon. Knowledge of such variation is important while performing tendon graft surgeries.

Keywords: Anatomical variation, Dorsum of hand, Extensor indicis brevis muscle

PP-05

Are psychological interventions for arthritis pain management culturally sensitive? A review

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Introduction: Arthritis is a musculoskeletal condition associated with chronic pain and physical and psychosocial dysfunction. Medical procedures can effectively manage the biological aspect, while psychological interventions address psychosocial aspects of chronic pain.

Culturally sensitive psychological interventions have become increasingly important for every individual to benefit from evidence-based care.

Objectives: This study aimed to explore whether psychological interventions for arthritis pain demonstrate cultural sensitivity with participants from cultures different to which the intervention originated from.

Methods: A computer-aided search strategy followed keywords of “psychological interventions” “cultural adaptation”, “chronic pain”, “racial/ethnic groups”, and “arthritis”. A total of 43 studies were reviewed. Only 12 studies met the inclusion criteria; 1) publications from January 2000 to end 2020; 2) English language peer-reviewed journals 3) populations from non-western backgrounds; and 4) psychological interventions that incorporated a cultural adaptation. The search excluded; 1) faith and religion-adapted interventions and 2) acute pain.

Results: Research on psychological interventions to treat chronic pain among participants from non-western cultural backgrounds fits into one of two categories: 1) studies that reported the percentage of participants who were white and nonwhite, but did not provide more detailed racial/ethnic breakdowns of their participants; and 2) studies that provided more details on racial/ethnic diversity. In many studies, the percentage of minority participants was small. Only three studies reported that psychological interventions were equally effective for white and black patients, while five studies reported that interventions were not equally effective for groups different from whom the intervention was originally meant for. No studies reported making systematic efforts to assure that interventions were culturally appropriate for participants from cultures different to which the intervention was originally meant for.

Conclusions: The review showed underrepresentation of nonwestern cultural/nonwhite background and a lack of detail about the racial/ethnic makeup of samples. Further, too little attention has been given to culturally diverse groups in intervention research. However, this review has some limitations. Only 12 English language studies were analyzed in-depth, which is not sufficient to generalize the findings. Recommendations for future work; 1) meta-analyses are recommended; and 2) future meta-analyses need

to focus on specific ethnic populations, with intervention types sub-analyzed, instead of combining participants from different backgrounds.

Keywords: Arthritis, Chronic pain management, Psychological interventions, Cultural sensitivity

PP-06

Awareness on good and bad touch among grade 5 students of the community project area in Batticaloa district

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Introduction: In recent years, the number of reported cases of child sexual abuse has increased. Actual cases may be higher because many incidents are unreported. Therefore, children should be educated to prevent child abuse as early as possible.

Objective: This study aimed to assess the knowledge and attitude on touch pattern among grade 5 students in a selected area in Batticaloa District and assess the effectiveness of an educational intervention to improve knowledge and attitudes.

Method: A quasi-experimental study was conducted among 39 grade 5 students from three schools in the community project area in Batticaloa district. After obtaining informed written consent from the parents or class teacher, data were collected before and after an educational intervention, using a validated questionnaire. Intervention tools comprised of an educational video and a poster. Pre-test and intervention were done on the same day and the post-test was conducted the next day. The same questionnaire was used to collect pre- and post-test data. Statistical Package of Social Sciences (SPSS v25) was used to analyze the data.

Results: In the pre-test, a little over half the students had poor knowledge (51%) and good attitudes (59%). Post-test data showed that the proportion of students with good knowledge and excellent attitudes increased to 69% and 97%, respectively. The paired t-test value was 9.693 at df = 38 and p <0.001, indicating a significant difference between knowledge scores after the intervention.

Conclusions: The educational intervention significantly improved the knowledge and attitudes of grade 5 students on good and bad touch.

Keywords: Children, Sexual abuse, Good and bad touch, Educational intervention, Batticaloa

PP-07

Common genitourinary health problems and associated factors among patients with non-communicable diseases in a primary care setting

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Introduction: Genitourinary health problems are common among elders and patients with non-communicable diseases. Most genitourinary problems can be dealt with greater efficacy if they are identified early and this is practically possible in primary care settings.

Objectives: This study aimed to describe genitor-urinary problems and associated factors among patients with non-communicable diseases in a primary care setting.

