



# Faculty of Medical Sciences University of Sri Jayewardenepura



in collaboration with

Colombo South Teaching Hospital  
Sri Jayewardenepura General Hospital  
Base Hospital, Homagama

## International Conference on Health Sciences 2018

“Beyond Borders Towards Excellence”

7<sup>th</sup> to 9<sup>th</sup> October 2018

Waters Edge, Colombo



Ministry of  
Science, Technology & Research



NATIONAL  
SCIENCE  
FOUNDATION



Ministry of Health,  
Nutrition & Indigenous Medicine



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Dr. Bawantha Gamage

Dr. Shalindra Ranasinghe

Dr. Manjula Weerasekera

Dr. Bernadene Fernandopulle

Dr. Usha Hettiaratchi

## Message from the Vice Chancellor University of Sri Jayewardenepura



Honoring our commitment of providing quality research at the University of Sri Jayewardenepura, I take this opportunity to appreciate the effort made by the Faculty of Medical Sciences, in organizing the International Conference on Health Sciences 2018. As the theme of the conference, “Beyond Borders Towards Excellence” suggests, I am especially delighted to find that, the Faculty of Medical Sciences has taken the effort to organize an International Conference with the participation of international speakers and international delegates this year. It is also a wonderful way to celebrate the 25<sup>th</sup> Anniversary of the Faculty.

Research in medical sciences is a necessity for the development of healthcare. It is one way in which academics can contribute to the society in addition to teaching. Conducting health related research on one hand, provides opportunity to improve healthcare services. On the other hand, conducting research nurtures young scientists who may one day make great scientific discoveries for the betterment of all mankind. I have always supported good research, and it gives me great pleasure to observe academics of the Faculty of Medical Sciences taking maximum benefit of these opportunities.

Collaboration is an integral component of development. This year, six collaborators, Colombo South Teaching Hospital, Sri Jayewardenepura General Hospital, Base Hospital, Homagama, National Science Foundation, Ministry of Health, Nutrition and Indigenous Medicine, and Ministry of Science, Technology and Research have joined hands with us in this event. It is indeed encouraging to see collaboration in research fostering among academics, health service providers, and administrators. I believe this is the perfect blend to ensure benefits of research reach our society.

I would like to thank all the local and international speakers for sharing their expertise and valuable experiences in research with us, especially for dedicating their valuable time and effort to join us at the International Conference on Health Sciences 2018. I wish to extend my sincere thanks to the Dean and staff of the Faculty of Medical Sciences for their unstinted contribution to make this academic event a great success. I wholeheartedly congratulate the Chairperson and the Research Committee for their dedication and commitment in organizing this event and I sincerely hope all participants will make the best out of this wonderful opportunity.

I wish the International Conference on Health Sciences 2018 every success.

**Snr Prof. Sampath Amaratunge**  
**Vice Chancellor**  
**University of Sri Jayewardenepura**

## Message from the Dean

### **Faculty of Medical Sciences - University of Sri Jayewardenepura**



The International Conference on Health Sciences 2018 is organized by the Faculty of Medical Sciences to commemorate the 25<sup>th</sup> Anniversary of the Faculty. Every year the Faculty of Medical Sciences, USJ, hosts scientific sessions to share new research findings in the field of medical sciences in our country. However, this year being the 25<sup>th</sup> year since the establishment of our Faculty, we have broadened borders by organizing an international event.

It is extremely encouraging to have six main collaborators including, three of our extended faculties, Colombo South Teaching Hospital, Sri Jayewardenepura General Hospital, and Base Hospital, Homagama, together with the National Science Foundation, Ministry of Health, Nutrition and Indigenous Medicine, and Ministry of Science, Technology and Research supporting us on this mission.

We are delighted to have with us, Prof. Andrew Dawson from Australia, Prof. Andrew McBain and Prof. Ravi Silva, from the United Kingdom, and Prof. Dujeepa Samarasekera from Singapore, to share their research experiences across the borders. We have also invited many of our local experts specializing in various fields of medical sciences to enrich the scientific program. I believe that the scientific program that has been carefully planned out by the scientific committee is well balanced with clinical and laboratory based research topics and will interest a wide audience.

My sincere thanks to Snr Prof. Sampath Amaratunge who has been a great motivator to develop research activities in our university. I hope this conference will be a doorway of evidence for the many high quality research carried out by academics of the Faculty of Medical Sciences.

Finally, I take this opportunity to thank the Chairperson, Snr Prof. Neluka Fernando, her team in the Research Committee of the Faculty of Medical Science and all other contributors for organizing an event of this magnitude. I hope the deliberations of the research sessions will prove productive and intellectually stimulating.

**Snr Prof. Surangi G. Yasawardene**  
**Dean**  
**Faculty of Medical Sciences**  
**University of Sri Jayewardenepura**



## Message from the Conference Chair

### **Faculty of Medical Sciences, University of Sri Jayewardenepura**



I am pleased to welcome you to the International Conference on Health Sciences 2018 held from 7<sup>th</sup> to 9<sup>th</sup> October 2018 at Waters Edge, Colombo, Sri Lanka. As in the previous year, the Faculty of Medical Sciences, University of Sri Jayewardenepura is collaborating with the extended faculty members from three hospitals, Colombo South Teaching Hospital, Sri Jayewardenepura General Hospital and Base Hospital, Homagama who have joined hands in this event to make it a success. Our effort in collaborating with the extended faculties has enabled diverse clinical fields to be brought to one common platform; with themes ranging from Pharmacology and toxicology; Non communicable disease; Infectious disease; Pathology/surgical interventions; Preventive medicine to clinical medicine. Sharing of knowledge among academics and other professionals in clinical practice has greatly improved the quality and outcome of this conference. It is also noteworthy that world renowned scientists have been invited as guest speakers among many other eminent local speakers. Over the years the scientific sessions of the Faculty of Medical Sciences, University of Sri Jayewardenepura has grown in magnitude to be able to hold an international conference today, to commemorate the 25 year anniversary of the faculty. The theme for this year “Beyond Borders Toward Excellence” speaks for itself. I have no doubt that this conference is an excellent forum for exchanging information and discussion and also the beginning of many collaborative research between institutions and researches. The programme includes several plenary lectures and symposia on cutting edge topics which range from biofilm infection to enhancing professionalism. This year we were able to hold the conference in a beautiful location situated in the capital of Sri Lanka, with several popular sites and attraction situated nearby to especially cater to international audiences by the joint sponsorship of the National Science Foundation, Sri Lanka, Ministry of Science and Technology and the Ministry of Health Nutrition and Indigenous Medicine. I would like to appreciate the tireless effort put in by the secretary and committee members to hold a conference of this magnitude; the first ever international conference organized by the Faculty of Medical Sciences. A great amount of extra time, above and beyond the call of duty has truly helped to ensure that the benchmarks were met. I wish you all a pleasant, interesting and valuable international conference in the year 2018.

**Snr Prof. Neluka Fernando**  
**Conference Chair 2018**  
**Faculty of Medical Sciences,**  
**University of Sri Jayewardenepura**

## Message from the President

### **Clinical Society - Colombo South Teaching Hospital**



It is with great pleasure and joy that I am conveying my message as president of the Clinical Society of Colombo South Teaching Hospital with regards to the International Conference on Health Sciences 2018 which is scheduled to be held from 7<sup>th</sup> to the 9<sup>th</sup> of October 2018.

With a timely theme of “Beyond Borders Towards Excellence” the International Conference on Health Sciences 2018 of the Faculty of Medical Sciences, University of Sri Jayewardenepura join hands with the Colombo South Teaching Hospital, Sri Jayewardenepura General Hospital, and Base Hospital, Homagama to make this year’s event extra special.

The Colombo South Teaching Hospital has always worked very closely with the Faculty of Medical Sciences, University of Sri Jayewardenepura being the main provider of clinical training for undergraduate students of all disciplines. Together we have been able to produce graduates of very high standards. The Faculty of Medical Sciences has always provided an encouraging environment towards the development of research and this year’s Scientific Sessions will provide a wonderful opportunity for academics of various disciplines to come together in a common forum and present their end products of dedicated hard work.

It is of utmost importance to be up to date in a constantly changing world of Medicine and the International Conference on Health Sciences 2018 provides the ideal platform not only to present research findings but also to gain considerable amount of knowledge and also to update existing knowledge.

I would also like to thank the following for taking the pains of making this event a reality. Snr Prof. Surangi Yasawardene, Dean, Faculty of Medical Sciences, members of the research committee and to all those who helped in whatever way to make this event a success.

The Scientific Sessions which are held annually has grown from strength to strength and I wish this event every success.

**Dr. Hemal Sugathapala**  
**President, Clinical Society**  
**Colombo South Teaching Hospital**

## Message from the President

### **Clinical Society - Sri Jayewardenepura General Hospital**



It gives me great pleasure to write this message to the book of proceedings of the International Conference on Health Sciences 2018, organised by the Faculty of Medicine and Sciences of the University of Sri Jayewardenepura in collaboration with Sri Jayewardenepura General Hospital, Colombo South Teaching Hospital and Base Hospital, Homagama. This year holds special significance as the Faculty of Medical Sciences of the University of Sri Jayewardenepura celebrates its 25<sup>th</sup> Anniversary.

Sri Jayewardenepura General Hospital takes pride in being a key provider of undergraduate clinical training across all disciplines since the inception of the Faculty of Medicine and Sciences of the University of Sri Jayewardenepura. The hospital continues to encourage and facilitate clinical audit and research among students and all categories of doctors with the aim of providing a high standard of medical care. The annual Scientific Sessions held by Sri Jayewardenepura Hospital Clinical Society and its recent collaboration with the annual Clinical Sessions conducted by the Faculty of Medical Sciences, University of Sri Jayewardenepura has provided a platform for clinicians of different specialties to present their research work and enhance their knowledge in all aspects of medicine.

This year, the international scientific programme themed “Beyond Borders Towards Excellence” promises to be exciting with a wide range of topics presented by expert local and international faculty. The oral presentations, plenary lectures, symposia and guest lecture lined up over two days will provide an opportunity for the participants to gain valuable insights from notable experts.

On behalf of the Clinical Society of Sri Jayewardenepura General Hospital, I would like to thank the Research Committee of the Faculty of Medical Sciences of the University of Sri Jayewardenepura for providing us with this opportunity to participate in this joint venture. I wish the International Conference on Health Sciences 2018 every success!

**Dr. D. Wariyapola**  
**President, Clinical Society**  
**Sri Jayewardenepura General Hospital**

## Message from the President

### **Clinical Society - Base Hospital, Homagama**



It gives me immense pleasure to write a message for the International Conference on Health Sciences, organized by the Faculty of Medical Sciences, University of Sri Jayewardenepura.

First of all let me congratulate the Faculty of Medical Sciences for the 25<sup>th</sup> anniversary celebrations. Even though the silver jubilee is a relatively short time for a medical school, your prestigious institution has served the country well within this period. The distinguished alumni of the faculty both in academic and clinical fields bear testimony to the excellence of the institution. To mark the 25<sup>th</sup> anniversary this year's annual sessions are held at an international level, with the collaboration of the extended faculty.

In keeping with this year's theme, “Beyond Borders Towards Excellence” the programme covers a wide range of topics delivered by experts both from Sri Lanka and overseas. This would be a great opportunity for the diverse group of participants from students to senior academics to learn new things or gain new insights. The conference will also serve as a platform to highlight research carried out by young enthusiastic doctors under the able guidance of senior academics.

I wish to convey the sincere wishes of the Homagama Clinical Society and the staff of Base Hospital Homagama for a successful conference and a fruitful collaboration between the two institutions.

**Dr. Indira Kahawita**  
**President, Clinical Society**  
**Base Hospital, Homagama**

# Invited Speakers

**International Faculty\***



**Prof. Andrew Dawson**  
Clinical Professor of Addiction Medicine  
Sydney Medical School  
University of Sydney  
Australia



**Prof. Andrew McBain**  
Professor of Microbiology  
University of Manchester  
United Kingdom



**Prof. Dujeepa Samarasekera**  
Deputy Head  
Medical Education Unit  
Yong Loo Lin School of Medicine  
National University of Singapore  
Singapore



**Prof. Ravi Silva**  
Director, Advanced Technology Institute (ATI)  
Head of Nano Electronics Centre  
University of Surrey  
United Kingdom

*\*Names presented in alphabetical order*

**Local Faculty\***



**Emeritus Professor Ajit Abeysekera**  
University of Sri Jayewardenepura  
Sri Lanka



**Dr. Yasas Abeywickrama**  
Consultant Plastic & Reconstructive Surgeon  
Colombo South Teaching Hospital  
Kalubowila  
Sri Lanka



**Dr. Sunil De Alwis**  
Addl. Secretary (Medical Services)  
Ministry of Health, Nutrition and Indigenous  
Medicine  
Sri Lanka



**Emeritus Professor Anoja Fernando**  
University of Ruhuna  
Sri Lanka





**Prof. Sharaine Fernando**  
Professor in Physiology  
Department of Physiology  
Faculty of Medical Sciences  
University of Sri Jayewardenepura  
Sri Lanka



**Dr. Lallindra Gooneratne**  
Consultant Haematologist and  
Head of Department of Pathology  
Faculty of Medicine  
University of Colombo  
Sri Lanka



**Dr. Indira Kahawita**  
Consultant Dermatologist  
Base Hospital, Homagama  
Sri Lanka



**Prof. Neelika Malavige**  
Professor in Microbiology  
Department of Microbiology  
Faculty of Medical Sciences  
University of Sri Jayewardenepura  
Sri Lanka





**Dr. Sunethra Senanayake**  
Consultant Neurologist  
National Hospital of Sri Lanka  
Sri Lanka



**Snr Prof. Rohini de Alwis Seneviratne**  
Senior Professor in Community Medicine and  
Dean Research and Development  
General Sir John Kotelawala Defence  
University  
Sri Lanka



**Prof. J. Kamani Wanigasuriya**  
Professor in Medicine  
Department of Medicine  
Faculty of Medical Sciences  
University of Sri Jayewardenepura  
Sri Lanka



**Dr. Manjula Weerasekara**  
Senior Lecturer  
Department of Microbiology  
Faculty of Medical Sciences  
University of Sri Jayewardenepura  
Sri Lanka

*\*Names presented in alphabetical order*

## **Inauguration Ceremony**

### **Programme – 7<sup>th</sup> October 2018**

**5.30 p.m.** Invitees take their seats

**6.00 p.m.** Ceremonial procession

**6.05 p.m.** University anthem

**6.10 p.m.** Lighting of the ceremonial oil lamp

**6.15 p.m.** Welcome address by the Chairperson, Research Committee,  
Senior Professor Neluka Fernando

**6.25 p.m.** Address by the Dean, Faculty of Medical Sciences, USJ  
Senior Professor Surangi Yasawardene

**6.35 p.m.** Address by the Chief Guest, Vice Chancellor, USJ  
Senior Professor Sampath Amaratunge

**6.45 p.m.** Faculty of Medical Sciences Oration  
Senior Professor Kumudu Wijewardene  
Professor of Community Medicine,  
Faculty of Medical Sciences, USJ

**7.30 p.m.** Vote of thanks by the Secretary, Research Committee  
Dr. Nithushi Samaranayake

**7.35 p.m.** Cultural performance

**7.55 p.m.** National anthem

**8.00 p.m.** Procession leaves the hall

**8.05 p.m.** Refreshments

## Programme at a Glance – 8<sup>th</sup> and 9<sup>th</sup> October 2018

### Day 1 - 8<sup>th</sup> October 2018

8.00 a.m.	<b>Registration</b>	
8.30 a.m.	<b>Oral presentations - Session 1 (Hall A)</b> <i>Chairpersons:</i> <i>Prof. Renu Wikremasinghe and</i> <i>Dr. Manori Gamage</i>	<b>Oral presentations - Session 2 (Hall B)</b> <i>Chairpersons:</i> <i>Dr. Isha Prematilleke and</i> <i>Dr. Chandimani Undugodage</i>
9.30 a.m.	<b>Keynote Address</b> <i>Citation read by: Snr Prof. Surangi Yasawardene</i>  <b>“Chronic kidney disease of unknown aetiology: Sri Lankan perspective”</b> <i>- Prof. Kamani Wanigasuriya</i>	
10.30 a.m.	<b>Tea</b>	
11.00 a.m.	<b>Plenary Lecture I</b> <i>Chairperson: Prof. Deepaka Weerasekera</i>  <b>“Wound management consensus guidelines” - Prof. Andrew McBain</b>	
11.30 a.m.	<b>Plenary Lecture II</b> <i>Chairperson: Prof. Pradeepa Jayawardane</i>  <b>“Importance of identity and purpose in research collaborations” - Prof. Andrew Dawson</b>	
12.00 noon	<b>Symposium I - Polymicrobial infections</b> <i>Chairpersons: Snr Prof. Vasanthi Thevanesam and Dr. Dulshika Waas</i>  <b>“Role of microbial biofilms in chronic infections” - Dr. Manjula Weerasekera</b> <b>“Emerging strategies for combating bacterial biofilm infections” - Prof. Andrew McBain</b> <b>“Microbiome in non-communicable diseases” - Prof. Neelika Malavige</b>	
1.10 p.m.	<b>Lunch</b>	
2.10 p.m.	<b>Symposium II - Advances in clinical practice</b> <i>Chairpersons: Prof. J. Indrakumar and Dr. Bernadene Fernandopulle</i>  <b>“Recent advances in management of refractory epilepsy” - Dr. Sunethra Senanayake</b> <b>“In search of better outcomes in burns” - Dr. Yasas Abeywickrama</b> <b>“Bone marrow transplant: the Sri Lankan experience” - Dr. Lallindra Gooneratne</b>	
3.20 p.m.	<b>Symposium III: Ministry of Health, Nutrition and Indigenous Medicine, NHRC: Excellence, governance and ethics in health research</b> <i>Chairpersons: Prof. Samudra Kathriarachchi and Prof. Dulani Gunasekera</i>  <b>“Striving for excellence in conduct of health research” - Snr Prof. Rohini de Alwis Seneviratne</b> <b>“Beyond borders towards ethics in health research” - Emeritus Prof Anoja Fernando</b> <b>“Research governance strategy for Sri Lanka” - Dr. Sunil De Alwis</b>	
4.30 p.m.	<b>Poster judging – Session I (Hall C)</b>	<b>Tea</b>

## Programme at a Glance – 8<sup>th</sup> and 9<sup>th</sup> October 2018

### Day 2 - 9<sup>th</sup> October 2018

8.30 a.m.	<b>Oral Presentations – Session 3 (Hall A)</b> <i>Chairpersons:</i> <i>Dr. Dulani Beneragama and</i> <i>Dr. Guwani Liyanage</i>	<b>Oral Presentations – Session 4 (Hall B)</b> <i>Chairpersons:</i> <i>Snr Prof. Hemantha Peiris and</i> <i>Prof. Lohini Athiththan</i>
9.30 a.m.	<b>Plenary Lecture III</b> <i>Chairperson: Snr Prof. Sagarika Ekanayake</i>	
	<b>“Nanotechnology in health and medicine”</b> - <i>Prof. Ravi Silva</i>	
10.10 a.m.	<b>Tea</b>	
10.40 a.m.	<b>Symposium IV - Pharmacology &amp; Toxicology</b> <i>Chairpersons: Prof. Savithri Wimalasekera and Prof. Sugandhika Suresh</i>	
	<b>“Beyond serendipity: Clinical toxicology research in Sri Lanka”</b> - <i>Prof. Andrew Dawson</i>	
	<b>“Nano particles for therapeutics”</b> - <i>Prof. Ravi Silva</i>	
	<b>“Safety of herbal drugs”</b> – <i>Emeritus Prof. Ajit Abeysekera</i>	
11.50 a.m.	<b>Guest Lecture</b> <i>Chairperson: Dr. Dammika Ariyaratne</i>	
	<b>“Leprosy: everybody's responsibility”</b> - <i>Dr. Indira Kahawita</i>	
12.30 p.m.	<b>Lunch</b>	
1.30 p.m.	<b>Plenary Lecture IV</b> <i>Chairperson: Dr. Ianthi Gunasekera</i>	
	<b>“Being professional in hypocritical practice settings: Training the future healthcare practitioner”</b> - <i>Prof. Dujeepa Samarasekera</i>	
2.10 p.m.	<b>Interactive session on professionalism</b> <i>Prof. Sharaine Fernando and Prof. Dujeepa Samarasekera</i>	
3.10 p.m.	<b>Poster judging – Session 2 (Hall C)</b>	
4.10 p.m.	<b>Closing remarks</b>	
4.30 p.m.	<b>Awarding of certificates</b>	
5.00 p.m.	<b>Tea</b>	