Methods: It was an institution-based descriptive cross-sectional study using routinely collected data in the Family Health Center Kondavil, Jaffna. Data collection was carried out in February 2022. A data extraction form was used to collect data from routinely maintained patient records at the Family Health Center Kondavil. Sociodemographic details, data related to disease conditions and genitourinary health, physical measurements and laboratory evaluations of 163 patients were included in the analysis. Statistical analysis was performed in SPSS (v23). Chi squared test was used. Ethical clearance was obtained from the Ethics Review Committee, Faculty of Medicine, University of Jaffna.

Results: Mean age was 60.9 (SD 11.6) years; 70.6% (n=115) were female. Over half (54.3%, n=88) were obese. In total, 50.9% (n=83), 58.9 % (n=96), 13.5 % (n=22), 7.4 % (n=12) and 20.9% (n=34) had diabetes mellitus, hypertension, bronchial asthma,

hypothyroidism and dyslipidaemia, respectively; 27% (n=44) had both diabetes mellitus and hypertension. Among males who were assessed using the International Prostate Symptom Score (IPSS) (n=37), mild lower urinary tract symptoms (LUTS) were identified among 91.9% (n=34). Among females who were assessed with the International Consultation on Incontinence Modular Questionnaire (ICIQ) (n=27), 70.4% (n=19) reported mild urinary incontinence. Among 79 patients for whom urine analysis was carried out, non-visible hematuria and proteinuria were encountered in 6.3 % (n=5) and 7.5% (n=6), respectively. Among males who underwent testing (n=24), serum creatinine was >1.2 mg/dl in 4.2% (n=1); none of the females had serum creatinine of >1.2 mg/dl. Mean size of the right and left kidney (n=125) were 9.9 (SD 0.9) and 10.1 (SD 1.1) cm. Mean post-voidal volume (n=123) was 10 (SD 11) ml. Mean prostate volume (n=35) was 18.6 (SD 7.1) ml. Right and left testicular volume (n=36) were 10.5 (SD 3.9) and 10.5 (SD 4.7) ml. Stage 3A and 3B chronic kidney disease (CKD) were identified among 23.1% (n= 18) and 3.8% (n=3) patients, respectively. Stage 4 and Stage 5 were not found. CKD was significantly associated with hypertension (p=0.014) and age (p<0.001).

Conclusions: Genitourinary health problems can be identified early in primary care settings. Referral and effective management are key parameters of disease management.

Keywords: Genitourinary health, Routinely collected data, Jaffna

PP-08

A clinico-epidemiology of patients admitted following saw-scaled viper bite to the Teaching Hospital Jaffna and District General Hospital Kilinochchi

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Introduction: The saw-scaled viper is a venomous snake responsible for more than 50% of snake bites in the Northern Province of Sri Lanka.

Objectives: This study describes the clinical and epidemiological pattern of cases of saw-scaled viper bite admitted to the Teaching Hospital Jaffna and District General Hospital Kilinochchi.

Methods: A cross-sectional study was conducted among patients admitted with a history of saw-scaled viper bite confirmed by positive identification of the offending snake specimen. Data collection was prospective using investigator-administered questionnaires. IBM SPSS (v20) was used for data analysis.

Results: Thirty confirmed saw-scaled viper bite cases were recruited to the study. Among offending snakes, 17 (56.7%) were male and 13 (43.3%) were female. Majority of the patients were male (96.72%) with a mean age of 39.5 years. The highest number of cases were reported between October and December (63.3%); the peak times of snakebite were between 7.00 and 10.00am and 5.30 to 8.30pm which were reported in two-thirds of cases. Foot was the most common site of bite (66.6%), followed by the toes (20%). The most common symptoms were pain (89.9%) and swelling (75.0%); spontaneous bleeding from the bite site was observed in 12 (40%) cases. Majority (90%, n=27) of patients got admitted within three hours of the bite and blood incoagulability was detected in 25 (86%) patients within 6 hours of the bite. All patients were treated first with 10 vials of Indian polyvalent anti-venom. Coagulopathy returned to normal in 19 (69%) patients within 6 to 10 hours of anti-venom treatment. A second dose of 10 vials was given to seven patients. Two patients who received the second dose of anti-venom developed anaphylaxis. All patients recovered from the coagulopathy within 16 to 22 hours from the bite and were discharged with an average hospital stay of 3.4 days.

Conclusion: Although fatality is relatively low, saw-scaled viper bite is an occupational hazard among the farming communities in northern Sri Lanka. Up-to-date knowledge on the clinico-epidemiology of Sri Lankan saw-scaled viper bite must be imparted to develop cost-effective treatment strategies coupled with regular public health programmes.

Keywords: Saw-scaled viper, Clinico-epidemiology, Northern Sri Lanka

PP-09**Assessment of dengue vector breeding sites as a tool for vector control in the Northern Province of Sri Lanka**

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Introduction: Dengue is recognized as the most prevalent arthropod-borne viral disease globally, infecting around 500 million individuals each year. Among the infected, around 100 million cases are symptomatic showing mild to severe symptoms. As the world has failed to discover an effective vaccine to prevent or treat dengue, and the existing vaccine shows poor efficacy, studying vector bionomics, especially their breeding habitats, is crucial to control vector density, both temporally and spatially. In Sri Lanka, *Aedes aegypti* and *Aedes albopictus* currently act as the primary and secondary vectors, respectively.

Objective: This study aimed to describe common breeding sites and the changes in breeding sites from 2019 to 2021 in Sri Lanka and the Northern Province.

Methods: *Aedes* vector larval data, received by the National Dengue Control Unit from surveillance carried out in all 25 administrative districts in the years 2019, 2020 and 2021, were pooled and analyzed to compare all island data with data from the Northern Province.

Results: At the national level, discarded items were the major breeding grounds for both vectors during the study period, with a contribution of 29% (n=46539 *Aedes* vector positive containers), 26% (n=39558) and 28% (n=43419) in 2019, 2020 and 2021, respectively. As the second prominent breeding site, water storage items contributed 21% in all three years. Meanwhile, temporarily removed items, tyres, and covering items were supplementary breeding sites. When considering the Northern province, water storage items, which were the major breeding site, gradually decreased from 43% to 33% over the study period, while discarded items, the second prominent breeding site, increased from 24% to 31%. Other common breeding sites recorded in the Northern Province were tyres, ornamental items and pet feeding cups.

Conclusion: When compared with all island data, a shift of major breeding sources in the Northern Province was observed from discarded items to water storage items. To conduct effective vector control programme, it is important to identify not only the major breeding sites but also changes in the breeding sites over time, resulting from people's changing behaviors. Risk communication should be modified appropriately to contain the transmission of dengue.

Keywords: Dengue, *Aedes* vector, breeding sites, vector surveillance

PP-10**Impact of medical equipment maintenance management in the provision of quality health care services in healthcare institutions of developing countries: A review of the evidence**

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Background: Rapid advancement in technology has made biomedical equipment (BMEq.) and its maintenance reach prime importance in the provision of uninterrupted health services. Still, components of maintenance are not well practiced resulting in disruptions to health service delivery.

Objectives: This study aimed to evaluate the key elements of BMEq maintenance management and to assess key factors influencing the provision of quality health services. Also, by critically evaluating the impact of BMEq management on provision of quality health services, establishing an effective BMEq maintenance strategy is the ultimate aim.

Methods: Articles on BMEq maintenance management and provision of quality health services published between 2010 and 2021 were selected from academic journals and the latest editions of reputed textbooks based on pre-identified selection criteria. Based on the search terms and study criteria, 90 publications were identified and reviewed. Considering relevance, duplication, and recentness, the number was filtered down to 31 articles.

Based on scope and objectives 13 journal articles were included. The articles were reviewed using a deductive approach. Descriptive summaries were compiled and thematic analysis performed.

Results: Among factors affecting total productive maintenance of BMEq, 'planned maintenance' and 'quality maintenance' have been given prime importance, followed by 'safety'. 'Role of administrators' has been given minimal importance. Among the factors influencing quality health services, authors have placed emphasis on 'safety,' followed by 'patient centeredness' but have given less prominence to 'timeliness' and 'communication.' According to the literature, BMEq maintenance has resulted in functional, safe, efficient, and quality equipment. None of the authors have incorporated 'autonomous maintenance'; hence, preventive and early maintenance have been given importance. Majority have not shown attention to 'administrator involvement' or 'communication.' The studies included have failed to pay due attention to 'timeliness' as a factor. Accordingly, a strategic model 'Quality Health care through Productive Maintenance' was formulated.

Conclusions: Productive maintenance of equipment with quality concepts offers the potential for synergistic improvement of the provision of quality health services. It is recommended to incorporate total productive maintenance principles into the culture of organisations to achieve boosted productivity and provide a quality health service.