## Detailed Programme – 8<sup>th</sup> and 9<sup>th</sup> October 2018

### Day 1 - 8<sup>th</sup> October 2018

8.00 a.m.	<b>Registration</b>	
8.30 a.m.	<b>Oral presentations - Session 1 (Hall A)</b> <i>Chairpersons:</i> <i>Prof. Renu Wikremasinghe and</i> <i>Dr. Manori Gamage</i>	<b>Oral presentations - Session 2 (Hall B)</b> <i>Chairpersons:</i> <i>Dr. Isha Prematilleke and</i> <i>Dr. Chandimani Undugodage</i>
	<b>Oral presentations - Session 1 (Hall A) (OP 1-6)</b>	
	<b>OP 1: Efficacy of three visualization techniques: fluorescent in situ hybridization, gram staining and scanning electron microscopy in identifying biofilm involvement of infected chronic wounds</b> <u>Dilhari KAA<sup>1</sup></u> , <u>Gunasekara TDCP<sup>1</sup></u> , <u>Fernando SSN<sup>1</sup></u> , <u>Weerasekera DD<sup>2</sup></u> , <u>Pathirage S<sup>3</sup></u> , <u>McBain AJ<sup>4</sup></u> , <u>Weerasekera MM<sup>1</sup></u> <sup>1</sup> Department of Microbiology and <sup>2</sup> Department of Surgery, Faculty of Medical Sciences, University of Sri Jayewardenepura, Sri Lanka., <sup>3</sup> Department of Bacteriology, Medical Research Institute, Sri Lanka, <sup>4</sup> Faculty of Biology, Medicine and Health, The University of Manchester, Manchester, M13 9PT UK	
	<b>OP 2: Isolation and characterization of <i>Leptospira interrogans</i> from clinically suspected leptospirosis patients from selected hospitals in Western Province, Sri Lanka</b> <u>Nisansala GGT<sup>1</sup></u> , <u>Muthusinghe D<sup>2</sup></u> , <u>Gunasekara TDCP<sup>1</sup></u> , <u>Weerasekera MM<sup>1</sup></u> , <u>Ranasinghe KNP<sup>3</sup></u> , <u>Marasinghe MGCP<sup>4</sup></u> , <u>Fernando SSN<sup>1</sup></u> , <u>Gamage CD<sup>2</sup></u> <sup>1</sup> Department of Microbiology, Faculty of Medical Sciences, University of Sri Jayewardenepura, Sri Lanka, <sup>2</sup> Department of Microbiology, Faculty of Medicine, University of Peradeniya, Sri Lanka, <sup>3</sup> Base Hospital, Panadura, Sri Lanka, <sup>4</sup> Department of Medicine, Faculty of Medical Sciences, University of Sri Jayewardenepura, Sri Lanka	
	<b>OP 3: Identification accuracy of oral <i>Candida</i> species from patients with diabetes by phenotypic and molecular methods</b> <u>Sampath MKA<sup>1</sup></u> , <u>Weerasekera MM<sup>1</sup></u> , <u>Gunasekara TDCP<sup>1</sup></u> , <u>Dilhari KAA<sup>1</sup></u> , <u>Bulugahapitiya U<sup>2</sup></u> , <u>Fernando SSN<sup>1</sup></u> <sup>1</sup> Department of Microbiology, Faculty of Medical Sciences, University of Sri Jayewardenepura, Sri Lanka, <sup>2</sup> Endocrinology unit, Colombo South Teaching Hospital, Kalubowila, Sri Lanka	
	<b>OP 4: Sequence based identification of resistance mechanism in <i>Salmonella typhi</i> clinical isolates from Northern India</b> <u>Kaur P<sup>1</sup></u> , <u>Katiyar A<sup>1</sup></u> , <u>Kulsum U<sup>1</sup></u> , <u>Priyanka<sup>2</sup></u> , <u>Kapil A<sup>2</sup></u> <sup>1</sup> Department of Biophysics and <sup>2</sup> Department of Microbiology, All India Institute of Medical Sciences, New Delhi, India	
	<b>OP 5: Establishment of a <i>Phlebotomus argentipes</i> colony at a confined laboratory setting and morphometric variation among wild caught sand flies against laboratory reared individuals</b> <u>Wijerathna ACT</u> , <u>Gunathilaka PADHN</u> , <u>Gunawardena NK</u> <i>Department of Parasitology, Faculty of Medicine, University of Kelaniya, Sri Lanka.</i>	

**OP 6: Comparison of ATL buffer and RNAlater as transport and storage medium for molecular diagnosis of cutaneous leishmaniasis using skin punch biopsy specimens**

Gunaratna GPS<sup>1</sup>, Ranasinghe PHKIS<sup>2</sup>, Manamperi A<sup>3</sup>, Pathirana N<sup>4</sup>, Pathirana H<sup>4</sup>, Wickremasinghe R<sup>2</sup>, de Silva NR<sup>1</sup>, Sooriyarachchi MW<sup>2</sup>, Ahmed Abd El Wahed<sup>5</sup>

<sup>1</sup>Department of Parasitology, Faculty of Medicine, University of Kelaniya, Sri Lanka, <sup>2</sup>Department of Parasitology, Faculty of Medical Sciences, University of Sri Jayewardenepura, Sri Lanka, <sup>3</sup>Molecular Medicine Unit, Faculty of Medicine, University of Kelaniya, Sri Lanka, <sup>4</sup>Army Hospital, Narahenpita, Sri Lanka, <sup>5</sup>Division of Microbiology and Animal Hygiene, University of Goettingen, Germany

**Oral presentations - Session 2 (Hall B) (OP 7-12)**

**OP 7: Health related quality of life among male patients with oral cancer at National Cancer Institute, Sri Lanka**

Weththasinghe WPKM<sup>1</sup>, Chandrathilake WAK<sup>1</sup>, Fernando KMN<sup>1</sup>, Wanigasekara WMDSK<sup>1</sup>, Dissanayaka KSC<sup>1</sup>, Withana WDP<sup>1</sup>, Karunathilaka RDN<sup>1</sup>, Amarasekara AATD<sup>2</sup>

<sup>1</sup>Department of Nursing and Midwifery, Faculty of Allied Health Sciences, General Sir John Kotelawala Defence University, Sri Lanka. <sup>2</sup>Department of Allied Health Sciences, Faculty of Medical Sciences, University of Sri Jayewardenepura, Sri Lanka.

**OP 8: Effects of kitchen and stove characteristics on respiratory function of women exposed to biomass fuel smoke in a suburban community in Sri Lanka**

Jayaweera GU<sup>1,2</sup>, Wimalasekera SW<sup>3</sup>, Goonewardena CSE<sup>4</sup>

<sup>1</sup>Department of Basic Sciences, Faculty of Allied Health Sciences, General Sir John Kotelawala Defence University, Sri Lanka, <sup>2</sup>Faculty of Graduate Studies, University of Sri Jayewardenepura, Sri Lanka, <sup>3</sup>Department of Physiology and <sup>4</sup>Department of Community Medicine, Faculty of Medical Sciences, University of Sri Jayewardenepura, Sri Lanka

**OP 9: Peak oxygen consumption and blood lactate responses to training of Sri Lankan national male endurance runners: A comparative study**

Wijayasiri KDCU<sup>1</sup>, Wimalasekera SW<sup>2</sup>, Waidyasekara H<sup>2</sup>, Sivayogan S<sup>3</sup>, Thurairaja C<sup>4</sup>

<sup>1</sup>Sports Medicine unit, Colombo South Teaching Hospital, Kalubowila, Sri Lanka., <sup>2</sup>Department of Physiology, and <sup>3</sup>Department of Community Medicine, Faculty of Medical Sciences, University of Sri Jayewardenepura, Sri Lanka., <sup>4</sup>Postgraduate Institute of Medicine, University of Colombo, Sri Lanka.

**OP 10: Peak expiratory flow rate, markers of airway inflammation, medication adherence among adult asthmatics in a selected teaching hospital of Sri Lanka**

Miurangi AS<sup>1</sup>, Wimalasekera SW<sup>2</sup>

<sup>1</sup>Department of Allied Health Sciences and <sup>2</sup>Department of Physiology, Faculty of Medical Sciences, University of Sri Jayewardenepura, Sri Lanka.

**OP 11: Clinico-morphological spectrum of malignant neoplasm of uterine cervix in a tertiary care centre in India**

Singh BMK, Pai K, Valiathan M

Department of Pathology, Kasturba Medical College, Manipal Academy of Higher Education, Manipal, Karnataka, India

**OP 12: The relationship between hip abductor muscle strength and iliotibial band tightness in chronic low back pain patients attending the Department of Rheumatology and Rehabilitation of the National Hospital, Sri Lanka**

Gamage NNH<sup>1</sup>, Wickrama MPH<sup>1</sup>, Satharasinghe YP<sup>1</sup>, Silva LBKM<sup>1</sup>, Thenuwara SA<sup>1</sup>, Senavirathna SADCS<sup>1</sup>, Jayasekara JMKB<sup>2</sup>

<sup>1</sup>Department of Physiotherapy and <sup>2</sup>Department of Medical Laboratory Sciences, Faculty of Allied Health Sciences, General Sir John Kotelawala Defence University, Sri Lanka

**9.30 a.m. | Keynote Address**

*Citation read by: Snr Prof. Surangi Yasawardene*

**“Chronic kidney disease of unknown aetiology: Sri Lankan perspective”**

*- Prof. Kamani Wanigasuriya*

**10.30 a.m. | Tea**

**11.00 a.m. | Plenary Lecture I**

*Chairperson: Prof. Deepaka Weerasekera*

**“Wound management consensus guidelines” - Prof. Andrew McBain**

**11.30 a.m. | Plenary Lecture II**

*Chairperson: Prof. Pradeepa Jayawardane*

**“Importance of identity and purpose in research collaborations” - Prof. Andrew Dawson**

**12.00 noon | Symposium I - Polymicrobial infections**

*Chairpersons: Snr Prof. Vasanthi Thevanesam and Dr. Dulshika Waas*

**“Role of microbial biofilms in chronic infections” - Dr. Manjula Weerasekera**

**“Emerging strategies for combating bacterial biofilm infections” - Prof. Andrew McBain**

**“Microbiome in non-communicable diseases” - Prof. Neelika Malavige**

**1.10 p.m. | Lunch**

**2.10 p.m. | Symposium II - Advances in clinical practice**

*Chairpersons: Prof. J. Indrakumar and Dr. Bernadene Fernandopulle*

**“Recent advances in management of refractory epilepsy” - Dr. Sunethra Senanayake**

**“In search of better outcomes in burns” - Dr. Yasas Abeywickrama**

**“Bone marrow transplant: the Sri Lankan experience” - Dr. Lallindra Gooneratne**

**3.20 p.m. | Symposium III: Ministry of Health, Nutrition and Indigenous Medicine, NHRC: Excellence, governance and ethics in health research**

*Chairpersons: Prof. Samudra Kathriarachchi and Prof. Dulani Gunasekera*

**“Striving for excellence in conduct of health research” - Snr Prof. Rohini de Alwis Seneviratne**

**“Beyond borders towards ethics in health research” - Emeritus Prof Anoja Fernando**

**“Research governance strategy for Sri Lanka” - Dr. Sunil De Alwis**

**4.30 p.m. | Poster judging – Session 1 (Hall C) | Tea**

## Detailed Programme – 8<sup>th</sup> and 9<sup>th</sup> October 2018

### Day 2 - 9<sup>th</sup> October 2018

8.30 a.m.	<b>Oral Presentations – Session 3 (Hall A)</b> <i>Chairpersons:</i> <i>Dr. Dulani Beneragama and Dr. Guwani Liyanage</i>	<b>Oral Presentations – Session 4 (Hall B)</b> <i>Chairpersons:</i> <i>Snr Prof. Hemantha Peiris and Prof. Lohini Athiththan</i>
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#### Oral Presentations – Session 3 (Hall A) (OP 13 – 18)

##### **OP 13: Penicillin and tetracycline resistance genes as emerging environmental contaminant in the hospital waste water effluent and aquaculture effluent in Sri Lanka**

Liyanage GY<sup>1</sup>, Weerasekera MM<sup>2</sup>, Manage PM<sup>1,3</sup>

<sup>1</sup>Centre for Water Quality and Algae Research, University of Sri Jayewardenepura, <sup>2</sup>Department of Microbiology, Faculty of Medical Sciences, and <sup>3</sup>Department of Zoology, Faculty of Applied Sciences, University of Sri Jayewardenepura, Sri Lanka

##### **OP 14: Formulation of an oral rinse containing *Garcinia zeylanica* aqueous extract and determination of its efficacy against *Staphylococcus aureus*, *Klebsiella pneumonia* and *Acinetobacter baumannii***

Liyanage HLRP<sup>1</sup>, Senavirathne GLPM<sup>1</sup>, Siriwardene MA<sup>1</sup>, Peiris MMK<sup>2</sup>, Weerasekera MM<sup>2</sup>, Fernando SSN<sup>2</sup>, Kudavidanage BP<sup>3</sup>, Hewageegana HGSP<sup>4</sup>, Gunasekara TDCP<sup>2</sup>

<sup>1</sup>Department of Allied Health Sciences and <sup>2</sup>Department of Microbiology, Faculty of Medical Sciences, University of Sri Jayewardenepura, Sri Lanka, <sup>3</sup>General Hospital, Kegalle, Sri Lanka, <sup>4</sup>Department of Kayachikitsa, Institute of Indigenous Medicine, University of Colombo, Sri Lanka.

##### **OP 15: A collaborative study of pharmacotherapy of schizophrenia in Asia: Findings from Sri Lanka**

Waas MDIA<sup>1</sup>, Prematillake W<sup>2</sup>, de Alwis A<sup>3</sup>, Rajapakse T<sup>4</sup>, Kathriarachchi ST<sup>1</sup>

<sup>1</sup>Department of Psychiatry, Faculty of Medical Sciences, University of Sri Jayewardenepura, Sri Lanka, <sup>2</sup>Faculty of Medical Sciences, University of Sri Jayewardenepura, Sri Lanka, <sup>3</sup>National Institute of Mental Health, Angoda, Sri Lanka, <sup>4</sup>Department of Psychiatry, Faculty of Medicine, University of Peradeniya, Sri Lanka

##### **OP 16: Immunolocalisation of hydrogen sulphide producing enzyme cystathionine gamma lyase in early and late onset preeclampsia**

Dhingra R<sup>1</sup>, Bhatla N<sup>2</sup>, Rani N<sup>1</sup>, Kshetrapal P<sup>3</sup>, Arora P<sup>1</sup>, Gupta SK<sup>1</sup>, Saxena S<sup>1</sup>, Mochan S<sup>1</sup>

<sup>1</sup>Department of Anatomy, and <sup>2</sup>Department of Obstetrics and Gynecology, All India Institute of Medical Sciences, New Delhi, India, <sup>3</sup>Translational Health Science and Technology Institute (THSTI) Faridabad, Haryana, India

##### **OP 17: Expression of vascular endothelial growth factor (VEGF) gene and its association with oral squamous cell carcinoma**

Edirisinghe EAST<sup>1</sup>, Weerasekera MM<sup>2</sup>, Rich A<sup>3</sup>, de Silva H<sup>3</sup>, Hussaini M<sup>3</sup>, de Silva K<sup>4</sup>, Goonasinghe R<sup>4</sup>, Yasawardene SG<sup>1</sup>

<sup>1</sup>Department of Anatomy and <sup>2</sup>Department of Microbiology, Faculty of Medical Sciences, University of Sri Jayewardenepura, Sri Lanka, <sup>3</sup>Department of Oral Pathology, Oral Diagnostic and Surgical Sciences, Dental School, Health Sciences, University of Otago, New Zealand, <sup>4</sup>National Cancer Institute, Maharagama, Sri Lanka



**OP 18: Prevalence and factors associated with anxiety disorders during the antenatal period in a tertiary care hospital in Colombo District**

Priyadarshanie MN<sup>1</sup>, Fernando DMS<sup>2</sup>, Waas MDIA<sup>3</sup>, Senaratna BCV<sup>4</sup>, Goonewardena CSE<sup>4</sup>, Balasuriya A<sup>5</sup>

<sup>1</sup>Department of Nursing & Midwifery, Faculty of Allied Health Sciences, General Sir John Kotelawala Defence University, Sri Lanka, <sup>2</sup>Department of Physiology, <sup>3</sup>Department of Psychiatry, and <sup>4</sup>Department of Community Medicine, Faculty of Medical Sciences, University of Sri Jayewardenepura, Sri Lanka, <sup>5</sup>Department of Public Health, Faculty of Medicine, General Sir John Kotelawala Defence University, Sri Lanka

**Oral Presentations – Session 4 (Hall B) (OP 19 – 24)**

**OP 19: Analysis of accidental occupational exposure injuries among health care workers in a tertiary care center, Sri Lanka**

Piyasiri DLB, Deniyagedara K, Danthanarayana N, Thewarapperuma C, Hewapathirana CD, Akurugoda S, Liyanaarachchi S, Gurusinghe BH  
*Teaching Hospital Karapitiya, Galle, Sri Lanka*

**OP 20: Iron oxide (Fe<sub>3</sub>O<sub>4</sub>) magnetic nanoparticles coated with *Garcinia cambogia* aqueous extract: A potential antibiofilm agent**

Nayomi KGS<sup>1</sup>, Sandeepani THG<sup>1</sup>, Gunasekara TCDP<sup>2</sup>, Fernando SSN<sup>2</sup>, Palliyaguru NPLN<sup>3</sup>, Kumarasinghe U<sup>3</sup>, Jayaweera PM<sup>3</sup>

<sup>1</sup>Department of Allied Health Sciences, and <sup>2</sup>Department of Microbiology, Faculty of Medical Sciences, University of Sri Jayewardenepura, Sri Lanka, <sup>3</sup>Department of Chemistry, Faculty of Applied Sciences, University of Sri Jayewardenepura, Sri Lanka

**OP 21: Development of a biosensor using antigen-coated silver nanoparticles for the detection of anti-leptospiral antibodies in human sera**

Dahanayake DMMH<sup>1</sup>, Muthusinghe BDS<sup>2</sup>, Sirimuthu NMS<sup>3</sup>, Gamage CD<sup>2</sup>, Jayasundera ACA<sup>4</sup>

<sup>1</sup>Postgraduate Institute of Science, University of Peradeniya, Sri Lanka, <sup>2</sup>Department of Microbiology, Faculty of Medicine, University of Peradeniya, Sri Lanka, <sup>3</sup>Department of Chemistry, Faculty of Applied Sciences, University of Sri Jayewardenepura, Sri Lanka, <sup>4</sup>Department of Chemistry, Faculty of Science, University of Peradeniya, Sri Lanka

**OP 22: Green synthesized silver nanoparticles as a potential anti-biofilm agent**

Peiris MMK<sup>1</sup>, Gunasekara TDCP<sup>1</sup>, Arachchi NDH<sup>2</sup>, Jayaweera PM<sup>2</sup>, Fernando SSN<sup>1</sup>

<sup>1</sup>Department of Microbiology, Faculty of Medical Sciences, and <sup>2</sup>Department of Chemistry, Faculty of Applied Sciences, University of Sri Jayewardenepura, Sri Lanka

**OP 23: Clinical teachers' perceptions on an integrated medical curriculum and its role in promoting a holistic approach in patient care**

Sivanjali M, Youhasan P, Sujaa MAA

*Department of Medical Education and Research, Eastern University, Sri Lanka*

**OP 24: Prevalence and factors associated with sugar sweetened beverage consumption among grade ten school children in Education Division of Panadura**

Mahindadasa ATHES<sup>1</sup>, De Silva P<sup>2</sup>

<sup>1</sup>Medical Officer of Health, Panadura, Sri Lanka, <sup>2</sup>WHO, Sri Lanka

**9.30 a.m. Plenary Lecture III**

*Chairperson: Snr Prof. Sagarika Ekanayake*

**“Nanotechnology in health and medicine” - Prof. Ravi Silva**

**10.10 a.m. Tea**

**10.40 a.m. Symposium IV - Pharmacology & Toxicology**

*Chairpersons: Prof. Savithri Wimalasekera and Prof. Sugandhika Suresh*

**“Beyond serendipity: Clinical toxicology research in Sri Lanka” - Prof. Andrew Dawson**

**“Nano particles for therapeutics” - Prof. Ravi Silva**

**“Safety of herbal drugs” – Emeritus Prof. Ajit Abeysekera**

**11.50 a.m. Guest Lecture**

*Chairperson: Dr. Dammika Ariyaratne*

**“Leprosy: everybody's responsibility” - Dr. Indira Kahawita**

**12.30 p.m. Lunch**

**1.30 p.m. Plenary Lecture IV**

*Chairperson: Dr. Ianthi Gunasekera*

**“Being professional in hypocritical practice settings: Training the future healthcare practitioner” - Prof. Dujeepa Samarasekera**

**2.10 p.m. Interactive session on professionalism**

*Prof. Sharaine Fernando and Prof. Dujeepa Samarasekera*

**3.10 p.m. Poster judging – Session 2 (Hall C)**

**4.10 p.m. Closing remarks**

**4.30 p.m. Awarding of certificates**

**5.00 p.m. Tea**

## Detailed Programme – Poster Presentations (Hall C)

### PP 1

#### Screening of risk phenotypes among metabolic syndrome subjects in adult Pakistani population

Muhammad F<sup>1</sup>, Muhammad S<sup>2</sup>, Mahmood A<sup>2</sup>, Naseem L<sup>3</sup>, Qazi RA<sup>3</sup>, Raja GK<sup>2</sup>

<sup>1</sup>Department of Pathology, Shaheed Zulfiqar Ali Bhutto Medical University, Islamabad, Pakistan, <sup>2</sup>Department of Biochemistry, PMAS Arid Agriculture University Rawalpindi, Pakistan, <sup>3</sup>Department of Pathology, Pakistan Institute of Medical Sciences, Islamabad, Pakistan

### PP 2

#### The effect of endoplasmic reticulum calcium concentration on transient cytosolic calcium response in phospholipase-C pathway: A simulation study

Lakmal JTH, Rajapaksha SP

Department of Chemistry, Faculty of Applied Sciences, University of Sri Jayewardenepura, Sri Lanka

### PP 3

#### Glycemic control and inhibitory functions amongst normal, overweight and obese young adults in selected periurban Ministry of Health areas, Colombo District, Sri Lanka

Karunathilaka RDN<sup>1</sup>, Hewage DC<sup>2</sup>, Wimalasekera SW<sup>2</sup>, Amarasekara AATD<sup>3</sup>

<sup>1</sup>Department of Nursing & Midwifery, Faculty of Allied Health Sciences, General Sir John Kotelawala Defence University, Sri Lanka, <sup>2</sup>Department of Physiology and <sup>3</sup>Department of Allied Health Sciences, Faculty of Medical Sciences, University of Sri Jayewardenepura, Sri Lanka.