Keywords: Medical equipment, Maintenance management, Quality health services

PP-11

Prevalence of anaemia among pregnant women in Sammanthurai MOH Division

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Introduction: Maternal anaemia is defined as having a haemoglobin level below 11 g/dl during pregnancy. Iron deficiency may contribute to this maternal morbidity and poor foetal outcome.

Objectives: This study aims to determine the prevalence of anaemia among pregnant women in the Sammanthurai Medical Officer of Health (MOH) Division in Sri Lanka and its relationship with age, BMI, parity, diabetes condition of the mother (gestational, chronic or non-diabetic) and the iron supplement source (i.e., MOH field clinics or private clinics).

Methods: MOH records from the first and third trimesters of 656 pregnant mothers who had completed their 28th week of pregnancy during the period August to December 2020 were analysed. The analysis comprised of binary logistic regression, one and two sample proportion tests and Chi-square test. A 5% significance level was used for all inferential analysis.

Results: The prevalence of maternal anaemia in the Sammanthurai MOH Division (43%) was observed to be significantly higher than the national level (30%) (p-value <0.001). The prevalence of anaemia in the third trimester of pregnancy (39%) was substantially higher than in the first trimester (9%) (p-value <0.001). However, anaemia prevalence was not uniform among the 24 Public Health Midwife (PHM) areas that constitute the MOH Division. The highest prevalence in the first trimester was observed in Pallaweli (55%) PHM area. No anaemic mothers were observed in Maddakalappu Tharawai-2, Karuwattukul-3, Sammanthurai-1, Block J East-1, Malwatta and Kallarichchal-1 areas, in the first trimester. In the third trimester, the highest prevalence of anaemic mothers was observed in Kallarichchal-2 (57%), while the lowest prevalence was observed in Karuwattukul-3 (5%). Underweight mothers were found to have significantly higher odds of suffering from anaemia in both the first (OR 2.18) and third trimesters (OR 1.73), while the odds of having anaemia were increased in the third trimester by higher parity levels (by 25% per each unit) and positive first trimester anaemic status (by twofold).

Conclusions: The prevalence of anaemia among pregnant women in Sammanthurai MOH Division is higher than at the national level. The findings indicate that underweight and multiparous mothers may benefit from attending pre-conceptual counselling with added care as the BMI and parity were associated with anaemia. In contrast to what was postulated, age, diabetes condition and iron supplement source

were not found to have a significant association with anaemic status in either the first or third trimesters.

Keywords: Maternal anaemia, Sammanthurai MOH, Logistic regression

PP-12

Knowledge, practices and associated factors regarding urine sample collection, storage and transport among nursing staff of a tertiary care hospital in Colombo district

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Introduction: Inaccurate specimen collection, storage, and transport results in erroneous lab reports. As the majority are due to human errors, it is important to identify the knowledge gaps among nursing officers who play a key role in specimen collection and transport.

Objective: To describe knowledge, practices and associated factors regarding urine specimen collection, storage and transport among nursing officers at Colombo South Teaching Hospital (CSTH).

Methods: A descriptive cross-sectional study was carried out among 70 nursing officers working in selected wards of CSTH. A pretested self-administered questionnaire was used for data collection. The overall mean score was taken as the cut off to categorize good and poor knowledge and practices. Data were analysed using SPSS (v15). Significance was taken as $p < 0.05$.

Results: Of the 70 participants, 68 (97.1%) were female nurses. Mean age of the sample was 32.78 (SD 6.08) years and 27 (38.6%) had attended workshops on specimen collection. The majority had good knowledge on collection time (95.7%), preparation procedure (94.3%), collecting a midstream specimen (100%), standard precautions (91.4%), type of equipment used for sample collection (52.9%), volume of urine (84.3%), labelling of urine samples (78.6%) and storage and transport (47.1%). However, only 48.6% had good knowledge on the actual procedure of collecting urine in females, males and infants.

The majority reported correct practices related to collection time (97%), preparation procedure (93%), standard precautions and labelling (100%) and equipment, test material and volume of urine (>70%). Only 43% had correct practices related to the actual procedure of collecting urine and 51.4% for storage and transport. Workshop participation was significantly associated with levels of knowledge and correct practices ($p < 0.05$). Nurses with good knowledge were more likely to have correct practices ($p < 0.05$).