### PP 4

#### Arterial ischaemic stroke (AIS) in adolescents: Subtype analysis and neurological impairment

Wijsekara DS<sup>1</sup>, Ganesan V<sup>2</sup>

<sup>1</sup>Department of Paediatrics, Faculty of Medical Sciences, University of Sri Jayewardenepura, Sri Lanka, <sup>2</sup>Neurosciences Unit, Institute of Child Health, University College London, United Kingdom

### PP 5

#### Validation of the Sinhala version of short form brief pain inventory: Preliminary findings among Sinhala speaking patients with cancer pain attending Apeksha Hospital, Maharagama, Sri Lanka

Edirisinghe NP<sup>1</sup>, Goonewardena CSE<sup>2</sup>, Makuloluwa PTR<sup>3</sup>, Amarasekara AATD<sup>4</sup>

<sup>1</sup>Faculty of Graduates Studies and <sup>2</sup>Department of Community Medicine, Faculty of Medical Sciences, University of Sri Jayewardenepura, Sri Lanka, <sup>3</sup>Department of Clinical Sciences, Faculty of Medicine, General Sir John Kotelawala Defense University, Sri Lanka, <sup>4</sup>Department of Allied Health Sciences, Faculty of Medical Sciences, University of Sri Jayewardenepura, Sri Lanka

### PP 6

#### Family planning preference, unmet need and associated factors among postpartum mothers attending child welfare clinics in Colombo municipality

Wickramatunga TA<sup>1</sup>, Goonewardena CSE<sup>2</sup>

<sup>1</sup>Postgraduate Institute of Medicine, Sri Lanka., <sup>2</sup>Department of Community Medicine, Faculty of Medical Sciences, University of Sri Jayewardenepura, Sri Lanka

**PP 7**

**Correlation between blood and salivary glucose levels among diabetes patients in Colombo South Teaching Hospital, Sri Lanka**

Ponweera DMP<sup>1</sup>, Dharmakeerthi HAKI<sup>1</sup>, Moragoda YE<sup>1</sup>, Bulugahapitiya U<sup>2</sup>, Kaluarachchi VTS<sup>2</sup>, Jayasekara JKMB<sup>1</sup>

<sup>1</sup>Department of Medical Laboratory Science, Faculty of Allied Health Sciences, Sir John Kotelawala Defense University, Sri Lanka, <sup>2</sup>Diabetes and Endocrinology Unit, Colombo South Teaching Hospital, Kalubowila. Sri Lanka

**PP 8**

**Comparison of posterior fossa artifact and image quality in routine computerized tomography brain imaging with standard protocols**

Kumara MVYL<sup>1</sup>, Darshana WADP<sup>1</sup>, Niroshani HS<sup>1</sup>, Waas PES.<sup>2</sup>

<sup>1</sup>Department of Radiography and Radiotherapy, Faculty of Allied Health Sciences, General Sir John Kotelawala Defence University, Sri Lanka., <sup>2</sup>Department of Radiology, Army Hospital, Colombo, Sri Lanka.

**PP 9**

**Relationship between selected anthropometric measurements, time spent on physical activity of different intensities and duration of sedentary behaviour among 11-13 year-old adolescent girls in Colombo, Sri Lanka**

Dabare HPM<sup>1</sup>, Waidyatilaka PHIU<sup>2</sup>, de Lanerolle-Dias M<sup>2</sup>, Wickremasinghe R<sup>3</sup>, Jayawardena R<sup>4</sup>, Hills AP<sup>5</sup>, Wickramasinghe VP<sup>6</sup>, Lanerolle P<sup>2</sup>

<sup>1</sup>Department of Physiotherapy, Faculty of Allied Health Sciences, General Sir John Kotelawala Defence University, Sri Lanka, <sup>2</sup>Department of Biochemistry and Molecular Biology, Faculty of Medicine, University of Colombo, Sri Lanka <sup>3</sup>Department of Public Health, Faculty of Medicine, University of Kelaniya, Sri Lanka, <sup>4</sup>Department of Physiology, Faculty of Medicine, University of Colombo, Sri Lanka, <sup>5</sup>School of Health Sciences, University of Tasmania, Australia, <sup>6</sup>Department of Pediatrics, Faculty of Medicine, University of Colombo, Sri Lanka

**PP 11**

**Prevalence of musculoskeletal problems and associated factors among tea pluckers of Maddekanda tea estate in Balangoda area, Rathnapura District, Sri Lanka**

Chandrasekara UHS, Warnakulasuriya SSP

Department of Allied Health Sciences, Faculty of Medical Sciences, University of Sri Jayewardenepura, Sri Lanka

**PP 12**

**Usefulness of a screening questionnaire, monofilament test and vibration perception threshold in screening for peripheral neuropathy amongst a periurban type 2 diabetic population: Preliminary data**

Nisansala MWN<sup>1</sup>, Amarasekara AATD<sup>2</sup>, Wimalasekera SW<sup>1</sup>

<sup>1</sup>Department of Physiology and <sup>2</sup>Department of Allied Health Sciences, Faculty of Medical Sciences, University of Sri Jayewardenepura, Sri Lanka

**PP 13**

**Comparison of haemoglobin estimation by HemoCue method and gold standard cyanmethaemoglobin method for screening anaemia: Interim findings among patients at haematology clinic in Colombo South Teaching Hospital**

Arisha SHCN<sup>1</sup>, Uthpala HPK<sup>1</sup>, Seneviwickrama KLMD<sup>2</sup>, Wijesiriwardena IS<sup>3</sup>

<sup>1</sup>Department of Allied Health Sciences, <sup>2</sup>Department of Community Medicine, and <sup>3</sup>Department of Pathology, Faculty of Medical Sciences, University of Sri Jayewardenepura, Sri Lanka

**PP 14**

**Factors associated with cognition among physically independent institutionalized elderly people in Southern Province, Sri Lanka**

Gamage MWK<sup>1</sup>, Hewage DC<sup>2</sup>, Pathirana KD<sup>3</sup>

<sup>1</sup>Department of Nursing, Faculty of Allied Health Sciences, University of Ruhuna, Sri Lanka, <sup>2</sup>Department of Physiology, Faculty of Medical Sciences, University of Sri Jayewardenepura, Sri Lanka, <sup>3</sup>Department of Medicine, Faculty of Medicine, University of Ruhuna, Sri Lanka

**PP 15**

**Association between stress and cognitive function of female adolescents in Galle Educational Zone**

Madhushanthi HJH<sup>1</sup>, Wimalasekera SW<sup>2</sup>, Goonewardena CSE<sup>3</sup>, Amarasekara AATD<sup>4</sup>, Lenora RSJ<sup>5</sup>

<sup>1</sup>Department of Nursing, Faculty of Allied Health Sciences, University of Ruhuna, Sri Lanka, <sup>2</sup>Department of Physiology, <sup>3</sup>Department of Community Medicine, and <sup>4</sup>Department of Allied Health Sciences, Faculty of Medical Sciences, University of Sri Jayewardenepura, Sri Lanka, <sup>5</sup>Department of Physiology, Faculty of Medicine, University of Ruhuna, Sri Lanka

**PP 16**

**Patterns of complexity of urinary stone disease based on anatomical sites and stone number: A study conducted among the patients who underwent surgical intervention at Genitourinary Surgical unit, Teaching Hospital, Jaffna**

Sivarangini S<sup>1</sup>, Arasaratnam V<sup>2</sup>, Sathesan B<sup>3</sup>, Gunatilake M<sup>4</sup>, Kandeepan K<sup>2</sup>

<sup>1</sup>Unit of Siddha Medicine, and <sup>2</sup>Department of Biochemistry, Faculty of Medicine, University of Jaffna, Sri Lanka, <sup>3</sup>Genitourinary Surgical Unit, Teaching Hospital Jaffna, Sri Lanka, <sup>4</sup>Department of Physiology, Faculty of Medicine, University of Colombo, Sri Lanka

**PP 17**

**Comparison of red cell distribution width and the syntax score values among patients suspected of coronary artery disease attending National Hospital of Sri Lanka**

Udayangani BVC<sup>1</sup>, Sewwandi TM<sup>1</sup>, Fernandopulle KHBP<sup>2</sup>, Vithanage TDP<sup>3</sup>, Ranasinghe G<sup>3</sup>

<sup>1</sup>Department of Allied Health Sciences and <sup>2</sup>Department of Pathology, Faculty of Medical Sciences, University of Sri Jayewardenepura, Sri Lanka, <sup>3</sup>Cardiology Unit, National Hospital of Sri Lanka, Sri Lanka

**PP 18**

**Are we successful? A descriptive study on exclusive breast feeding practices among mothers in a baby friendly hospital**

Gamage MAMN, Wickramasinghe WAAK, Madubashini LADT, Chathurika AA

Department of Paediatrics, Faculty of Medical Sciences, University of Sri Jayewardenepura, Sri Lanka

**PP 19**

**Comparison of four in-house prepared culture media on mycelial growth and morphology of selected medically important fungi: A pilot study**

Thabrew H, Jayawardena NM, Sigera LSM, Jayasekera PI

Department of Mycology, Medical Research Institute, Colombo, Sri Lanka.

**PP 20**

**Problems associated with urine specimen collection, storage and transportation for laboratory testing by nurses at a selected hospital in Colombo District, Sri Lanka**

Jayanthi KM<sup>1</sup>, Lakmali SR<sup>1</sup>, Kadupitiya SD<sup>1</sup>, Jayawickrama WGBS<sup>1</sup>, Karunadasa UGPT<sup>1</sup>, Hettiarachchi HAM<sup>1</sup>, Vidanage D<sup>1</sup>, Vidyatilake HMS<sup>2</sup>

<sup>1</sup>Department of Nursing & Midwifery, Faculty of Allied Health Sciences, and <sup>2</sup>Department of Hematology, Faculty of Medicine, General Sir John Kotelawala Defence University, Sri Lanka

**PP 21**

**Demographic and socio-economic characterization of cutaneous leishmaniasis patients in four selected medical officer of health (MOH) areas in Kurunegala District, Sri Lanka**

Wijerathna ACT<sup>1</sup>, Gunathilaka PADHN<sup>1</sup>, Gunawardena NK<sup>1</sup>, Rodrigo WWP<sup>2</sup>

<sup>1</sup>Department of Parasitology, Faculty of Medicine, University of Kelaniya, Sri Lanka, <sup>2</sup>Biotechnology Unit, Industrial Technology Institute, Colombo, Sri Lanka

**PP 22**

**Detection of carbapenemase producing *Enterobacteriaceae* in two tertiary care hospitals**

Jayathilaka SSH<sup>1</sup>, Jayatissa KGAH<sup>1</sup>, Kottahachchi J<sup>2</sup>, Chandrasiri NS<sup>3</sup>, Jayatilleke K<sup>4</sup>

<sup>1</sup>Department of Allied Health Sciences and <sup>2</sup>Department of Microbiology, Faculty of Medical Sciences, University of Sri Jayewardenepura, Sri Lanka, <sup>3</sup>Colombo South Teaching Hospital, Kalubowila, Sri Lanka, and <sup>4</sup>Sri Jayewardenepura General Hospital, Thalapatthipitiya, Sri Lanka

**PP 23**

**Imprint cytology: A supportive diagnostic method for *Helicobacter pylori* in dyspeptic patients**

Arachchi PS<sup>1</sup>, Weerasekera MM<sup>1</sup>, Seneviratne MBS<sup>2</sup>, Weerasekera D<sup>3</sup>, Fernando SSN<sup>1</sup>, Gunasekara TDCP<sup>1</sup>

<sup>1</sup>Department of Microbiology, <sup>2</sup>Department of Pathology, and <sup>3</sup>Department of Surgery, Faculty of Medical Sciences, University of Sri Jayewardenepura, Sri Lanka

**PP 24**

**Hantavirus infection among renal patients and community residing in Kandy District, Sri Lanka: A hidden public health burden?**

Sarathkumara YD<sup>1</sup>, Weerakkodi VM<sup>1</sup>, Yoshimatsu K<sup>2</sup>, Nanayakkara N<sup>3</sup>, Musthusinghe BDS<sup>1</sup>, Wimalasiri S<sup>2</sup>, Gamage CD<sup>1</sup>

<sup>1</sup>Department of Microbiology, Faculty of Medicine, University of Peradeniya, Sri Lanka, <sup>2</sup>Department of Microbiology, Graduate School of Medicine, Hokkaido University, Japan, <sup>3</sup>Nephrology and Transplantation unit, Kandy Teaching Hospital, Kandy, Sri Lanka

**PP 25**

**Adherence to anti-diabetic medications: A descriptive study in patients attending a medical clinic at a tertiary care hospital**

Yasodha MDH<sup>1</sup>, Safna FF<sup>1</sup>, Jayawardane PG<sup>2</sup>, Wijekoon PWMCSB<sup>3</sup>, Wijekoon CN<sup>2</sup>

<sup>1</sup>Department of Allied Health Sciences, <sup>2</sup>Department of Pharmacology, and <sup>3</sup>Department of Medicine, Faculty of Medical Sciences, University of Sri Jayewardenepura, Sri Lanka

**PP 26**

**Screening of nephroprotective activity of *Abelmoschus moschatus* (Kapukinissa) leaf extract in rats with adriamycin induced acute renal toxicity**

Amarasiri AMSS<sup>1</sup>, Attanayake AP<sup>2</sup>, Jayatilaka KAPW<sup>2</sup>, Mudduwa LKB<sup>3</sup>

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

**PP 27**

**Bioactivities of *Holarhena mitis* (Vahl) R.Br.**

Wickramasingha WGD<sup>1,2</sup>, Wijendra WAS<sup>2</sup>, Karunaratne DN<sup>3</sup>, Karunaratne V<sup>3</sup>, Ekanayake A<sup>4</sup>, Jayasinghe S<sup>3</sup>

<sup>1</sup>Postgraduate Institute of Science, University of Peradeniya, Sri Lanka, <sup>2</sup>Medical Research Institute, Colombo, Sri Lanka, <sup>3</sup>Department of Chemistry, Faculty of Science, and <sup>4</sup>Department of Microbiology, Faculty of Medicine, University of Peradeniya, Sri Lanka

**PP 28**

**Factors associated with compliance to recommended antihypertensive medications among patients with hypertension: Preliminary results from a teaching hospital, Sri Lanka**

Daluwatta DDDS, Gamlaksha GDTP, Amarasekara AATD

Department of Allied Health Sciences, Faculty of Medical Sciences, University of Sri Jayewardenepura, Sri Lanka

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Panduawala S, Panapitiya L, Kumarapeli V

Ministry of Health, Sri Lanka

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Wijsekara WAMA<sup>1</sup>, Pathmalal MM<sup>1,2</sup>

<sup>1</sup>Centre for Water Quality and Algae Research and <sup>2</sup>Department of Zoology, Faculty of Applied Sciences, University of Sri Jayewardenepura, Sri Lanka

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Samaranayake NR<sup>1</sup>, Layanthini S<sup>2</sup>, Samaraweera DGS<sup>3</sup>, Zumara MS<sup>1</sup>, Navaratinaraja TS<sup>4</sup>, Hettihewa M<sup>3</sup>, Wanigatunge CA<sup>5</sup>

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Bashar MA, Irani RR, Raza SS, Atik R

Department of Community Medicine, Gono Bishwabidyalay (University), Bangladesh

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**Association of diabetes self-care activities and glycaemic control among adults with type 2 diabetes: Preliminary findings from a selected teaching hospital, Sri Lanka**

Saumika MAR, Amarasekara AATD

*Department of Allied Health Sciences, Faculty of Medical Sciences, University of Sri Jayewardenepura, Sri Lanka*

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Weerakoon LN, Amarasekara AATD

*Department of Allied Health Sciences, Faculty of Medical Sciences, University of Sri Jayewardenepura, Sri Lanka*

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Darshana ILAN, Wijesinghe CJ, De Silva PV

*Department of Community Medicine, Faculty of Medicine, University of Ruhuna, Sri Lanka*

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Senadheera GPSG<sup>1</sup>, Sri Ranganathan S<sup>2</sup>, Fernando GH<sup>3</sup>, Fernandopulle BMR<sup>4</sup>

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Risla R, Janani TSJ, Shanika LGT, Samaranayake NR

*Department of Allied Health Sciences, Faculty of Medical Sciences, University of Sri Jayewardenepura, Sri Lanka*

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**Appropriateness of medication administration and storage among elderly inmates in selected elderly care homes in Colombo District, Sri Lanka**

Sabalasingam S, Prasanna S, Shiraz C, Shanika LGT, Samaranayake NR

*Department of Allied Health Sciences, Faculty of Medical Sciences, University of Sri Jayewardenepura, Sri Lanka*

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**Measuring safety culture among pharmacists involved in the dispensing process of a selected teaching hospital**

Anjalee JAL<sup>1</sup>, Rutter V<sup>2</sup>, Hewanayake YP<sup>1</sup>, Samaranayake NR<sup>3</sup>

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Gunasekara ADM<sup>1</sup>, Fernandopulle BMR<sup>1</sup>, De Silva DTN<sup>1</sup>, Panapitiya L<sup>2</sup>, Beneragama BVSH<sup>3</sup>, Weerarathne ED<sup>2</sup>



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**Development and validation of a health and pharmacy literacy assessment tool (HPLAT) for Sri Lanka**

Jeyatissa MD, Shanika LGT, Samaranayake NR

Department of Allied Health Sciences, Faculty of Medical Sciences, University of Sri Jayewardenepura, Sri Lanka

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**Health benefits of endemic plant species *Wrightia antidysenterica* and *Osbeckia octandra***

Kuruppu AI<sup>1,2</sup>, Paranagama P<sup>2</sup>, De Silva R<sup>1</sup>

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**Pattern of tobacco smoking and its association with alcohol consumption and other socio economic variables: Preliminary results**

Herath HMP<sup>1</sup>, Wimalasekera SW<sup>2</sup>, Amarasekara AATD<sup>3</sup>

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**Anxiety provoking situations among medical students during clinical training**

Rathnayake YWPP<sup>1</sup>, Mathangasinghe Y<sup>2</sup>, Kuruwitaarachchi DKT<sup>1</sup>, Prasanni D<sup>1</sup>, Weerakoon DN<sup>1</sup>, Dayabandara M<sup>3</sup>

<sup>1</sup>National Hospital of Sri Lanka, Sri Lanka, <sup>2</sup>Department of Anatomy, and <sup>3</sup>Department of Psychiatry, Faculty of Medicine, University of Colombo, Sri Lanka

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**A comparative study of interprofessional education in global health professions education: A systematic review**

Herath C

Department of Psychology and Counseling, Faculty of Health Sciences, The Open University of Sri Lanka, Sri Lanka

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Weerakoon TKGNP<sup>1</sup>, Jayawardana NWIA<sup>1</sup>, Senadheera SPAS<sup>2</sup>, Senevirathna RMISK<sup>2</sup>

<sup>1</sup>Department of Animal and Food Sciences, Faculty of Agriculture, and <sup>2</sup>Department of Biochemistry, Faculty of Medicine and Allied Science, Rajarata University of Sri Lanka, Sri Lanka

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**Binding and structural studies of the complexes of type-1 ribosome inactivating protein from *Momordica balsamina* with uracil and uridine**

Bhushan A, Pandey SN, Iqbal N, Singh PK, Kaur P, Sharma S, Singh TP

Department of Biophysics, All India Institute of Medical Sciences, New Delhi, India

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**Knowledge on non-communicable diseases among selected occupational categories in a rural area in Sri Lanka**

Sewwandi L<sup>1</sup>, Bandara PRSR<sup>1</sup>, Chathuranga PADU<sup>2</sup>, Fernando N<sup>1</sup>, Senadheera SPAS<sup>1</sup>

<sup>1</sup>Faculty of Medicine and Allied Sciences, Rajarata University of Sri Lanka, <sup>2</sup>SACTRC Poison Center, Teaching Hospital Anuradhapura, Sri Lanka

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**Knowledge, attitudes and practice regarding contraceptive methods among the female garment factory workers in Katunayake free trade zone**

Perera PDAC<sup>1</sup>, Priyadarshani AHI<sup>1</sup>, Sachinee EGB<sup>1</sup>, Nuwanthika KWC<sup>1</sup>, Nisanka OGTC<sup>1</sup>, Priyadarshani MN<sup>1</sup>, Fernandopulle BMR<sup>2</sup>

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**A feasibility study to develop a rapid method to measure erythrocyte sedimentation rate among patients in Apeksha Hospital Maharagama, Sri Lanka**

Lakmal PKS<sup>1</sup>, Chathuranga KGM<sup>1</sup>, Kottahachchi DU<sup>2</sup>, Suresh S<sup>3</sup>

<sup>1</sup>University Hospital, and <sup>2</sup>Department of Medical Laboratory Sciences, Faculty of Allied Health Sciences, General Sir John Kotelawala Defence University, Sri Lanka, <sup>3</sup>Haematology Department, Apeksha Hospital, Maharagama, Sri Lanka

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**Surface modification of super-paramagnetic magnetite nano particles for bio-conjugation**

Munasinghe MME<sup>1</sup>, Jayarathne L<sup>2</sup>, Athapaththu AMMH<sup>3</sup>, Abeywickreme W<sup>4</sup>

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**Knowledge and attitude regarding stress coping strategies among advanced level students in a national school of Sri Lanka**

Hewavitharana HSD<sup>1</sup>, Marasinghe RB<sup>2</sup>

<sup>1</sup>Department of Allied Health Sciences and <sup>2</sup>Department of Medical Education, Faculty of Medical Sciences, University of Sri Jayewardenepura, Sri Lanka.

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**The effect of bilirubin on estimation of creatinine in buffered saline solution: A comparison between Jaffe reaction and creatinase enzymatic method**

Dissanayake RK<sup>1</sup>, Ranaweera KKPT<sup>1</sup>, Priyadarshani AMB<sup>1</sup>, Dias P<sup>2</sup>

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**Electronic device usage among children: A descriptive cross sectional study among a selected group of children**

Gamage MAMN, Kumarasiri N, Siriwardena H, Wetthasinghe C, Niwanthika I

Department of Paediatrics, Faculty of Medical Sciences, University of Sri Jayewardenepura, Sri Lanka

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**Characteristics of Salmonella bacteraemia in a tertiary care center, Sri Lanka**

Piyasiri DLB, Samarawickrama TKS, Gamage TSH, Sapukotana PM  
*Teaching Hospital Karapitiya, Galle, Sri Lanka*

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**Knowledge, practices and perception on hospital acquired infections of nursing undergraduates in University of Ruhuna and University of Peradeniya**

Fonseka NHDP<sup>1</sup>, Wijekoon BVP<sup>1</sup>, Perera UCP<sup>2</sup>

<sup>1</sup>Department of Nursing, Faculty of Allied Health Sciences, and <sup>2</sup>Department of Forensic Medicine, Faculty of Medicine, University of Ruhuna, Sri Lanka

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**Quality of Life (QOL) among low income families in hill country, Sri Lanka**

Chathurika SN, Rathnayake ARMAU

*Department of Nursing, Faculty of Allied Health Sciences, University of Peradeniya, Sri Lanka*

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**Validate the effectiveness of session plan for simulation mediated teaching in undergraduate nursing education**

Rathnayake AU, Chathurika SN

*Department of Nursing, Faculty of Allied Health Sciences, University of Peradeniya, Sri Lanka*

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**Association between malaria and living conditions in Kataragama Medical Officer of Health (MOH) area**

Mahendran R<sup>1</sup>, Weerasinghe MC<sup>2</sup>, Pathirana PPSL<sup>3</sup>

<sup>1</sup>Faculty of Medicine, University of Colombo, Sri Lanka, <sup>2</sup>Department of Community Medicine, and <sup>3</sup>Department of Parasitology, Faculty of Medicine, University of Colombo, Sri Lanka.

**PP 61**

**Breast cancer awareness, attitude and practice of breast self-examination among female school teachers in Katuwana educational division in Southern Province of Sri Lanka**

Pathirana KSD, Seneviratne SMKS

*Department of Allied Health Sciences, University of Sri Jayewardenepura, Sri Lanka.*

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**Mothers' preference for infant body size and weight gain patterns in a suburban area in the Colombo District**

Lakshan MDVC<sup>1</sup>, Rathnayake RMIN<sup>1</sup>, Wijewardhana SCJ<sup>1</sup>, Bandara WMKS<sup>1</sup>, Wijesinghe AKDC<sup>1</sup>, Priyadarshanie MN<sup>1</sup>, Rodrigo GDI<sup>2</sup>

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**Determination of the antimicrobial and antioxidant activities of garcinol capped silver nanoparticles**

Fernando HN<sup>1</sup>, Kumarasinghe UR<sup>1</sup>, Gunasekara TDCP<sup>2</sup>, Fernando SSN<sup>2</sup>, Jayaweera PM<sup>1</sup>, Rajapaksha S<sup>1</sup>

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**Knowledge, attitude and practices of dietary management among ischaemic heart disease patients treated at Teaching Hospital Karapitiya, Sri Lanka**

Perera ACH<sup>1</sup>, Samarawickrama MB<sup>2</sup>

<sup>1</sup>Department of Nursing, Faculty of Health Sciences, KIU, Sri Lanka, <sup>2</sup>Department of Anatomy, Faculty of Medicine, University of Ruhuna, Sri Lanka

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**Identification and control of black colour speck fungal formation in virgin coconut oil**

Fernando HN, Navarathne SB, Uthpala TGG

Department of Food Science and Technology, Faculty of Applied Sciences, University of Sri Jayewardenepura, Sri Lanka

**PP 66**

**Introduction of skills inventory sustainable model to the health sector**

Panduawala KPSSP<sup>1</sup>, Perera R<sup>2</sup>

<sup>1</sup>Ministry of Health, Sri Lanka, <sup>2</sup>Institute of Health Policy, Sri Lanka

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**The prevalence of anxiety, stress and associated factors among undergraduates in the Faculty of Medical Sciences, University of Sri Jayewardenepura**

Kodagoda ASK, Meegoda MKDL

Department of Allied Health Sciences, Faculty of Medical Sciences, University of Sri Jayewardenepura, Sri Lanka

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**Maternal knowledge and practice related to usage of oral suspensions (Paracetamol and antibiotic) for common childhood illnesses in semi urban area, Colombo District, Sri Lanka**

Madhumadavi MMP<sup>1</sup>, Madusanka BD<sup>1</sup>, Gamage MAMN<sup>2</sup>

<sup>1</sup>Department of Allied Health Sciences, and <sup>2</sup>Department of Paediatrics, Faculty of Medical Science, University of Sri Jayewardenepura, Sri Lanka

**PP 69**

**Knowledge and self-reported practices of nurses on the last offices of a deceased at the National Hospital of Sri Lanka**

Dharmaratna KMRP<sup>1</sup>, Seneviratne SMKS<sup>2</sup>

<sup>1</sup>The National Hospital of Sri Lanka, Sri Lanka, <sup>2</sup>Department of Allied Health Sciences, Faculty of Medical Sciences, University of Sri Jayewardenepura, Sri Lanka.

## Detailed Programme – Case Reports (Hall C)

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#### **T lymphoblastic lymphoma presenting as pleural effusion in pregnancy: Diagnosis by flow cytometry**

Pavithra P<sup>1</sup>, Belurkar S<sup>2</sup>, Khanna R<sup>2</sup>

<sup>1</sup>Department of Pathology, Melaka Manipal Medical College, and <sup>2</sup>Department of Pathology, Kasturba Medical College, India

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#### **A case of midgut malrotation presenting as subacute intestinal obstruction in an adult**

Mathangasinghe Y<sup>1</sup>, Samaranayake UMJE<sup>2</sup>, Muthuthambi MM<sup>3</sup>

<sup>1</sup>Department of Anatomy, Faculty of Medicine, University of Colombo, Sri Lanka, <sup>2</sup>Neville Fernando Teaching Hospital, Malabe, and <sup>3</sup>National Hospital of Sri Lanka, Sri Lanka

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#### **‘Chilaiditi’s sign’ as a cause that mimics pneumoperitoneum**

Mathangasinghe Y<sup>1</sup>, Samaranayake UMJE<sup>2</sup>, Muthuthambi MM<sup>3</sup>

<sup>1</sup>Department of Anatomy, Faculty of Medicine, University of Colombo, Sri Lanka, <sup>2</sup>Neville Fernando Teaching Hospital, Malabe, and <sup>3</sup>National Hospital of Sri Lanka, Sri Lanka

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#### **A case of small bowel diverticulosis**

Mathangasinghe Y<sup>1</sup>, Samaranayake UMJE<sup>2</sup>, Samarathunga DR<sup>3</sup>, Jayasinghe JD<sup>3</sup>, Banagala ASK<sup>3</sup>

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#### **A very rare mutation in the RyR2 gene detected through clinical EXOME sequencing in a child with frequent atrial arrhythmias and a family history of sudden cardiac death**

Mathangasinghe Y, Wetthasinghe TK, Neththikumara N, Dissanayake VHWD

Department of Anatomy, Faculty of Medicine, University of Colombo, Sri Lanka

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#### **Cryptococcaemia in Systemic Lupus Erythematosus (SLE): Pitfalls in management**

Jayawardena MN<sup>1</sup>, Sigera LSM<sup>1</sup>, Rathnayake B<sup>2</sup>, Lewkebandara RH<sup>2</sup>, Rajakaruna RWMLP<sup>2</sup>, Jayasekera PI<sup>1</sup>

<sup>1</sup>Department of Mycology, Medical Research Institute, Colombo, Sri Lanka, <sup>2</sup>Provincial General Hospital, Badulla, Sri Lanka

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#### **A rare form of dystonia: Pantothenate kinase associated neurodegeneration (PKAN) (previously known as HALLERVORDEN-SPATZ DISEASE-HSD)**

Wijesekera DS

Department of Paediatrics, Faculty of Medical Sciences, University of Sri Jayewardenepura, Sri Lanka

**PP 77**

**Intra-cerebral haemorrhage after tenecteplase: A management dilemma**

Wijekoon PWMCSB<sup>1</sup>, Liyanarachchi HS<sup>2</sup>, Gunatilake SB<sup>1</sup>

<sup>1</sup>Department of Medicine, Faculty of Medical Sciences, University of Sri Jayewardenepura, Sri Lanka, <sup>2</sup>Colombo South Teaching Hospital, Kalubowila, Sri Lanka

**PP 78**

**An unusual cause for chronic fungal sinusitis**

Jayawardena MN<sup>1</sup>, Dayasena RP<sup>2</sup>, Sigera LSM<sup>1</sup>, Thabrew H<sup>1</sup>, Vathshalan S<sup>2</sup>, Malkanthi MA<sup>1</sup>, Patabendige G<sup>2</sup>, Jayasekera PI<sup>1</sup>

<sup>1</sup>Department of Mycology, Medical Research Institute, Colombo, Sri Lanka, <sup>2</sup>National Hospital of Sri Lanka, Sri Lanka

**PP 79**

**Angioimmunoblastic T-cell lymphoma with bone marrow metastasis: The Masqueraders**

Namrata R, Pavithra P

Department of Pathology, Melaka Manipal Medical College, India

**PP 80**

**Nodular lymphocyte predominant Hodgkin lymphoma versus T-cell/histiocyte-rich large B-cell lymphoma: A gray zone**

Suman K<sup>1</sup>, Brij Mohan Singh<sup>2</sup>, Seemitr Verma<sup>1</sup>

<sup>1</sup>Department of Pathology, Melaka Manipal Medical College, and <sup>2</sup>Department of Pathology, Kasturba Medical College, Manipal Academy of Higher Education, India

**PP 81**

**Points to ponder in managing patients with medico-legal issues in general wards: A case elaboration of an illegal immigrant girl with language barrier who was sexually abused**

Ariyathna HTDW, Hulathduwa SR

Department of Forensic Medicine, Faculty of Medical Sciences, University of Sri Jayewardenepura, Sri Lanka

**PP 82**

**Successful management of a patient with recurrent thrombotic thrombocytopenic purpura (TTP) with rituximab**

Karunaratne AMPW, Abeyrathne SASP, Moonesinghe C, Fernandopulle B, Kulathilake HWCK, Gunawardena D, Wijesiriwardena IS

Department of Pathology, Faculty of Medical Sciences, University of Sri Jayewardenepura, Sri Lanka

**PP 84**

**Polycythaemia vera in a patient with congenital heart disease: A rare co-incidence**

Abeyrathna SASP, Karunaratna AMPW, Moonesinghe CS, Fernandopulle KHBP, Kulathilake HWCK, Wijesiriwardena IS

Department of Pathology, Faculty of Medical Sciences, University of Sri Jayewardenepura, Sri Lanka

**PP 85**

**Uncommon manifestation of leptospirosis: Acute pancreatitis**

Nandakrishna B, Sudha Vidyasagar, Muralidhar Varma

Department of Medicine, Kasturba Medical College, Manipal Academy of Higher Education, India.

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**Clonal eosinophilia with FIP1L1-PDGFR $\alpha$  rearrangement**

Gamakaranage GAC, Bavanthan J, Fernandopulle KHBP, Wijesiriwardane IS, Kulathilake HWCK, Moonesinghe CS

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**PP 87**

**Error in medical judgment: How to categorize these avoidable deaths?**

Ariyaratna HTDW, Hulathduwa SR

*Department of Forensic Medicine, Faculty of Medical Sciences, University of Sri Jayewardenepura, Sri Lanka*

**PP 88**

**Burkitt lymphoma with permanent neurological damage: A rare occurrence**

Moonesinghe CS

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**PP 89**

**An unusual presentation of a fatal myocardial infarction**

Gunasekara IS

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## Faculty of Medical Sciences Oration

### “Dreams and Reality”



**Senior Prof. Kumudu Wijewardene**  
**Professor of Community Medicine**  
**Department of Community Medicine**  
**Faculty of Medical Sciences, University of Sri Jayewardenepura**

In early part of my carrier I realized women in Sri Lanka as a group, due to our patriarchal society driven with social cultural norms and extremely male dominant political environment, face immense obstacles in reality while perusing their dreams at any age, or in any professional carrier. In Sri Lanka, women are expected to live under the protection of their families until they marry, an unmarried women’s virginity is closely linked to the dignity of the family. Thus, premarital pregnancy or merely expression of sexual knowledge before marriage can endanger both the woman’s and her family’s reputation. Pregnancy out of wedlock in Sri Lanka, where social norms strongly condemn pre-marital sex and subversion from sexual norms result in social ridicule, reprimand and exclusion from both family and society. Pregnancy and motherhood without virtually no social and financial security and support system other than the family, can be extremely challenging to young people. Consequently, these women’s choices are likely to be restrained by patriarchal norms within their social environment. When women change their dreams to respect social and moral norms and allow unfaithful partners to peruse their dreams; some have to face motherhood alone or undergo termination of pregnancy. Qualitative studies conducted on these women expressed awareness of having trespassed norms of sexuality through self-blame, victimhood and obedience. They demonstrated willingness to take responsibility for becoming pregnant and making decision best for their unborn child by keeping it or aborting. Throughout the qualitative interviews the women expressed fear of shame, and striving for familial and societal acceptance and financial survival. The view of young men regarding their perceptions on sexual and reproductive health and rights (SRHR) are very rarely studied. The qualitative study conducted by us on young unmarried men indicated denial of having had premarital sex with their current partner; however, sex with previous partners, often married women who were assumed to be sexually experienced, was confessed. Rape was not only trivialized by the male respondents, but also regarded as a way to ‘trigger’ a woman’s sexual appetite. However, in societies like ours where men shudder to take responsibility, empowering women with knowledge and skills on SRHR to prevent their dreams shattering in the face of reality is important. Our qualitative study conducted on this issue showed collaborative practice between health and education professionals was occurring albeit on an *ad-hoc* basis in Sri Lanka. Participants highlighted concerns with confidence, roles and training that were said to affect student access to appropriate health services. Effective inter-professional education and training of health workers and teachers including role clarification required in providing SRHR knowledge to students and youth were highlighted. Sexual harassment is a criminal offence under the Penal Code in Sri Lanka. However, despite this strict policy, sexual harassment



occurs under close doors and is rarely reported. Scientists indicate the real reason men sexually harass women in the workplace is not due to sexual desires but due to fragile male egos. Exploring nurses' experience of sexual harassment existing in a large hospital in Sri Lanka showed; of the 537 nurses interviewed 67% have faced sexual harassment and qualitative studies indicated patients and male doctors, especially who work in operating theaters; medical students are common perpetrators. Auxiliary staff indicated if sexual favors are not offered it is not possible to exist in the work environment. The oration will discuss the above issues and the need for cross disciplinary research, value of qualitative research and triangulation when studying such complex public health issues. The commitment needed from the policy makers and the society to support young people to live without discrimination and enjoy equity and equality to pursue their dreams and face reality is emphasized.

# Abstracts of Guest Lectures

## **Keynote Address**

### **Chronic kidney disease of unknown aetiology: Sri Lankan perspective**

*Prof. Kamani Wanigasuriya*

Chronic kidney disease is a major global public health concern due to associated morbidity, mortality and economic burden on the health care systems. Diabetes, hypertension and in certain situations glomerulonephritis are the leading aetiological factors of CKD. A severe form of chronic kidney disease (CKDu), not related to traditional risk factors, has been reported in Sri Lanka, several Central American countries, Egypt and Andhra Pradesh of India during the last three decades. In Sri Lanka, the disease burden is most pronounced in the North Central Province (NCP) and extends to North Western and Uva provinces. Absence of national registries makes it difficult to determine the true incidence and prevalence of the disease. According to the epidemiological studies, prevalence figures vary from 3.9% (2003), 7.6% (2006) to 15% in 2011. CKDu mainly affects males from poor socio-economic backgrounds who are involved in paddy farming and the majority are in fourth and fifth decades of their life. Few studies have reported clinical findings in these patients. Urinary sediments were bland, ultrasound showed bilateral small kidneys. Renal biopsies demonstrate interstitial fibrosis, interstitial inflammation, tubular atrophy and glomerular sclerosis. The national socioeconomic burden on the economy, the public health system, and the families in these communities is tremendous. Several research studies have been conducted during the past two decades to determine the aetiology and potential risk factors of CKDu in NCP. Possible environmental aetiology along with a genetic predisposition was postulated by our research group in 2007. Investigators have explored association between several potential exposures of ochratoxin A, cyanobacterial toxins, pesticides including glyphosate, hard water, fluoride and heavy metals including arsenic and cadmium. A low prevalence of CKDu was noted among those who consumed natural spring water in comparison to consumers of water from shallow wells. Despite comprehensive research studies undertaken thus far, the underlying cause of CKD remains unrecognized. Recent studies have focused on urinary biomarkers for early recognition of the disease. Elevated levels of urinary alpha1-microglobulin was detected in the earliest stages of CKDu compared with its levels in unaffected relative controls. Fibrinogen and  $\beta$ 2-microglobulin have the potential of being a screening tool for detection of CKDu and may aid the early diagnosis of toxin mediated tubular injury in CKDu. Early diagnosis of kidney injury in rural high prevalent areas is challenging. A technique called ‘micro-urine nanoparticle detection ( $\mu$ UNPD)’ which allows the detection of trace amounts of molecular markers in urine has potential for applications in diagnosing kidney injury with high sensitivity in resource-limited settings. Under the present circumstances where the underlying cause of CKDu is unknown, the preventive action plan should include measures to minimize exposure to nephrotoxic agrochemicals, provision of safe drinking water, awareness programs and screening programmes for early detection of the disease. We need to develop innovative research strategies in collaboration with both national and international centers of excellence for state-of-the-art technology and expertise to unravel the aetiology of this disease.

## **Plenary Lecture I**

### **Wound management consensus guidelines**

*Prof. Andrew McBain*

Despite a growing consensus that biofilms contribute to a delay in the healing of chronic wounds, conflicting evidence regarding their identification and management can lead to uncertainty regarding treatment. This has partly been driven by reliance on in vitro data or animal models, which may not directly correlate to clinical evidence, and by the limited availability of data from human studies. A Global Wound Biofilm Expert Panel, comprising 10 clinicians and researchers with expertise in laboratory and clinical aspects of biofilms, was identified and convened with the aim of establishing guidelines for care of chronic wounds, with a focus on the identification and management of biofilms to provide a clinical focus to support clinicians in improving patient care through evidence-based medicine. A modified Delphi process was used, based on published scientific data and expert opinion, to develop consensus statements that could help identify and treat biofilms as part of the management of chronic non-healing wounds. Using an electronic survey, panel members rated their agreement with statements about biofilm identification and treatment, and the management of chronic nonhealing wounds. Final consensus statements were agreed on in a face-to-face meeting. Participants reached consensus on 61 statements in the following topic areas: understanding biofilms and the problems they cause clinicians; current diagnostic options; clinical indicators of biofilms; future options for diagnostic tests; treatment strategies; mechanical debridement; topical antiseptics; screening antibiofilm agents; and levels of evidence when choosing antibiofilm treatments. The presentation will discuss the contribution of biofilms to wound chronicity and present highlights of the consensus document.

## **Plenary Lecture II**

### **Importance of identity and purpose in research collaborations**

*Prof. Andrew Dawson*

Collaboration is a goal directed activity that utilises the strengths and capacity of multiple individuals. There are strong analogies with team-based sports such as cricket where leadership, strategy, timing, team skills, brilliance and good luck all have a role. There is a correlation between the size and duration of research collaborations and operational complexity and running costs. Of relevance to Sri Lankan based collaborations is the nature and governance of relationships with international partners so called North-South Research Partnerships between high and lower middle income countries. There are many permutations of North South research collaboration relationships largely reflecting where leadership and control is sited. To explore this sort of collaboration I am going to draw on external research on and my experience of the South Asian Clinical Toxicology Research Collaboration (SACTRC). SACTRC was established in 2004 using an Australian NHMRC and Wellcome Trust research capacity building grant. From 2008 it was the subject of an external independent bioethical and anthropological research study. SACTRC's purpose was explicitly not to be institutionally based or to subsume individual researchers institutional identities or affiliations. Its major role was to provide an entry point for other researchers to gain leverage

from existing projects and infrastructure. The collaboration was purposefully named to create an identifiable track record to compete for competitive funding. An explicit goal was for early transition to local leadership and managing that change. Our experience is that a goal of early transition contributed significantly to success of the collaboration. Most research projects provided opportunities to develop both research and leadership skills and capacity that enable such a transition. Research is complex and rarely runs smoothly, in such circumstance high levels of trust and strong collective identity is important, probably more important than the Captain’s Call.