Conclusions: The majority of nurses at CSTH have good knowledge and correct practices related to urine specimen collection, storage and transport. However, there are gaps in knowledge and practices regarding some procedures and the methods of urine sample storage.

Keywords: Nurses, urine collection, transport, knowledge, practices

PP-13

Community preparedness for a multi-hazard scenario amidst the pandemic: A simulation-based training in Jaffna district

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Introduction: The COVID-19 pandemic and its wide-ranging health, social and economic consequences have stretched our existing response mechanisms beyond their limit.

Hence, another co-current hazard could create a devastating impact on health and disaster response systems.

The hazard profile of Jaffna suggests that the likelihood of such a scenario is high. Therefore, preparing vulnerable communities and grassroots level health workers for a multi-hazard scenario would be an investment for the future.

Objectives: The objective of this training were: 1) to introduce dynamics of different multi-hazard scenarios to grassroots level public health workers, community-based organizations, and members of the disaster-vulnerable communities in Jaffna district; 2) to prepare them for an effective response to multi-hazard scenarios through community-based preparedness plans developed through multi-stakeholder collaboration.

Methods: A simulation-based training was prepared by an expert panel of public health professionals, sociologists, disaster management practitioners and academia. Inputs from the community leaders of the Sarvodaya Suwodaya Committees and Medical Officers of Health of disaster-prone localities were incorporated into the scenarios to mimic real life situations. Four multi hazard scenarios comprising of a co-current outbreak of dengue, malaria, seasonal flood, and a tsunami, amidst the pandemic, were included in the simulation. A template comprising of scope and purpose, narratives and list of events, role of participants, messages delivered during the simulation, expected outcomes and the facilitator's role was prepared by the expert panel. Participants, including 30 community members, 15 each of Public Health Inspectors and Sarvodaya Suwodaya members, were divided into four working groups. Each group was expected to draft a preparedness plan to a given scenario to be appraised by a panel of experts.

Results: Four preparedness plans were developed and appraised for their appropriateness for the local context, timeliness, operability, intersectoral collaboration and community involvement. Each plan was then revised to meet the objectives of the training by the expert panel and the training group. Trainees were instructed to introduce these plans to their communities for review and rehearse their implementation.

Conclusions: Inclusion of vulnerable communities and multi-stakeholder collaboration in preparedness planning for multi hazard scenarios were reiterated in each plan. This simulation-based training could be replicated elsewhere to facilitate collaboration and proactive engagement between the community and other stakeholders for inclusive preparedness planning.

Keywords: Simulation based training, Multi-hazard, Community preparedness

PP-14

Case series of febrile seizures following acute COVID-19 infection: A possible link with Omicron variant

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Introduction: Febrile seizures are a common occurrence in children between 6 months and 6 years of age. By the end of February 2022, 645,037 confirmed acute COVID-19 cases had been reported in Sri Lanka. Between 16th March and 20th September 2020, 78 children below 14 years tested positive for COVID-19; a third below 5 years of age.

Case presentation: The eight patients in this case series presented to the Colombo North Teaching Hospital during February 2022. They were aged between 18 months and 11 years, representing different socioeconomic backgrounds with equal male to female distribution. One child aged 2 years and 10 months, currently under evaluation for neurofibromatosis, had gross motor and speech delay. However, his MRI brain and electroencephalogram (EEG) were normal. All others were developmentally age appropriate. Six children developed simple febrile seizures on the first day of fever; two of them had a past history. The remaining two, aged 6 and 11 years, had, respectively, two seizures on the first day and one seizure on the third day of fever. The 6-year-old had staring with bilateral spasms; the 11-year-old had generalized atony. The EEG was unremarkable in the latter. None of the eight children had other systemic manifestations. All had a positive nucleic acid amplification test; other basic investigations were normal. The febrile illnesses were short-lasting, without any requirement for antiepileptic medication.

Discussion: Neurologic manifestations are a common and important occurrence among up to a third of acute COVID-19 cases where the risk of severe neurological manifestations increases with the severity of infection. A case analysis from Sweden, of four children with similar presentation, indicates the likelihood of Omicron variant to be linked with seizures. During the period of this study, most reported cases of COVID-19 in Sri Lanka were due to Omicron variant. The findings indicate the need for a retrospective analysis to statistically demonstrate evidence of an association between Omicron variant and febrile seizures among children in Sri Lanka.

Key words: Febrile seizure, Acute COVID-19 infection, Omicron variant

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