## **Symposium I – Polymicrobial infections**

### **Role of microbial biofilms in chronic infections**

*Dr. Manjula Weerasekera*

“Biofilms” are a coherent cluster of bacterial cells embedded in a matrix of exopolysaccharide (EPS), extracellular DNA (eDNA) and proteins. Biofilm forming sessile cells are more tolerant to most of the antimicrobials, host defences and environmental stresses. They differ from planktonic bacteria in their structure, dynamics, gene expression, communication and interaction with the host. Genetic and biochemical mechanisms that contribute to biofilm formation are variable across different strains and growth conditions, therefore it is difficult to identify the exact principle behind biofilm formation. Biofilms form on biotic or abiotic surfaces. Surface contact has been found to trigger gene expression changes, which upregulate immobility, initiating attachment. Once initial attachment has been established, micro colonies develop, encasing organisms in a protective matrix which is resilient to antimicrobial treatment. Biofilm infections such as chronic wounds, chronic otitis media and cystic fibrosis affect millions of people each year and remains a major challenge to human health. Biofilms commonly develop on the surfaces of medical implant devices including catheters, prosthesis, pacemakers, and intrauterine devices and are known to be responsible for 50% of nosocomial infections among patients with indwelling medical devices. Wound environment provides ideal conditions to support biofilm formation. A prolonged inflammatory phase results in upregulation of cytokines, recruitment of platelets, neutrophils and macrophages together which alter the oxygen concentration and the pH of the wound environment promoting biofilm formation. The necrotic tissue and debris support attachment of planktonic bacteria. Bacterial colonies in chronic wounds display increased heterogeneity, with pathogenic bacteria suppressing the commensal species. Polymicrobial biofilms, which constantly exist in chronic wounds, have been shown to delay healing compared to single-species biofilms. In our ongoing study we observed that >80% of the diabetes chronic wounds were due to polymicrobial biofilm infections. Biofilm involvement results in delayed wound healing. Therefore, it is important to identify the biofilms and their role in wound pathogenesis. Implanted foreign bodies such as catheters create ideal conditions for biofilm formation, which eventually cause blockage resulting in Catheter Associated Urinary Tract Infections (CAUTI). Urease secreted by the bacteria hydrolyse urea into ammonia and thereby creates an alkali environment, supporting the precipitation of magnesium, calcium and phosphate ions which then create a layer protecting the bacteria from antimicrobial compounds. Biofilms in the urinary tract are responsible for persistent

infections which are difficult to eradicate. Several approaches have been made to control the biofilm infections including prevention of biofilm formation and development of novel effective antibiofilm agents. One of the latest approaches harness the microbe's own enzymes to attack and destroy the sugar molecules that hold the biofilm together.

### **Emerging strategies for combating bacterial biofilm infections**

*Prof. Andrew McBain*

This presentation will discuss the mechanisms responsible for biofilm tolerance, and will then consider approaches to control the growth of biofilms in infection and elsewhere. These include the appropriate use of antibiotics and other antimicrobials prophylactically and for treatment, together with improved formulation. Possible future strategies will be introduced, including signals and anti-signals.

### **Microbiome in non-communicable diseases**

*Prof. Neelika Malavige*

Non-communicable diseases such as diabetes, atherosclerosis, obesity and cancers are the leading causes of morbidity and mortality globally, as well as in Sri Lanka. Although diet, lifestyle and genetic factors are known to predispose to the occurrence of these diseases, the role of the microbiome in the pathogenesis of these diseases are emerging. The microbiome consists of the genetic material of bacteria, fungi and viruses that live on and inside our body. The human gut microbiome alone, far exceeds the size of the human genome. The human microbiome has co-evolved with the human genome for millions of years and play an important role in energy metabolism, synthesis of vitamins, amino acids, neurotransmitters and hormones, formation of the immune system and regulation of the gut barrier. The gut microbiota has shown to be significantly altered in many chronic disease states such as diabetes, atherosclerosis and obesity, giving rise to low grade endotoxaemia. Low grade endotoxaemia has shown to subsequently lead to insulin resistance, atherosclerosis and nonalcoholic steatohepatitis. The overabundance of certain microbiota such as enterotoxigenic *Bacteriodes fragilis* has shown to be associated with colorectal carcinoma, which is one of the leading cancers worldwide. Intake of low fibre, high fat diet, lack of exercise, poor sleeping patterns and psychosocial stress have shown to especially alter the gut microbiome. Although the Sri Lankan diet is vastly different to that of the Western diet, studies done by us in Sri Lanka have shown that the gut microbiota patterns in Sri Lankan diabetic patients are similar to that of patients with type 2 diabetes residing in the West, probably due to ingestion of a diet rich in fat, processed carbohydrates and low in fibre. Therefore, apart from the traditional treatment methods used for these diseases, targeting changes in the gut microbiome may have an added advantage. Interestingly, some of the widely used drugs for treatment of diabetes such as metformin appears to significantly change the composition of the gut microbiome, with an increase in microbiota that reduce disease pathogenesis. Due to the emerging role of the microbiome in disease pathogenesis, novel treatment methods are now being developed, which include modification of the gut microbiome by personalized nutrition, probiotics and prebiotics and exercise.

## **Symposium II – Advances in clinical practice**

### **Recent advances in management of refractory epilepsy**

*Dr. Sunethra Senanayake*

Epilepsy is one of the disabling neurological disorder commonly affecting the population of children, young adults and adults living in their most active and productive period of lives. About 20% of epilepsy patients do not respond to antiepileptic medications. Most of these patients are having focal onset seizures. Out of them, 80% of medically refractory epilepsy is due to mesial temporal sclerosis, respond to surgery. Proper selection of patients for epilepsy surgery include long term video EEG monitoring, more sensitive MRI imaging, and functional localization of epileptogenic zone with PET, SPECT and SISCOM techniques. These play a pivotal role in epilepsy surgery program. Role of newer antiepileptic drugs in certain group of drug resistant epilepsy has shown promising results. Advanced epilepsy surgery in refractory epilepsy including hemispherectomy and multiple subpial resections, neuroablation and functional neurosurgery is considered in improving quality of life in multifocal epilepsy patients.

### **In search of better outcomes in burns**

*Dr. Yasas Abeywickrama*

Managing burn injuries is a challenge worldwide due to mortality and morbidity with long term physical, aesthetic and psychosocial squale. Major improvements in outcomes can come only with a better understanding of burn pathophysiology, development of protocols to suit the local scenario with supervised implementation and close follow up. Expertise to handle adverse sequale for better functional and aesthetic outcomes is also a highlight. However primary prevention with education and imposed health and safety regulations, developing infrastructure and human resources, research and development for further enhancements are essential.

### **Bone marrow transplant: The Sri Lankan experience**

*Dr. Lallindra Gooneratne*

Haematopoietic stem cell transplantation (HSCT) is the only recognized curative option for many inherited and acquired haematological disorders inclusive of haematological malignancies. HSCT has been available in many countries for over 5 decades, however, allogeneic HSCT was performed for the first time in Sri Lanka only in 2014. HSCT requires a healthy donor who is compatible with the patient. Only about 30% of patients will have a HLA compatible family donor, which leaves about 70% of patients without such a donor. The options available for this majority are an HLA matched unrelated donor from international donor registries, a compatible umbilical cord blood unit/s from a cord blood bank or a HLA mismatched family donor. Although more complexed, both unrelated donor and mismatched family donor transplants are being performed in Sri Lanka successfully. This has provided an opportunity for most patients who are in need of a HSCT to have it in Sri Lanka.

## **Symposium III – Ministry of Health, Nutrition and Indigenous Medicine, NHRC: Excellence, governance and ethics in health research**

### **Striving for excellence in conduct of health research**

*Snr Prof. Rohini de Alwis Seneviratne*

The observed exponential increase of research over the years can be attributed to many reasons, among which are: an increased quest for scientific evidence and curiosity; professional, academic and monetary awards and rewards; increased opportunity for multidisciplinary and collaborative research within and beyond borders enhanced by communication technology; and availability of many funding and publication opportunities in traditional peer reviewed journals in print and newer digital mode, as well as new publication channels such as conference proceedings, home pages and open access archives. Published research has been reported to contribute to an 8-9% growth rate of modern science from 1980 to 2012 in the medical and health sciences based on the annual cited references (Bormann & Mutz 2012). The increasing number of publications in peer-reviewed journals and indexing has also led to an expansion of research databases, although the growth rate in the Science Citation Index up to 2007 is reported to be less than for other comparable databases (Larsen and Von Ins 2010). Chalmers and Glasziou (2014) reveal an interesting and very important facet relating to the avoidable waste in the production and reporting of research. A systematic review of follow up of research published as abstracts estimate that the publication rate of the abstracts as full papers is only 53% after a nine-year follow up. The identified causes of waste have been shown to be in four different successive stages of research: relevance of the research question; research design and methods; publication practices; and incomplete reporting of outcomes and poor quality of research reports. Some interesting findings from the National Health Research Symposium (2017) organized by the Ministry of Health for health professionals shed some light on the quality and of waste in research carried out. Of 504 abstracts received 213(42.6%) had been rejected at review and re-review, 35.6% due to poor quality and 7% due to ethical issues. Worldwide, over US\$100 billion is invested every year in supporting biomedical research, which results in estimated 1 million research publications per year only, bringing to question the cost of research, funding policies, and the paucity of inputs of users and beneficiaries of research in determining priorities for research funding. Where academic research has had a substantial impact on the industry comes from the medical devices and equipment industry. The academia and the industry depend on each other and work in collaboration in product development, testing, introduction and modification of medical devices in hospital settings and other health care settings. The potential to have even greater impact would be through forging educational partnerships between the universities and the industry leading to development and sharing of research laboratories, research training and mutually beneficial commercialization ventures. However, the utilization of research findings for improved and quality patient care, health systems, programme management and policy making has not had the desired impact. Overcoming these require stepping beyond the existing framework within which research is conducted now and has been in the past, and calls for a comprehensive, inclusive, participatory approach in all stages of research with better



focus on beneficiaries and benefits of impact for costs incurred. The development of the National Health Research Council Act (2018/19), and through this, the establishment of the National Health Research Ethics Committee will streamline ethics and its processes on health and related research. The Research Governance Strategy for Sri Lanka (in preparation) will provide a framework and strategies for instituting research governance. The Code of Conduct for Health Research in Sri Lanka (2018) spell out the roles and responsibilities of researchers and research institutions paving the way to achieve excellence in the conduct of health research.

### **Beyond borders towards ethics in health research**

*Emeritus Prof Anoja Fernando*

In health research, the term “beyond borders” usually indicates collaborative research carried out by researchers in or from more than one country, the boundary being the demarcation of a country. However it could also mean collaborative research undertaken by researchers from different disciplines, when it is usually referred to as “multidisciplinary” research. In my presentation I will concentrate on ethical issues that confront collaborative research undertaken by researchers from different countries, especially when the participants involved in the research are from a “resource-poor” country. It is important to conduct health research in one’s own country if we want to find solutions to the health problems of our own people. Thus the initiators of research should ideally be local, because they understand the health problems as well as the lifestyles and cultural habits of the research participants. When we do not have adequate resources to carry out research that is needed, we have to rely on funding from international organizations or from institutions in resource rich countries that are willing to fund or sponsor research. Research, especially on humans, must always be accompanied by the highest ethical standards, where protection of the individual research participant is all important. Therefore the local investigators who initiate or collaborate in such research should be able to recognize and deal with all the different ethical issues inherent in collaborative and sponsored research. In addition, members of research ethics committees as well as health authorities have to be prepared to provide the necessary oversight to ensure that the research is well designed and carried out ethically. The cardinal ethical principles that are relevant in any type of research, as with clinical practice, are respect for persons, beneficence, non-maleficence, justice and equity. When we consider collaborative or sponsored research, especially in resource poor countries, we also have to pay close attention to ethical issues such as vulnerability of the research participants, cultural diversity, conflicts of interest, sharing of benefits, ownership of data, intellectual property rights and publication ethics, among others. In my presentation I will describe some of these special issues and mention some of the international guidelines that have been developed to help investigators, research ethics committee members and health authorities to play their part in ensuring the ethical conduct of research.

## **Research governance strategy for Sri Lanka**

*Dr. Sunil De Alwis*

Health research is an imperative part in the ever changing, continuously modernizing and rapidly evolving health system, as they provide updated and evidence-based knowledge for all health care decision makers, either in clinical or non-clinical fields. Ministry of Health is working towards ensuring high standards of research. The Deputy Director General – Education, Training and Research Unit (DDG-ET&R) of Ministry of Health is the main focal point for promoting, coordinating, facilitating and regulating health research whereas the National Health Research Council (NHRC) of Ministry of Health of Sri Lanka is the apex body of health research in the country. Institutionalizing a research culture among health care providers at all levels as well as translating research findings in to policy and practice has been a long felt need. Since there was no central body or a governance mechanism for Health Research a need for the national level, Officials of the Ministry of Health with representatives of the NHRC participated in a programme in Monash University, Australia on Research and Ethics governance. This enabled the Officials to have a more scientific contemporary system in order to have links with the developed world. Research governance strategy establishes a system of standards, administrative, and legal/regulatory mechanisms through which research is promoted and managed, participants and researchers and research institutes are protected, and accountability is assured without undue hindrance and deferments. Three strategies outlined namely standards, administrative procedures and processes and the legal and regulatory mechanisms are identified as key approaches for the establishment of good governance of health research in Sri Lanka. Research misconduct and fraud, protect vulnerable groups, and ensures that lessons learned are shared when poor practice is identified. Learning from adverse events will promote good practice, enhance the ethical and scientific quality of research, and safeguard the public. The legal framework and regulatory mechanisms to implement the strategy is provided by the Health Research Council Act of 2018 (NHRC Act) while the Code of Conduct for Health Research in Sri Lanka (the Code) gives direction to researchers and research institutions on complying with the strategy. One should not forget that the key strategies while enabling good governance of health research should also provide a context for the encouragement of creative and innovative research, and function to effectively transfer learning, innovations, technology and best practice to improve health systems and health care. The governance strategy was developed by the National Health Research Council of Sri Lanka in 2017 and 2018, and Ministry of Health in consultation with stakeholders, to be significant to all human health research conducted within the country, over all research disciplines.

## **Plenary Lecture III**

### **Nanotechnology in health and medicine**

*Prof. Ravi Silva*

Modern society expects technology to provide means for a more balanced and healthier lifestyle, with better healthcare and seamless transition between different modes of activity. This is exemplified in the progress made in the health sciences due to technology, as well as the longer

life expectancy with better quality of life. A healthier and happier lifestyle will have many benefits including significant impact on National Development. Reduction in sick days, longer length of working lifetimes and reduced call upon the National Health Service for treatments are some of the quantifiable benefits, and importantly, the improved psychological mind state would have benefits personally as well as those around. Thereby impacting society and national development. The nanotechnology revolution is contributing to all sectors of society and the medical field is no exception. The scale of activities and targets one can work with in nanotechnology avails itself to non-intrusively measure bio-potentials, analytes and X-ray images, as well as act as nano-vectors in delivering medical payloads. Within this talk I will develop themes on the use of nano-materials for the measurement of bio-potentials and within this framework how it can be used to measure EEG signals. Coupling this to wireless communication allows for 24-7 monitoring, opening doors in tele-medicine and home-care alternatives, particularly for an ageing population. Novel X-ray technology developed allows for in-vivo low dose imaging suitable for the identification of tumour growth and better therapy. Examining healthcare needs, both diagnostic and therapeutics are equally important. I will develop routes within the therapeutic sector that allows one to use carbon materials to deliver drugs to diseased areas within the human body. How one can ‘dress-up’ nano-materials such that they can target areas precisely, efficiently and deliver payloads unobtrusively such that there are less side-effects to the immunology response will be explored.

## **Symposium IV –Pharmacology & Toxicology**

### **Beyond serendipity: Clinical toxicology research in Sri Lanka**

*Prof. Andrew Dawson*

Clinical observation rather than an unusual laboratory result produces the major research questions in human poisoning. So, research in clinical toxicology requires a combination of 3 domains: good clinical skills, a significant medical burden from poisoning and an understanding of the societal context of poisoning. Sri Lanka’s very strong track record in clinical toxicology research reflects its strength in these 3 domains. Publication of key research at the end of the 20<sup>th</sup> century generated important questions that attracted international research funding and collaboration particularly over the past 20 years. Importantly Sri Lanka research response to the significant problems of clinical toxicology has encompassed the spectrum from basic science to changes in policy and public health. This approach has been remarkably successful in reducing deaths. Overall hospital death rates from poisoning have reduced from 5.7 to 2.1% over 10 years with pesticide mortality falling from 9.8% to 4.8%. The approaches and research used to achieve these results has had significant global impact. The epidemiology of poisoning continues to change and is strongly influenced by underlying social change. In Sri Lanka there has been as significant reduction in pesticide poisoning and rise in medicines taken in self-poisoning. Based on global trends it is highly likely that there will be increases in prescription and non-prescription medication abuse. These are dynamic challenges that Sri Lanka will need to address, to do so will require increased multidisciplinary research and response. In Sri Lanka I believe continued success will be marked

by increased collaboration between medicine, pharmacy, sociology, psychology, public health and policy makers.

### **Nano particles for therapeutics**

*Prof. Ravi Silva*

The physics principle of magnetic induction of hyperthermia is that when exposed to an alternating magnetic field, the magnetic media can transform the electromagnetic energy to thermal energy, causing the temperature to increase in any surrounding media or tissue. Since normal cells usually possess higher heat resistance to temperature than tumor cells, cancerous cells can be selectively destroyed by increasing the local temperature of the tissue to a desired temperature range (42°C-46°C). A major challenge is the real-time monitoring and control of the three dimensional temperature field in vivo. A smart approach is to self-regulate the hyperthermia temperature by taking the advantage of the Curie temperature ( $T_c$ ) of magnetic nanoparticles. The Curie temperature is the temperature at which the particles lose its permanent magnetic properties. We have developed  $Zn_{0.54}Co_{0.46}Cr_{0.6}Fe_{1.4}O_4$  nanoparticles with  $T_c$  being 45.7°C, which can be used in the self-regulating hyperthermia. These novel nanoparticles also demonstrate good biocompatibility.

### **Safety of herbal drugs**

*Emeritus Prof. Ajit Abeysekera*

The world wide interest in Traditional Medical Systems which is growing exponentially is an offshoot of the ‘Green Movement’ which started around 50 years ago. Since the main therapeutic agents of Traditional Medical Systems are herbal drugs, the word ‘Herbal’ has in the popular consciousness become associated with all that is ‘good’, ‘natural’ and ‘safe’. The idea that anything herbal is safe, is a dangerous and ill-informed opinion. Some of the most poisonous materials known to man are of plant origin. On the other hand, to come to the opinion that herbal drugs are dangerous because some of them contain plants having toxic compounds is also illogical, when considering the toxicities of many of the drug substances used in modern medicine. Both qualitative and quantitative aspects have to be considered when evaluating the safety of a herbal drug. It is convenient to classify herbal drugs into three categories: 1. Traditional herbal drugs, 2. Modern formulations of traditional herbal drugs, 3. De Novo herbal drugs/preparations. For drugs in the first category with a long history of usage, it is reasonable to assume that there would be no acute toxicity. There is evidence that traditional systems of medicine were cognizant of the acute and chronic toxicities of certain plants and drugs. However, it needs to be recognized that long term effects such as carcinogenicity, hepatotoxicity, nephrotoxicity and genotoxicity, may not be discovered without epidemiological studies. Concurrent use of herbal drugs with modern drugs can lead to drug interactions, on which very little information is available. Changes in composition could be brought about by modifying the traditional drug preparation procedures, and these need to be carefully considered in evaluating the safety of a drug in the second category. With regard to new combinations, only drugs prepared from well known plants of known composition and safety

can be considered safe. The regulation of herbal products is a complex issue, and different countries have different systems which try to balance the ever increasing demand for these products and the growing trend towards self-medication, with the need to safeguard the public. A major concern in herbal drug usage is quality assurance. There are a number of practical problems with regard to the identity and purity of herbal ingredients, process control and the standardization of herbal products, which require scientific and technical inputs for their solution. The goal of having regulated, standardized, quality controlled herbal drugs of proven safety and efficacy for the healthcare needs of the public has not yet been achieved.

## **Guest Lecture**

### **Leprosy: everybody's responsibility**

*Dr. Indira Kahawita*

Leprosy is a chronic infection of the skin and nerves due to the intracellular bacterium, *Mycobacterium leprae*. Approximately 215,000 new cases occur worldwide and Sri Lanka reports about 2000 new cases each year. Following the declaration of elimination of leprosy as a major health problem in 1995, awareness and expertise on leprosy is becoming inadequate. A recent knowledge attitudes and practice (KAP) survey found that there are gaps in the knowledge even among health care professionals. Since the majority of cases are detected when they present to a health facility with symptoms it is important for all health care professionals to be aware of the epidemiology and symptoms of leprosy. Since all cases are managed at Dermatology clinics. All suspected cases should be referred to the nearest skin clinic. Approximately 10% cases occur in children below 15 years, indicating ongoing transmission and about 7% have visible disability at diagnosis indicating delay in diagnosis. Even though the majority of cases present with hypopigmented anaesthetic patches, other presentations like multiple skin coloured patches, facial change and nerve function impairment are also noted. Treatment consists of combinations of rifampicin, dapsone and clofazimine for 6 or 12 months. About 20% of cases default treatment. Adverse effects, mainly due to dapsone, occur in about 20%. A multidisciplinary approach to improve diagnosis, case holding and management of complications would greatly improve the quality of leprosy care in Sri Lanka. The steps that can be taken by several categories of health care professionals towards achieving the goal of "leprosy free Sri Lanka" will be discussed.

## **Plenary Lecture IV**

### **Being professional in hypocritical practice settings: Training the future healthcare practitioner**

*Prof. Dujeepa Samarasekera*

The practice of medicine has become quite complex and challenging in the present work environment. This is especially so for the young health professionals. The situation will get even more complex with the increased use of technology in the delivery of healthcare. Due to this fact, it is extremely important to prepare our future practitioners to face and effectively manage these situations. This is to improve the quality of care as well as the image of the profession in public.

This presentation will focus on the current and future challenges in the practice environment. It will also examine contemporary best-evidence educational practices in training healthcare professionals in professionalism and professional identity-formation. Examples of personal experiences will be shared in developing, implementing, and evaluating such a training program in one of the top ranked medical schools.

# Abstracts of Oral Presentations

## OP 1

### **Efficacy of three visualization techniques: fluorescent *in situ* hybridization, gram staining and scanning electron microscopy in identifying biofilm involvement of infected chronic wounds**

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**Background:** Biofilms are one of the main contributory factors for diabetic wounds and 78% of chronic wounds contain biofilm infections. It is important to identify the biofilm involvement for effective wound management. However, there is no universally recognized method for the identification of biofilm infections.

**Objectives:** The study aimed to evaluate the efficacy of three visualization methods including fluorescent *in-situ* hybridization (FISH), Gram stain and scanning electron microscopy (SEM) in order to determine the involvement of biofilms in infected chronic wounds.

**Methods:** Twenty wound tissue debridement specimens were collected from the patients with chronic diabetic wounds attending routine surgical debridement at Colombo South Teaching Hospital in Sri Lanka. Each specimen was divided in to two. One piece of tissues was fixed in 2.5% glutaraldehyde and used for SEM. The other piece of tissue was used for histology and Gram staining. Tissue was fixed in 10% formal saline, histologically processed, and embedded in paraffin. Serial 3µm sections were cut and subjected to Gram stain and FISH. Stained tissues were evaluated using light and fluorescent microscopy.

**Results:** Microbial aggregates were detected in 20/20 specimens by all three microscopic methods. SEM was more effective at highlighting the presence of exopolymer matrix and the surface attached, dense microbial cells in *in vivo* biofilms. Gram stain revealed densely aggregated micro colonies, embedded in the tissue. The use of an eubacterium specific fluorescent *in situ* hybridization probe indicated the presence of bacterial aggregates inside the exopolymer matrix, indicating putative biofilm phenotype in chronic diabetic wound tissue. Further, bacterial infiltration into internal portions of the tissues was apparent.

**Conclusions:** Microbial aggregates and putative biofilm matrix in wound debridement specimens can be visualized using all three methods. However, SEM was found to be the most discriminating method for the visualization of three dimensional structure of *in vivo* biofilms in fixed wound tissue specimens.

**Acknowledgement:** This work was supported by the research grant funded by the University of Sri Jayewardenepura (Research Grant No: ASP/01/RE/MED/2016/50) and Medical Research Institute, Sri Lanka (Research Grant No: 67/2015).



## OP 2

### **Isolation and characterization of *Leptospira interrogans* from clinically suspected leptospirosis patients from selected hospitals in Western Province, Sri Lanka**

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**Background:** Culture isolation of human pathogenic *Leptospira* is a challenge. Isolation of *Leptospira* is confirmatory of the disease but is difficult and laborious to perform. However, culture has an epidemiological value mainly to identify responsible reservoir animals. The last report of isolation of *Leptospira* from an infected patient in Sri Lanka was published in 1973.

**Objectives:** To isolate and identify circulating *Leptospira* species from clinically suspected leptospirosis patients in Western Province, Sri Lanka.

**Methods:** Whole blood from 100 leptospirosis suspected patients were subjected to DNA extraction followed by *secY* PCR. Acute leptospirosis was presumptively diagnosed by detecting IgM using an immunochromatographic assay. Few drops of whole blood were inoculated into semi-solid Ellinghausen-McCullough-Johnson-Harris medium for culture and incubated at 30°C. Positive cultures were selected by presence of motile spiral bacteria under dark field microscopy and subjected to nested PCR targeting the *flaB* gene of pathogenic *Leptospira* and sequencing for phylogenetic analysis. Culture positive patients sera were subjected to microscopic agglutination test (MAT) to identify the infective *Leptospira* serogroups using a panel of 10 representative leptospiral serogroups.

**Results:** Among 100 patients, *secY* PCR found to be positive in 27(27%), while 26 patients gave positive IgM results. Only 2 patients were found to be culture positive (2%) using dark field microscopy. PCR of both cultures were positive for *flaB* gene from pathogenic *Leptospira*. The phylogenetic distance of *flaB* sequences suggested *Leptospira interrogans* while MAT identified infective serogroups as Sejroe and Canicola.

**Conclusion:** For early detection of pathogenic *Leptospira*, molecular based assays are more suitable than culture isolation. Serogroup Sejroe and Canicola of *L.interrogans* have more affinity to animal origin such as cattle and dogs respectively. Thus, in the current study we stress the importance of cross contamination of infected animals in human habitats.

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### OP 3

## Identification accuracy of oral *Candida* species from patients with diabetes by phenotypic and molecular methods

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**Background:** Oral candidiasis in patients with diabetes mellitus has been recognized and reported recently as one of the major oral complications.

**Objectives:** This study aimed to determine the proportion of different *Candida* species among patients with diabetes using different phenotypic and molecular based methods and compare the accuracy of both methods.

**Methods:** Concentrated oral rinse specimens were subjected to culture identification using the germ tube test and sugar assimilation tests. DNA was extracted from concentrated oral rinse specimens and yeast isolates using the glass bead method. Multiplex PCR was carried out using published primers, ITS 4, CA, CT, CG and CP, to identify *C. albicans*, *C. tropicalis*, *C. parapsilosis* and *C. glabrata*. PCR-RFLP with Msp I restriction enzyme was used for species identification.

**Results:** Of the 250 patients, 142 (56.8 %) were female with a mean age of 60 years. *Candida* species were confirmed in 204/250 (81.6%) by culture. Culture identified multiple *Candida* species in 88 patients. Phenotypic identification and PCR-RFLP respectively identified *C. albicans* as the predominant species (66.8%, 68.8%) followed by *C. parapsilosis* (22.8%, 21.6%), *C. tropicalis* (18%, 16%), *C. glabrata* (1.6%, 3.2%) and *C. krusei* (5.6%, 3.6%). The multiplex PCR was positive for *Candida* species in 89.2 % of patients with *C. albicans* (79.2%) followed by *C. parapsilosis* (35.6%), *C. tropicalis* (31.6%) and *C. glabrata* (5.6%). Considering multiplex PCR as the gold standard, both PCR-RFLP and culture dependent methods had a high, specificity and positive predictive values for *C. albicans* identification. However, poor sensitivity, specificity and PPV values were obtained for non-*albicans* *Candida* species.

**Conclusions:** *C. albicans* was the predominant *Candida* species among the study population. The conventional culture method has poor specificity in identifying non-*albicans* *Candida* species in clinical specimens.

**Acknowledgement:** This work was supported by the research grant funded by the University of Sri Jayewardenepura (Research Grant No: ASP/06/RE/MED/2014/08), and Medical Research Institute, Sri Lanka (Research Grant No: 2013/33).

### OP 4

## Sequence based identification of resistance mechanism in *Salmonella typhi* clinical isolates from Northern India

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**Background:** Surveillance of antimicrobial resistance genes is important for understanding the primary mechanisms and the epidemiology of antimicrobial resistance.

**Objectives:** To develop pan-genome and core-genome from pathogenic *Salmonella enterica* strains and identify novel multidrug-resistant genes and acquired pathways.

**Methods:** Clinical isolates (n=82) of *Salmonella enterica serovar typhi* (*S. Typhi*) were obtained from blood culture of patients. DNA was extracted from each isolate and subjected to whole-genome sequencing (WGS) on the IlluminaMi-Seq platform. The possible genes were identified from the assembled sequences. The antimicrobial susceptibility of *S. typhi* isolates against the 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> line-antibiotics were tested using the disc diffusion method and E-Test.

**Results:** The pan-genome approach predicted 4535 conserved gene families (core) out of 6228 gene families (pan-genome). 983 gene families constituted variable genome while 710 unique genes were found to be present in all the 82 sequenced isolates. Further mapping the variable genes to Cluster of Orthologous Groups database revealed that the majority of these variable genes were involved in replication, recombination, repair and defense mechanisms suggesting that they may be closely associated with the pathogen's ability to adapt to new environmental niches. The extended homology analysis of unique genes identified 186 novel proteins in *S. typhi*.

**Conclusions:** Multiple genomes of Indian clinical strains studied indicate that the bacterium was highly conserved. The isolates exhibited clonal nature with some diversity as the strains had acquired newer genes through Horizontal Gene Transfer. The novel variations were due to acquisition of genes by *S. typhi* from other bacterial genome for survival during stress conditions. A high correlation was observed between phenotypic and genotypic susceptibility testing, which shows that WGS can act as a platform for detection of resistant genes.

**Acknowledgement:** This work was supported by the research grant funded by the Indian Council of Medical Research, New Delhi (Research Grant No: BIC/12(2)/2012).

## OP 5

### **Establishment of a *Phlebotomus argentipes* colony at a confined laboratory setting and morphometric variation among wild caught sand flies against laboratory reared individuals**

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**Background:** Considerable amount of published information on techniques for rearing sand flies suitable for different settings and regions are available. However, none of the published information reports the successful colonization of sand flies at laboratory setting in Sri Lanka

**Objectives:** To establish a colony of *Phlebotomus argentipes* in the laboratory and conduct a morphometric evaluation against natural population.

**Methods:** Sand flies were collected from a site predominant with *P. argentipes* using a Cattle Baited Net Trap and housed in insect cages. They were provided with an artificial blood meal (Cattle) using membrane feeding technique. After blood meal, sand flies were transferred to oviposition cups (50 each). The eggs were harvested and treated using standard protocols. Treated eggs were distributed in larval rearing container (50 each) and larval food prepared with rabbit feces, rabbit food and molds were added to each cup. The larval rearing containers were kept in an incubator with standard conditions. Standard morphometric measurements were taken from both wild caught (n = 20) and laboratory reared individuals (n = 20) using a pre calibrated micrometer inserted to an eyepiece of a light microscope.

**Results:** A colony of *P. argentipes* was successfully established up to F<sub>2</sub> generation. The colony started egg laying from 1<sup>st</sup> day of post blood meal. Egg hatching was achieved at 3 days after the egg treatment. Life table analysis of immature stages ranged as 23-24 days and 8-9 days for larval and pupal stages, respectively. Adults of the laboratory colony were significantly larger in size according to independent t-test for the morphometric characteristics; head size [350.0 ± 17.5µm] ( $p < 0.05$ ), labium size [260.0 ±

24.1µm] ( $p<0.001$ ), size of antennal segment iii [215.5 ± 15.7 µm] ( $p<0.001$ ), palp length [414.5 ± 30.2 µm] ( $p<0.001$ ), hind femur [727.5 ± 15.5 µm] ( $p<0.001$ ) hind tibia [1199.5 ± 36.6] ( $p<0.05$ ) and wing width [540.0 ± 18.1] ( $p<0.05$ ).

**Conclusions:** The colonization of *P. argentipes* at laboratory setting is feasible and the present study provided the first ever successful attempt in Sri Lanka.

**Acknowledgement:** This work was supported by the research grant funded by the National Research Council (Research Grant No: NRC 16-142)

## OP 6

### Comparison of ATL buffer and RNAlater as transport and storage medium for molecular diagnosis of cutaneous leishmaniasis using skin punch biopsy specimens

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**Background:** Detection of parasite DNA by Polymerase Chain Reaction (PCR) is considered as the gold standard for diagnosis of cutaneous leishmaniasis (CL). Specimens for molecular assays may be transported and stored in either ATL buffer or RNAlater depending on the downstream applications such as DNA based diagnostics or gene expression studies.

**Objective:** To compare ATL buffer and RNAlater as transport and storage media for skin biopsy specimens under local settings, for subsequent detection of parasite DNA by PCR amplification

**Method:** Two punch biopsy specimens were obtained under sterile conditions from each of 80 patients with clinically suspected CL. One biopsy specimen was collected into 180 µl of ATL buffer, transported and stored at room temperature. The second specimen was transported in ice after collection into 180µl of RNAlater and stored at -20°C. DNA extraction from both specimens was performed using Qiagen DNeasy Blood and Tissue kit followed by PCR. Statistical evaluation was by  $\chi^2$  test of proportions in R statistical software, at 5% significant level.

**Result:** All 80 punch biopsy specimens that were collected into ATL buffer gave positive results with PCR after storage at room temperature, but only 47 specimens collected into RNAlater gave a positive band with PCR. The difference was statistically significant ( $\chi^2=41.575$ ,  $df=1$ ,  $p<0.05$ ).

**Conclusion:** Specimens collected into RNAlater are not suitable for DNA based diagnostics such as PCR. Specimens should be collected separately into both ATL buffer and RNAlater when both DNAbased diagnostics and expressions studies are to be carried out.

**Acknowledgement:** This work was supported by the research grant funded by the University of Sri Jayewardenepura (Research Grant No: ASP/01/RE/MED/2016/70).

## OP 7

### **Health related quality of life among male patients with oral cancer at National Cancer Institute, Sri Lanka**

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**Background:** Oral cancer is the most common cancer type among Sri Lankan men. Health related quality of life (HRQOL) is one measurement to identify how much the disease affects the day-to-day life and feelings of the patients with cancer. However, there is lack of data on HRQOL among Sri Lankan patients with oral cancer.

**Objectives:** To assess the HRQOL among male patients with oral cancer at National Cancer Institute, Sri Lanka.

**Methods:** A descriptive cross sectional design was used. Data were collected from purposively selected 300 male patients with oral cancer, despite the stage of the cancer, diagnosed for more than 3 months, within the age group 35-65years, attending the oncology clinics at National Cancer Institute, Sri Lanka. Data were obtained through interviewer administered two pre tested questionnaires: Socio demographic questionnaire and WHOQOL-BREF and analyzed using descriptive statistics. Ethical approval was obtained from the Ethics Review Committee, Kotelawala Defence University, Sri Lanka.

**Results:** Nearly 60% (59.7%) of the participants were 56-65 years old. 64.3% of them have had secondary education. More than 70% (71.3%) had their primary disease at oral cavity and most of them (69.0%) were none metastasized. Most of the participants had the habits of betel chewing (76.7%) and smoking (71.7%). The habit of alcohol consumption was less (59.0%). The environment domain has the highest mean value (59.2±16.6) followed by social relationship domain (49.5±22.5). Mean values of physical health and psychological domains were 51.9 (±15.6) and 52.3 (±19.9) respectively.

**Conclusions:** Results concluded that mean HRQOL among male patients with oral cancer was distributed on a middle range. Most of the participants had harmful health habits such as betel chewing, smoking and alcohol consumption. Health education programs and nursing interventions should be organized to enhance HRQOL among male patients with oral cancer.

## OP 8

### **Effects of kitchen and stove characteristics on respiratory function of women exposed to biomass fuel smoke in a suburban community in Sri Lanka**

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**Background:** Scientific evidence is limited on how kitchen and stove characteristics affect respiratory functions of women exposed to biomass fuel smoke. Peak expiratory flow rate is useful in assessing airflow obstruction. Breath biomarkers are scientifically and clinically accepted means of monitoring respiratory health.

**Objectives:** The present study was carried out to assess the effects of kitchen and stove characteristics on respiratory health of women exposed to biomass fuel smoke by measurements of peak expiratory flow rate (PEFR), fractional exhaled nitrous oxide (FeNO) and exhaled carbon monoxide (eCO).

**Methods:** Using a household (HH) survey of two-stage cluster sampling, lifelong nonsmoking women using biomass fuel for cooking for at least five years (n=159) were recruited. Data on location of cook stove, availability of windows and chimney and type of stove; traditional (TS) vs improved (IS) were collected using a questionnaire. PEFr was measured using Mini Wright peak flow meter. FeNO was assessed using FeNO breath monitor (Bedfont, UK). eCO was assessed using CO smokerlyzer (Bedfont, UK). Data were analyzed using SPSS (version 7).

**Results:** The majority (N=129) had stoves in kitchens inside the house and 80% of kitchens had windows. IS were used in 75% of HH (N=120). Mean PEFr (251 L/min±6.5SD) and FeNO (27 ppb±2SD) of IS users were significantly lower than mean PEFr (215 L/min±15SD) and FeNO (32 ppb±5SD) of TS users ( $p<0.05$ ). Mean eCO (3 ppm±0.4 SD) was significantly low in subjects who had stoves with chimneys compared to mean eCO (2 ppm±0.1SD) of those who do not have ( $p<0.05$ ).

**Conclusions:** Respiratory health effects of biomass fuel smoke can be significantly reduced by the use of improved cooking stoves and having chimneys in the kitchen. Thus, these should be implemented in the households using biomass fuel to ensure good respiratory health among biomass fuel users.

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## OP 9

### Peak oxygen consumption and blood lactate responses to training of Sri Lankan national male endurance runners: A comparative study

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**Background:** Despite high intensity regular training, Sri Lankan national endurance runners perform poorly at international competitions.

**Objectives:** The study objectives were to determine peak oxygen consumption and blood lactate responses to training of national male endurance runners in comparison to Sri Lankan university runners. Further the responses of these endurance runners were compared with Asian male endurance runners in the literature.

**Methods:** National middle and long distance runners (n = 59, training duration > 05 years) were studied for peak O<sub>2</sub> consumption (VO<sub>2peak</sub>), peak blood lactate level (LT), and anaerobic threshold (AT) by continuous incremental cardiopulmonary exercise protocol using a cycle ergometer. Data were compared with matched Sri Lankan university endurance runners and the data of Asian male endurance runners.

**Results:** VO<sub>2peak</sub> of national male endurance runners (mean ±SD) (59.45 ± 8.0 mL.kg<sup>-1</sup>.min<sup>-1</sup>) was significantly better than university runners (50.5 ± 6.6 mL.kg<sup>-1</sup>.min<sup>-1</sup>) ( $p<0.05$ ). Sri Lankan national runners LT (12.55 ± 2.9 mmol.L<sup>-1</sup>) and AT (42.94±15.13%) was not significantly better when compared with university runners' LT (14.37 ± 5.1 mmol.L<sup>-1</sup>) and AT (45.17 % VO<sub>2peak</sub> ± 8.79) ( $p>0.05$ ). The responses of VO<sub>2peak</sub>, LT and AT of Sri Lankan national endurance runners were significantly lower when compared to Asian endurance runners (VO<sub>2peak</sub> 70-80 mL.kg<sup>-1</sup>.min<sup>-1</sup>, LT ≈ 8.0 mmol.L<sup>-1</sup> and AT 59.8% VO<sub>2peak</sub> ± 7.4) ( $p<0.05$ ).

**Conclusions:** The results indicate only an improvement in peak oxygen consumption of Sri Lankan national endurance runners. However their blood lactate response to training was poor when compared with university runners. The peak oxygen consumption and blood lactate response to training amongst

the Sri Lankan national runners is far lower than the Asian counterparts. Sri Lankan endurance runners have to be monitored closely to enhance response to training protocols and physiological parameters thus to improve fitness and competitiveness in the international arena.

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## **OP 10**

### **Peak expiratory flow rate, markers of airway inflammation, medication adherence among adult asthmatics in a selected teaching hospital of Sri Lanka**

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**Background:** Despite attending regular asthma clinics the asthma control amongst patients is unknown. The objectives of the study are to determine the respiratory function by measuring the Peak Expiratory Flow Rate (PEFR), inflammation of the airways by measurement of Fraction of exhaled Nitric Oxide levels (FeNO) and determine the medication adherence of asthma patients attending a clinic in a teaching hospital.

**Method:** Asthma patients (n=140) attending a routine asthma clinic were studied by interviewer administered questionnaire, clinical examination and measurement of PEFR, measurement of FeNO. Medication adherence was determined by Morisky Green Lavine medication adherence scale. Data was analyzed by SPSS statistical software.

**Results:** Mean height, and weight of the females was significantly lower than the males ( $p < 0.05$ ). Asthma control as determined by the PEFR was low (mean PEFR of females was  $297.4 \pm 78.0$  L/sec; mean PEFR of males was  $281.2 \pm 93.5$  L/sec). The FeNO levels of the males and females were similar ( $p > 0.05$ ). 51% of females had high FeNO levels ( $>25$ ppb), 46% of males had high FeNO levels (mean FeNO=29) indicating airway inflammation. Medication adherence was poor in 38% of females and 29% of males.

**Conclusions:** Most patients despite good medication adherence had poor asthma control. Poor asthma control was confirmed by the high FeNO levels and low PEFR. Urgent measures should be taken to improve asthma control amongst these patients.

## **OP 11**

### **Clinico-morphological spectrum of malignant neoplasm of uterine cervix in a tertiary care centre in India**

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**Background:** Carcinoma of cervix is third most common malignancy encountered among women globally. About 80% of cases occur in developing countries. Approximately 70% of cancers and 54% of pre-cancers are attributable to high risk human papilloma virus (HPV) types. According to HPV information Centre (ICO/IARC), annual number of new cases of HPV related cervical cancer in Sri Lanka, Southern Asia and worldwide are 1,721, 145,946 and 527,624 respectively.

**Objective:** To observe clinical features, demographic features, and incidence of cervical neoplasms in our tertiary care center and to analyze the gross features and histo-morphological distribution.

**Methods:** A five year retrospective study done in Kasturba Medical College, Manipal. Cervical biopsy and hysterectomy specimen received in the department were fixed in formalin, processed in automated tissue processor, paraffin embedded, sectioned and stained by hematoxylin and eosin. Special stains were done wherever necessary. Clinical details were collected from patient records.

**Results:** A total number of 175 cervical neoplasms were studied. Patient's age ranged from 21 to 80 years. Bleeding per vagina (58.8%) was the most common presenting complaint. Among 175 cases, 82% cases were malignant, 17% cases were precursor lesions. Squamous cell carcinoma (SCC), was the most common malignant neoplasm. There were 3 cases of adenosquamous carcinoma, 2 neuroendocrine tumors, and 1 adenobasaloid carcinoma. The least common malignant neoplasms were colloid carcinoma and carcinosarcoma with one case each.

**Conclusion:** Neoplasms of uterine cervix include a wide range of lesions arising from both epithelial and stromal components. Malignant tumors were most common, and SCC was predominant.

## **OP 12**

### **The relationship between hip abductor muscle strength and iliotibial band tightness in chronic low back pain patients attending the Department of Rheumatology and Rehabilitation of the National Hospital, Sri Lanka**

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**Background:** Low back pain is a major cause of disability, which interferes in the quality of life of general population. Despite extensive research, the exact cause of low back pain remains uncertain.

**Objectives:** The main objectives of this study were to investigate the relationships between the chronic low back pain, iliotibial band tightness and hip abductor muscle strength.

**Methods:** A descriptive cross-sectional study was conducted at National Hospital, Sri Lanka, between 103 individuals with chronic low back pain, aged between 20-65 years. Standard Oswestry Disability Index (ODI) was used to gauge the severity of low back pain. Modified Ober's test was performed to detect iliotibial band tightness and a universal goniometer was used to measure the level of iliotibial band tightness. Hip abductor muscle strength was measured using a modified sphygmomanometer.

**Results:** Mean age of the sample was  $50.09 \pm 11.16$  comprising, 34% male and 66% female patients. Pearson's correlation revealed significant correlations in right iliotibial band tightness and Oswestry Disability Index ( $p=0.003$ ,  $r=0.289$ ), left iliotibial band tightness and Oswestry Disability Index ( $p=0.005$ ,  $r=0.275$ ). A significant relationship was also present between right hip abductor muscle strength and ODI ( $p=0.030$ ,  $r=-0.213$ ) and left hip abductor muscle strength and ODI ( $p=0.050$ ,  $r=-0.192$ ). However, there was no correlation between iliotibial band tightness and hip abductor muscle strength in the current study.

**Conclusions:** Even though hip abductor muscle strength and iliotibial band tightness were correlated to low back pain, the relationship between hip abductor muscle strength and iliotibial band tightness was not detected in the current study. However, it is recommended to incorporate exercises to minimize iliotibial band tightness and to improve hip abductor muscle strength, in the interventions for patients with low back pain. Extensive studies should be carried out to assess iliotibial band tightness and hip abductor weakness.



## OP 13

### Penicillin and tetracycline resistance genes as emerging environmental contaminant in the hospital waste water effluent and aquaculture effluent in Sri Lanka

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**Background:** Hospitals and aquaculture farms are the major antibiotic consumers and thus facilitate the spread of antibiotic resistance. Hospital and aquaculture wastewaters definitely play an important role in the evolution and dissemination of antibiotic resistance genes.

**Objectives:** This study, screened the nine antibiotic resistance genes in two common groups of antibiotics (penicillin- *OPR D*, *bla TEM*, *bla OXA*, *amp a*, *amp b*; tetracycline - *tet A*, *tet M*, *tet B*, *tet S*) and quantified the selected resistance genes in various risk environmental compartments including 80 hospitals and 16 aquaculture sites.

**Methods:** Conventional PCR was used to screen the selected antibiotic resistant genes (ARGs) and real time PCR assays were employed to quantify five ARGs, including *bla TEM*, *OPR D*, *amp a*, *tet A* and *tet M*.

**Results:** The highest percentage was recorded against *bla TEM* (51%), following descending order of *amp a* (15%), *bla OXA* (14%), *OPR D* (5%) and *amp b* (1%) in hospital wastewater effluent. The *tet (M)* gene was detected in aquaculture sampling sites (82%), while *tet (A)*, *tet (S)* and *tet (B)* were detected at 53%, 35% and 18% respectively. Among tetracycline and penicillin resistance genes *bla TEM*, *OPR D*, *amp a*, *tet A* and *tet M* were selected for quantification based on resistance mechanism and highest detection frequency. A significant positive correlation ( $p = 0.001$ ) between the concentrations of penicillin (0.001 µg/mL-0.024 µg/mL) and *bla TEM* gene ( $7.56 \times 10^5$ -  $0.98 \times 10^6$  copies/mL) was found. The average concentrations of the *OPR D* and *amp a* ranged between  $0.12 \times 10^5$  –  $1.56 \times 10^5$  copies/mL,  $0.12 \times 10^5$  –  $6.56 \times 10^5$  copies/mL in hospital wastewater while *tet M* and *tet A* ranged from  $0.11 \times 10^5$  -  $9.23 \times 10^5$  copies/mL,  $0.13 \times 10^5$  –  $4.56 \times 10^4$  copies/mL in aquaculture effluent water.

**Conclusion:** Antibiotics in penicillin group (AMX, AMP, CLOX) in hospital wastewater effluent and tetracycline (TET, OTC) in aquaculture farms are important point sources for antibiotic pollution in the respective environment.

## OP 14

### **Formulation of an oral rinse containing *Garcinia zeylanica* aqueous extract and determination of its efficacy against *Staphylococcus aureus*, *Klebsiella pneumonia* and *Acinetobacter baumannii***

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**Background:** *Garcinia zeylanica* (Ela-goraka) is endemic to Sri Lanka. Although the antimicrobial activity of *Garcinia zeylanica* has been reported, the efficacy of an oral rinse containing this extract has not been investigated.

**Objectives:** The aim was to formulate an oral rinse using *Garcinia zeylanica* aqueous extract and to determine its anti-bacterial activity against selected pathogens.

**Methods:** Four decoctions containing *Garcinia zeylanica* were prepared by adding 30 g (A), 60 g (B), 90 g (C), and 120 g (D) of dried pericarp into 240 mL of distilled water and refluxing for 1 hour. These decoctions were tested against microorganisms; *Staphylococcus aureus* (ATCC25923), *Acinetobacter baumannii*, and *Klebsiella pneumonia* (Clinical isolates) using well diffusion assay. Distilled water was used as the negative control. Decoctions C and D gave zones of inhibition for all 3 pathogens and therefore C was chosen for the formulation considering its mean zones of inhibition and least use of material. Decoction C (20 mL) was reduced by boiling to 10 mL to obtain a double concentrated decoction. Formulations were prepared (5% w/w) as per Badische Anilin und Soda Fabrik Corporation mouth wash formula (BASf) using the single and double concentrated decoction C. Colour, odour, pH and antimicrobial activity of the 5% w/w formulations were recorded. Sterility test was done for the formulation. Mean zones of inhibition (ZOI) were determined. All tests were triplicated.

**Results:** The mean ZOIs of double concentrated decoction C against *S. aureus*, *A. baumannii* and *K. pneumoniae* were 23±1 mm, 14±1.15 mm and 16±1 mm respectively. 5% single concentrated mouthwash gave no activity. Therefore the 5% double concentrated formulation was selected. The mean ZOIs against selected panel were 16±1 mm, 15±1 mm, and 13±0.6 mm respectively. Sterility test showed no microbial contamination.

**Conclusions:** *Garcinia zeylanica* (5%) based oral rinse had in vitro anti-microbial activity against the selected oral pathogens. Further, evaluation of the stability and shelf life of this formulation is needed.

## OP 15

### **A collaborative study of pharmacotherapy of schizophrenia in Asia: Findings from Sri Lanka**

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**Background:** This paper aims to present the prescription patterns of pharmacotherapy of schizophrenia from three centres in Sri Lanka that took part in the international collaborative study "Research on Asian Psychotropic Prescription Patterns for Antipsychotics IV, REAP-AP4".

**Method:** The online website-based data key-in system was used for data collection, which took place from March to May 2016. Daily medications prescribed for the treatment of inpatients or outpatients with schizophrenia, including antipsychotics, mood stabilizers, anxiolytics, hypnotics, and antiparkinson agents, were collected. Adverse events of antipsychotics were also collected. Descriptive statistical analysis was performed to examine psychotropic drug prescription patterns. Multiple logistic regression analysis was used to examine the factors associated with antipsychotic use among patients.

**Results:** There were 50 inpatients and 47 outpatients. 59.8% of patients were males with a mean age of 40.4 years ( $\pm$  13.3). The majority were between 30-39 years of age with the youngest patient enrolled being 16 years. The patients with a duration of 10-20 years of illness was 27.8% and 28.9% of all patients being on remission. More than one antipsychotic was prescribed to 42.3% of patients. Mean no of antipsychotics used 1.46 (SD 0.58). First generation antipsychotics (FGA) were used by 18.6% of patients and 83.5% were on second generation antipsychotics (SGA). The most commonly prescribed SGA was risperidone 32.99%. Long acting injection fluphenazine deconoate was used in 34% of patients. Mean Body Mass Index (BMI) 22.9 (SD 3.4) and 17.6% had metabolic side effects. Movement disorders were seen in 27.4% and antiparkinsonian drugs were prescribed to 34% of the patients.

**Conclusions:** The majority of patients with schizophrenia received SGAs and polypharmacy was used in 42%. The results suggest the necessity for continuous monitoring on the use of antipsychotics and side effects, which provides us useful information for the proper prescription patterns in the future.

## OP 16

### **Immunolocalisation of hydrogen sulphide producing enzyme cystathionine gamma lyase in early and late onset preeclampsia**

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**Background:** Early onset preeclampsia (EOPE) occurs during the early stages of pregnancy (< 34 weeks of gestation) and is more likely to affect the placental development and the vascular remodeling resulting in mal-perfusion leading to release of inflammatory, anti-angiogenic and oxidative stressor molecules as compared to late onset preeclampsia (LOPE) which is linked more to maternal constitutional factors. Recently the strategies to identify the cure for preeclampsia are focusing on cytoprotective pathways. The gasotransmitters like hydrogen sulphide being one of them.

**Objectives:** The present study was designed to investigate the differences in the expression profile of H<sub>2</sub>S producing enzyme cystathionine gamma lyase (CSE) in early and late onset preeclampsia.

**Methods:** A total of sixty patients were enrolled from antenatal clinic of which thirty were pregnant women with preeclampsia and thirty were normotensive, non-proteinuric pregnant women who served as control. Protocol of the study was approved by the Institute Ethics Committee. EOPE was defined as diagnosis before 34 weeks of gestation and LOPE after 34 weeks of gestation. Placentae were fixed in 4% paraformaldehyde. The expression of CSE was localized by immunohistochemistry and immunofluorescence. Digital images of 10 randomly selected high power fields, were scanned using Nikon Eclipse Ti-S microscope.

**Results:** The CSE expression was mainly localized and stronger in intensity in the endothelium and smooth muscle cells of foetal blood vessels, stromal cells within the core of chorionic and stem villi. Weaker intensity of CSE could also be observed in cytoplasm of some of the syncytiotrophoblast cells. The intensity of CSE expression was stronger in placentae from control group (++++) as compared to EOPE placentae (+), whereas this expression in LOPE placentae was more or less similar to control group (+++).

**Conclusions:** We observed down regulation of H<sub>2</sub>S in preeclamptic placentae more so in EOPE. Our findings support the earlier proposed hypothesis of different etiology for EOPE and LOPE.

**Acknowledgement:** This work was supported by the research grant funded by the Intramural grant, All India Institute of Medical Sciences, New Delhi (Research Grant No: F.8-397/A-397).

## OP 17

### **Expression of vascular endothelial growth factor (VEGF) gene and its association with oral squamous cell carcinoma**

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**Background:** Oral squamous cell carcinoma (OSCC) is the sixth most common cancer around the world. Tumor growth and metastasis depend on angiogenesis and lymphangiogenesis triggered by chemical signals from tumor cells in a phase of rapid growth. Different factors are known to induce the angiogenesis process. The most important angiogenic factor is Vascular Endothelial Growth Factor (VEGF).

**Objectives:** This study aimed to determine the correlation of clinicopathological factors and the up-regulation of VEGF gene expression in OSCC patients attending the National Cancer Institute, Sri Lanka.

**Methods:** Forty histologically confirmed primary OSCC patients and 40 age sex matched controls were included in the study. VEGF gene expression in venous blood was determined using quantitative real time Polymerase Chain Reaction using the TaqMan chemistry. The experiments were done in duplicate keeping the Glyceraldehyde 3-phosphate dehydrogenase (GAPDH) gene as the housekeeping gene. Gene expression was determined using the  $2^{-\Delta\Delta CQ}$  and relative quantification (RQ) was calculated.

**Results:** The mean relative quantification (RQ) of VEGF gene expression among patients were found to be significantly high ( $2.14 \pm 0.83$ ) and showed 2.31 fold increase compared to the control group ( $0.92 \pm 0.58$ ) ( $P < 0.001$ ). The forty patients comprised of carcinoma of tongue (28/40), buccal mucosa (9/40), other oral mucosal sites (3/40). The majority of [46.42% (13/28)] OSCC of tongue had RQ values ranging from 2.0-3.0 while 55.55% (5/9) patient with OSCC in buccal mucosa had the RQ between 1-1.5. Histologically poorly differentiated cancers (4/40) had the RQ value  $> 2$ . Moderately differentiated OSCC (8/40) had 2 equal distribution peaks of 1.-1.5 (5/8) and 2.-2.5 (3/8). The majority of the patients 77.5% (31/40) were in T1-T2 TNM stage. Among them 23.10 % (9/31) had RQ of 1.0-1.5, while 33.3% (3/9) of T3-T4 stage had RQ of 2.5-3.0.

**Conclusions:** VEGF was significantly upregulated in OSCC patients. Also, these findings suggested a positive correlation between VEGF mRNA expression, TNM stage and histological differentiation.

## OP 18

### **Prevalence and factors associated with anxiety disorders during the antenatal period in a tertiary care hospital in Colombo District**

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**Background:** Anxiety disorders during pregnancy cause adverse pregnancy outcomes, but its prevalence and risk factors among local women are not known.

**Objectives:** To determine the prevalence and associated factors of anxiety among antenatal clinic attendees in a tertiary care hospital.

**Methods:** Pregnant women (n=221) attending antenatal clinics of a tertiary care hospital were sequentially recruited and assessed by a psychiatrist until 81 women with anxiety disorder were diagnosed according to International Classification of Diseases -10 criteria. All women responded to an interviewer administered questionnaire on socio-demographic information, social stressors and other relevant information. Logistic regression analysis was used to assess the factors associated with anxiety.

**Results:** Mean ( $\pm$ SD) age of the women was 30( $\pm$ 5.8) years and 53.7% were multiparous. Anxiety disorder was present in 37% of the women and (46%) of them were in the 3<sup>rd</sup> trimester, 37% of the women were in 2<sup>nd</sup> trimester and 17% were in 1<sup>st</sup> trimester. The factors associated with anxiety were lower monthly income( $p=0.000$ ), insufficient sleep due to fatigue (OR 2.0; 95%CI 1.0- 4.3;  $p=0.043$ ), family stressors ( OR 3.5; 95%CI 1.5-8.0;  $p=0.002$ ), difficulties due to pregnancies (OR 6.3; 95%CI 1.5-26.4;  $p=0.008$ ), occurrence of a traumatic significant event (OR 11.0; 95%CI 1.4-85.2;  $p=0.022$ ), physical health problems (OR4.5;95%CI 1.1-18.0;  $p=0.023$ ), mental health problems (OR 7.0; 95% CI 1.2-40.8;  $p=0.032$ ), loss of family support (OR 6.0; 95%CI 1.1-30.7;  $p=0.03$ ), unplanned pregnancy ( OR 4.7; 95% CI 1.1-19.8;  $p=0.025$ ), and substance abuse by the spouse (OR 4.2; 95%CI 1.0-17.8;  $p=0.039$ ).

**Conclusions:** Anxiety disorder is present across all trimesters but more prevalent in third trimester. Identifying the associated factors and detection of anxiety during pregnancy will help to implement remedial measures during the antenatal period.

**Acknowledgement:** This work was supported by the research grant funded by the University of Sri Jayewardenepura (Research Grant No: ASP/01/RE/MED/2017/39).

## OP 19

### **Analysis of accidental occupational exposure injuries among health care workers in a tertiary care center, Sri Lanka**

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**Background:** Accidental needle stick injuries, cuts, or splashes into mucous membrane (exposure injuries) in the hospital carry the risk of infection by blood borne viruses. Incidents should be reported to the infection control team for proper management.

**Objectives:** To analyse the types of exposure injuries (EI) among health care workers (HCW) and the occurrence of EI among different categories of HCW.

**Methods:** All reported EI among HCW were analysed since January 2015 to August 2017 at a tertiary care center, Sri Lanka. Thorough risk assessment including the nature of the injury, source, circumstances and victims' immunity for hepatitis B virus (HBV) was done in each incident through a checklist derived reporting and managed accordingly. Extended awareness programmes were conducted for all categories of HCW on preventive measures in 2016.

**Results:** There were 388 reported cases of different types of EI among HCW during the period. Nurses (110) and nursing students (110) reported the highest number of incidents (28.5% each). Number of doctors, minor employees (ME) and other categories were 96 (25%), 55 (14%), and 15 (4%) respectively. The number of victims among students (12 in 2017) and ME (11 in 2017) reduced significantly following awareness programmes. Most incidents were due to incorrect sharps discard (101, 26%). Accidents, cuts, blood drawing and blood sugar testing caused EI to 79 (20%), 42 (11%), 39 (10%), and 28 (7%) respectively. Injuries due to re-capping needles was 27 (7%) and reduced by 2017 (n=6). A total of 244 (63%) were fully vaccinated against HBV and percentage of vaccines among victims increased yearly (53%, 62%, 79% respectively) while 75 were never vaccinated. Post exposure prophylaxis (PEP) for HIV was started in 8 HCW who were at risk following EI.

**Conclusions:** Among the HCW, nurses and nursing students reported the highest number of EI. Awareness programmes on correct handling of sharps may be effective in prevention. All HCW should be vaccinated for HBV.

## OP 20

### **Iron oxide (Fe<sub>3</sub>O<sub>4</sub>) magnetic nanoparticles coated with *Garcinia cambogia* aqueous extract: A potential antibiofilm agent**

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**Background:** Bacterial biofilms are difficult to treat with conventional antibiotics. Nanoparticles are regarded as a novel defence against drug-resistant biofilms.

**Objectives:** This study was conducted to evaluate antibiofilm activity of iron oxide (Fe<sub>3</sub>O<sub>4</sub>) nanoparticles against selected gram positive and gram negative bacterial biofilms.

**Methods:** Fe<sub>3</sub>O<sub>4</sub> nanoparticles were prepared by co-precipitation method followed by polyethylene glycol-200(PEG-200) surface modification. Aqueous extract of *Garcinia cambogia* was coated on

PEG-200 stabilized Fe<sub>3</sub>O<sub>4</sub> nanoparticles (GSMIONPs). Synthesized NPs were characterized using UV-Visible spectrophotometry and Fourier transform infrared (FTIR) spectrometry. *Staphylococcus aureus* ATCC-25922 and *Pseudomonas aeruginosa* ATCC-27853 were cultured in brain heart infusion broth medium. The biofilm inhibition of Fe<sub>3</sub>O<sub>4</sub> NPs were studied in 48hour old biofilms using crystal violet assay and absorbance was measured at 595 nm.

**Results:** Formation of *Garcinia cambogia* coated surface modified Fe<sub>3</sub>O<sub>4</sub> NPs (GSMIONP) were confirmed by UV-Visible spectrophotometry and FTIR analysis. More than 50% inhibition (56.9% to 61.4%) of 48 hour old biofilm of *S.aureus* was observed for GSMIONPs at different concentrations ranging from 0.078mg/mL to 5mg/mL respectively. The two controls: *Garcinia* aqueous extract and vancomycin, resulted inhibitions of 29.4% and 60.8% respectively. In contrast 48 hour old biofilm of *P.aeruginosa* had lower inhibition (48.6% to 16.1%) at higher GSMIONP concentrations (1.25mg/mL to 10mg/mL) respectively. Positive controls: gentamycin and *Garcinia* aqueous extract had higher inhibition (82.2% and 58.3%) for *P.aeruginosa*.

**Conclusions:** GSMIONPs had strong antibiofilm activity against *S.aureus* compared to *P.aeruginosa*. GSMIONPs had growth and biofilm promoting properties in *P. aeruginosa*.

## OP 21

### Development of a biosensor using antigen-coated silver nanoparticles for the detection of anti-leptospiral antibodies in human sera

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**Background:** Surface plasmon resonance of nanoparticles in Ultraviolet-Visible (UV-Vis) region can be applied to identify nanoparticle-protein interactions. This property is co-operated to detect antibodies against leptospirosis, which is an emerging zoonosis in many developing countries, including Sri Lanka.

**Objectives:** The objective of the study was to design a biosensor for rapid and efficient identification of anti-leptospiral antibodies in human blood using LigA (leptospiral immunoglobulin-like protein A) antigen functionalized silver nanoparticles.

**Methods:** Silver nanoparticles, with a size of 80 nm, were synthesized by reduction of silver nitrate using hydroxylamine hydrochloride, according to Leopold and Lendl method at different temperatures and pH levels. The nanoparticles were incubated with LigA recombinant antigen (rLigA) for 1hr for the functionalization. rLigA fused with GST(glutathione-S-transferase) was supplied by Dr. Nobuo Koizumi, National Institute of Infectious Diseases, Japan. rLigA-functionalized nanoparticles were characterized by UV-Vis spectroscopy, Fourier Transform Infra-Red (FTIR) spectroscopy and Scanning Electron Microscopy (SEM). Moreover, three samples of human sera containing IgG (Immunoglobulin-G) anti-leptospiral antibodies (group-A) and another three samples without IgG anti-leptospiral antibodies (group-B) were tested separately with functionalized nanoparticles. Aggregation of antigen-coated nanoparticles in the presence of anti-leptospiral antibodies was verified by UV-Vis spectroscopy and SEM.

**Results:** 1.5 µg/mL was selected experimentally as the optimum concentration of antigen at 25°C and pH of 7.0 for effective functionalization of monodispersed, orange-grey colour spherical silver nanoparticles. FTIR spectra verified that nanoparticle-rLigA interaction has taken place through electrostatic interactions with carboxylate groups of the protein. SEM confirmed the aggregation of nanoparticles in group-A, compared with group-B. No significant difference in UV-Vis absorption was

observed between group-B and functionalized nanoparticles, whereas group-A showed a significant reduction in absorption compared with group-B.

**Conclusions:** rLigA-functionalized silver nanoparticles can be used to detect anti-leptospiral antibodies in human sera using UV-Vis spectroscopy.

## OP 22

### Green synthesized silver nanoparticles as a potential anti-biofilm agent

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**Background:** Treatment of chronic biofilm-related infections associated with medical devices and wounds is a challenge due to their antibiotic resistance and difficulty in penetration. Silver nanoparticles (AgNPs) can penetrate biofilms due to their small size and interruption of the quorum sensing mechanism. Biosynthesis of AgNPs is beneficial as renewable resources can be used avoiding expensive techniques.

**Objectives:** The aim was to biosynthesize AgNPs using bacteria and to determine their anti-biofilm activity against selected clinically important biofilms *in vitro*.

**Methods:** *Pseudomonas aeruginosa* ATCC 27853, *Escherichia coli* ATCC 25922, *Acinetobacter baumannii* (clinical strain), *Staphylococcus aureus* ATCC 25923 were cultured in nutrient broth. After 72h of incubation, AgNO<sub>3</sub> was added into the culture supernatant. AgNP formation was confirmed by UV-Visible spectroscopy. Anti-biofilm activity of different concentrations of the synthesized AgNPs was assessed using Crystal Violet assay after 24h and 48h exposure against 48h old *P. aeruginosa* ATCC 27853, *S. aureus* ATCC 25923 and *Candida albicans* ATCC 10231 biofilms formed under static conditions *in vitro*. The architecture of biofilms and morphological changes before and after AgNP exposure were studied using Scanning Electron Microscopy (SEM).

**Results:** All the selected bacteria produced AgNPs under optimized conditions where characteristic UV-Visible spectral peaks were observed indicating the presence of AgNPs. AgNPs synthesized by all bacteria except *S. aureus* mediated AgNPs displayed 50% biofilm inhibition at AgNP concentrations between 1.98-0.225 mg/mL. *S. aureus* mediated AgNPs showed 50% biofilm inhibition only against *S. aureus* biofilm. SEM images indicated that biosynthesized AgNPs reduced viable biofilm cells and the extracellular matrix causing morphological changes in biofilms noticeably. *Candida* cells showed rough outer cell walls and markedly reduced pseudohyphae.

**Conclusions:** Green AgNPs produced by each bacterium show anti-biofilm activity against the selected biofilms indicating that the bacteria-mediated AgNPs have a potential as anti-biofilm agents.

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## OP 23

### Clinical teachers' perceptions on an integrated medical curriculum and its role in promoting a holistic approach in patient care

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**Background:** An interesting part of medicine is when a patient presents with complex of symptoms which requires differential diagnosis prior to reaching a final diagnosis. Patients tend to be more



gratified if a doctor takes a holistic approach, feeling that their doctor has time for them and their concerns. Curriculum integration strives to break down the obstacles among subjects in order to offer better learning environment for students. This will empower students to learn in a holistic way which is relevant to clinical practice.

**Objective:** This study aimed to outline clinical teachers’ perceptions on an integrated medical curriculum and its role in promoting a holistic approach in patient care.

**Methods:** The qualitative descriptive study was conducted in the Faculty of Health-care Sciences, Eastern University, Sri Lanka to obtain clinical teachers’ perceptions as field notes through interviews. Qualitative thematic approach was employed in data analysis.

**Results:** All of them (n=20) had an understanding about integrated curriculum. Majority of the teachers (80%) agreed that an integrated curriculum leads to a holistic approach in patient care. Most of them (90%) are implementing the concept in their teaching. Furthermore, they suggested the following strategies to improve integrated learning: increased awareness about the curriculum among students, provide adequate staff, well equipped lab facilities, more self-learning time, less lectures, library with internet facilities, proper coordination of integrated learning and more problem based learning opportunities.

**Conclusion:** Clinical teachers specified that the integrated way of learning is effective since the human body is integrated and integration could lead to a holistic way of treating patients. Adequate resources and coordination are necessary for effective implementation of integrated learning.

## **OP 24**

### **Prevalence and factors associated with sugar sweetened beverage consumption among grade ten school children in Education Division of Panadura**

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**Background:** Increase in prevalence of overweight and obesity globally during the past few decades has resulted in serious complications in adult life causing increased risk of premature illnesses and deaths. Non-communicable diseases play a major role in premature mortality and morbidity where overweight and obesity becoming a significant risk factor. The rising prevalence of obesity in children and adolescent has been linked to excess energy intake and reduce physical activity among this age group. The consumption of Sugar Sweetened Beverage (SSB) is associated with obesity, dental caries, diabetes and heart disease according to most of the studies done in western countries.

**Objective:** The general objective of the study was to determine the prevalence and knowledge on SSB consumption among grade ten school children in Education Division of Panadura.

**Methods:** A cross sectional study was done. Multistage cluster sampling was used and primary sampling unit was a classroom. Cluster size was 30. Self-administered questionnaire was used. Administrative clearance was obtained. Data collection was done by trained data collectors.

**Results:** The sample consisted of 600 grade ten students, 53.2% female and 46.8% male. The majority were Sinhalese (85.5%) and Buddhist (82.3%). Almost half of the students buy beverages from the school canteen. More than three quarter buy beverages from outside the school. Ninety two percent students usually receive pocket money. The favorite drink was soft drinks (35.5%). However, only 1.2% consumed soft drinks daily. Sweetened milk products were daily consumed by 16% while tea, coffee and milk tea with added sugar was consumed daily by 75%. The percentage of students who consumed any type of SSB daily were 80%.

**Conclusions:** The study showed a high prevalence (80%) of SSB intake. Daily consumption of soft drinks (1.2%) were less than sweetened milk product (16%) consumption. Knowledge on health effects of SSBs was lacking among students.

# Abstracts of Poster Presentations

## PP 1

### Screening of risk phenotypes among metabolic syndrome subjects in adult Pakistani population

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**Background:** Metabolic Syndrome is a clustering of multiple risk factors including central obesity, hypertension, dyslipidemia and hyperglycemia. These risk phenotypes of metabolic syndrome (MetS) is prevalent world-wide, Therefore we aimed to identify the frequency of risk phenotypes among metabolic syndrome subjects in local adult Pakistani population.

**Objectives:** Contribution of risk phenotype like abdominal obesity, hypertension, hyperglycemia and dyslipidemia to the development of metabolic syndrome in local Pakistani population and prevalence of MetS risk phenotypes in the local population.

**Methods:** Screening of subjects visiting out-patient Department of Medicine, Shaheed Zulfiqar Ali Bhutto Medical University, Islamabad was performed to assess the occurrence of risk phenotypes among MetS subjects in Pakistani population. The metabolic syndrome was defined based on International Diabetes Federation (IDF) criteria. Anthropometric and biochemical assay results were recorded. Data was analyzed using SPSS software (16.0).

**Results:** Our results showed that dyslipidemia (31.50%) and hyperglycemia (30.50%) were the most population specific risk phenotypes of MetS. The results showed the order of association of metabolic risk phenotypes to MetS was hyperglycemia>dyslipidemia>obesity >hypertension.

**Conclusions:** Hyperglycemia and dyslipidemia were found be the major risk phenotypes among the MetS subjects and have a greater chance of developing MetS among Pakistani population.

**Acknowledgement:** This work was supported by the research grant funded by the Higher Education Commission of Pakistan (HEC Letter No-1-/HEC/HRD/2012/2323).

## PP 2

### The effect of endoplasmic reticulum calcium concentration on transient cytosolic calcium response in phospholipase-C pathway: A simulation study

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**Background:** Plasma membrane G-protein coupled receptors selectively bind with a diverse array of ligands/drugs to evoke many downstream biological reaction pathways. One of such main pathways is phospholipase-C (PLC) which hydrolyses phosphatidylinositol 4,5-bisphosphate (PIP<sub>2</sub>) to inositol trisphosphate (IP<sub>3</sub>) and diacylglycerol. IP<sub>3</sub> activates IP<sub>3</sub>receptors (IP<sub>3</sub>R) in endoplasmic reticulum (ER) membrane, initiating a burst release of Ca<sup>2+</sup> from ER to cytosol. The release of Ca<sup>2+</sup> from ER in PLC pathway transiently increases [Ca<sup>2+</sup>]<sub>C</sub> by several folds. [Ca<sup>2+</sup>]<sub>ER</sub> is reported to be around 350-400 μM, though this concentration is subjected to fluctuations in certain circumstances.

**Objectives:** We investigated the effect of [Ca<sup>2+</sup>]<sub>ER</sub> on the cytoplasmic transient calcium increase during the PLC pathway.

**Methods:** Virtual-cell (VCELL), a software platform for modelling and simulation of living organisms/cells, and previously reported initial concentrations and reaction rates were used in the

modelling.  $[Ca^{2+}]_C$  regulators namely smooth endoplasmic reticulum Ca ATPases (SERCA), plasma membrane Ca ATPases (PMCA), ryanodine receptors, leak channels and  $IP_3$ R were modelled.

**Results:**  $IP_3$  was directly added to the cytosol and the activation of  $IP_3$ R increased  $[Ca^{2+}]_C$  immediately by 90% within 2s at  $[Ca^{2+}]_{ER}=400\mu M$ . When the  $[Ca^{2+}]_{ER}$  was decreased, the  $IP_3$  evoked transient peak of  $[Ca^{2+}]_C$  decreased non-linearly and reached only 20% increase in 6s for  $[Ca^{2+}]_{ER}=20\mu M$ .

**Conclusions:** According to our results, the increase of the  $[Ca^{2+}]_C$  and time to peak response from the addition of  $IP_3$  in PLC pathway depend on the  $[Ca^{2+}]_{ER}$ . Therefore, we suggest that any study to investigate the cytosolic calcium signalling is necessary to study and report the initial  $[Ca^{2+}]_{ER}$  to correctly interpret the experimental observations.

**Acknowledgement:** This work was supported by the research grant funded by the University of Sri Jayewardenepura (Research Grant No: ASP/01/RE/SCI/2017/18).

### PP 3

## Glycemic control and inhibitory functions amongst normal, overweight and obese young adults in selected periurban Ministry of Health areas, Colombo District, Sri Lanka

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**Background:** Several studies have shown that obesity was associated with poor inhibitory functions (IFs) and poor glycemic control among young adults. Further, defects in inhibitory functions are associated with various cognitive and behavioural problems in children and young adults.

**Objective:** The objective was to assess inhibitory functions and glycemic control among normal, overweight and obese young adults in selected Ministry of Health (MOH) areas of Colombo District, Sri Lanka.

**Methods:** A descriptive cross sectional study was conducted with 231 young adults aged 21-25 years by using simple random sampling based on electorate register (Rathmalana, Maharagama and Piliyandala). Subjects were recruited after categorizing into normal, overweight and obese using WHO Asian cutoff of BMI values. Glycemic level was estimated via glycated hemoglobin level (HbA1C). IFs were assessed via computerized tasks; stroop task (ST), stop signal task (SST) and go/no-go task (GNG). Mean incorrect responses were taken as the level of inhibition. Significant level was taken as  $p < 0.05$ .

**Results:** The study sample comprised of 77 young adults in each normal, overweight and obese categories. Gender, socioeconomic status and level of education did not significantly vary among the three groups. There was a significantly higher HbA1C value in the category when compared to normal weight ( $t[152] = 8.45; p < 0.001$ ). A significantly higher mean incorrect responses in ST and SST were found in overweight and obese subjects when compared to normal weight ( $p < 0.05$ ) subjects. There was a significant positive correlation between HbA1C values and BMI ( $r=0.177, p < 0.01$ ) and between IF task errors and BMI (ST;  $r=464$  & SST;  $r=211; p < 0.001$ ) but correlation between glycemic level and inhibitory functions were not significant.

**Conclusion:** Young obese adults in the study sample had poor glycemic control and poor inhibitory functions when compared to their normal counterparts. Therefore, obesity prevention is an important health concern to overcome poor glyceamic control and inhibitory functions.

**Acknowledgement:** This work was supported by the research grant funded by the University of Sri Jayewardenepura (Research Grant No: ASP/MED/RE/01/15/55).

#### PP 4

### **Arterial ischaemic stroke (AIS) in adolescents: Subtype analysis and neurological impairment**

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**Background:** Stroke is an important cause of morbidity and mortality in children and adolescents who have a distinctive risk factor profile compared with adults.

**Objectives:** To describe the subtypes and sequelae of arterial ischaemic stroke (AIS) encountered in adolescents.

**Methods :** Retrospective analysis of case records and imaging in adolescents (aged 10 to 16 years) referred to the tertiary neurology unit at Great Ormond Street Hospital NHS trust in United Kingdom with AIS over a period of six years. All patients had been investigated for AIS risk factors according to a standard protocol and stroke subtype was categorised using the Paediatric Stroke Classification.

**Results:** Forty two patients, aged 10.0 to 15.6 years (mean 12.88 years) were included; 19 had a prior medical diagnosis while the remainder were previously healthy. Clinical presentation was with unilateral weakness, impaired level of consciousness, focal seizures and headaches. Twenty one had evidence of cerebral or cervical arteriopathy on magnetic resonance imaging/angiography. Non vascular risk factors were identified in 10 and included migraine, cardiac and sickle cell disease. The frequency of different stroke subtypes were as follows: steno occlusive arteriopathy 8, Moya Moya syndrome 8, cervical arterial dissection 5, cardioembolic causes 2, sickle cell disease 1, multiple probable/possible 3, other determined 2, undetermined 13. Three children died (critical aortic stenosis, severe systemic lupus erythymatosus and basilar artery occlusion). Of the survivors 18 (46.15%) had a severe residual hemiparesis.

**Conclusions:** AIS leads to significant morbidity in affected adolescents. The risk factor profile in this age group has few overlaps with risk factors for AIS in adulthood. As with younger children, arteriopathy is commonly encountered. However, in this series a relatively high proportion of AIS remained unexplained despite extensive investigations.

#### PP 5

### **Validation of the Sinhala version of short form brief pain inventory: Preliminary findings among Sinhala speaking patients with cancer pain attending Apeksha Hospital, Maharagama, Sri Lanka**

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**Background:** Pain is the most common and unpleasant effect distressing well-being of patients with cancer. Pain is a ‘subjective feeling’ with individual variation. Assessment of pain is vital prior to pain interventions. Pain is best assessed by using validated scales/ tools. Short form brief pain inventory (SF BPI), is the most widely used measure of severity and interference of pain. There is much evidence supporting its validity and reliability in patients with cancer but still not validated in Sri Lanka.

**Objective:** To translate, culturally adapt, and validate the SF-BPI among the Sinhala speaking patients with cancer pain in Sri Lanka.

**Methods:** Translation has been done according to the guideline given by MD Anderson Cancer Center, University of Texas. Forward, back translation, cognitive debriefing, review by experts and proof reading were the steps followed for linguistic validation. Reliability was tested using internal consistency using Cronbach’s alpha. Validity was tested by assessing criterion validity (clinical diagnosis done by the consultant anesthetist was taken as the gold standard) by Pearson’s correlation ( $r$ ) and construct validity by factor analysis.

**Results:** A total of 60 patients (32 males, 28 females) between 24 to 78 years, were included in the study. The analysis of data indicated Cronbach’s alpha of 0.796 for pain severity and 0.863 for interference sub-scales which were over the acceptable threshold of 0.70. Factor analysis identified the two factors, pain intensity and interference with function which explained 60% of the variance. Pearson’s correlation between consultant’s diagnosis and SF BPI Sinhala version for worst pain and average pain were statistically significant ( $r= 0.889, r= 0.833 p<0.01$ ).

**Conclusion:** The findings conclude that the Sinhala version of SF-BPI is a suitable, valid and reliable tool for assessing the pain of patients with cancer.

**Acknowledgement:** This work was supported by the research grant funded by the Cancer Research Center, University of Sri Jayawardenepura (Research Grant No: 2017/002).

## PP 6

### **Family planning preference, unmet need and associated factors among postpartum mothers attending child welfare clinics in Colombo municipality**

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**Background:** Postpartum family planning is important for health and wellbeing of women and the family.

**Objectives:** To compare the family planning preference, unmet need and associated factors among postpartum mothers aged 20-35 years and over 35 years attending child welfare clinics in Colombo municipality.

**Methods:** A comparative cross sectional study design was carried out among more than 35 years and 20-35 years postpartum mothers with a child less than 7 months attending child welfare clinics in Colombo municipality. A sample of 212 postpartum mothers for each category was recruited using non-probability consecutive sampling method for mothers more than 35 years while using multistage systematic sampling method for 20-35 years. An interviewer administered questionnaire was used for data collection. Associated factors of current family planning methods and unmet need of family planning was assessed using chi square test.  $P<0.05$  was considered as the statistically significant level.

**Results:** The proportion of family planning use was 69.8% among more than 35 years group whereas 68.9% in 20-35 group. The proportion of unmet need of family planning was 30.2% in more than 35 years age group while it was 31.1% among 20-35 group. Among users of both groups, overall knowledge on FP methods and its use was not statistically significant ( $p=0.297$ ). More than 35 years mothers with no family support and with more children were using family planning more than their counterpart ( $p<0.001$ ). However, ethnicity, religion, education level, being employed, average monthly income and family type were not statistically significant ( $p>0.05$ ).

**Conclusions:** Proportion of unmet need of family planning is high among both study groups compared to national figures. Knowledge regarding family planning methods and its use does not change the decision of contraceptive usage among two groups.

## PP 7

### **Correlation between blood and salivary glucose levels among diabetes patients in Colombo South Teaching Hospital, Sri Lanka**

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**Background:** Measurements of blood glucose levels are the conventional methods in diagnosing and monitoring of patients suffering from Diabetes mellitus (DM). In the last few years, non-invasive methods have been put forward mainly based on salivary glucose levels.

**Objective:** To find the feasibility of diagnosing DM using salivary glucose levels by establishing a correlation between blood glucose levels and salivary glucose levels of diagnosed diabetes patients.

**Method:** One hundred and twenty confirmed DM patients and thirty one apparently healthy individuals were recruited under fasting condition. A saliva sample with flow rate and two samples of blood were collected to analyze salivary glucose, blood glucose and HbA1c respectively. Demographic characteristics and other relevant information were collected. A saliva pool was collected to maintain the internal quality. Salivary glucose levels were multiplied 10 times to increase the sensitivity.

**Results:** The mean age of the patients was 51.1±7.36 years and females were predominant (80%). Fasting blood glucose levels of the patients and controls were 163±50.89 and 95±9.65 mg/dL and in saliva, was 1.39±1.16 and 0.4±0.39 mg/dL, (\*10 times) in controls ( $p<0.01$ ). Mean HbA1c of patients was 8.8±2.3% and 5.4±0.6% in controls ( $p<0.01$ ). Comparatively higher flow rate of saliva was observed in the patient population as opposed to the controls (0.3 mL/min and 0.25 mL/min).

The key outcome of the study was the moderate correlation between salivary glucose levels with FBS levels ( $p<0.01$ ,  $R=0.359$ ) and HbA1c levels ( $p<0.01$ ,  $R=0.364$ ) of the patient population. Categorical data showed DM patients who had prolonged diabetes tend to have high saliva flow rate. Internal QC was maintained within the 2SD limit.

**Conclusion:** The study revealed a moderate correlation between saliva glucose levels and blood glucose levels as well as with HbA1c. The proper diagnostic criteria should be developed using a sufficient sample size and with the elimination of possible confounding.

## PP 8

### **Comparison of posterior fossa artifact and image quality in routine computerized tomography brain imaging with standard protocols**

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**Background:** Beam hardening artifact in posterior fossa region is a characteristic limitation in CT brain and it should not be underestimated.



**Objectives:** The main aim of this research was to evaluate the beam hardening artifact and the image quality in posterior fossa region in cranial non enhanced computed tomography (NECT); with different CT systems using standard scan protocols.

**Methods:** This was a retrospective quantitative and qualitative research study. This study was carried out using 16 slice, 64 slice and 320 slice multi slices computed tomography (MSCT) scanners. We used 75 cranial NECT scans of both male and female patients as including 25 patients from each CT system. Quantitative image quality analysis of posterior fossa region of brain was performed with signal to noise ratio (SNR) and contrast to noise ratio (CNR). Qualitative image quality analysis was based on evaluation of posterior fossa beam hardening artifact. The posterior fossa beam hardening artifact was analyzed in five scoring grading system using visual scale with blinded manner.

**Results:** Quantitative analysis showed 26% significant ( $p < 0.05$ ) decrease of CNR of cerebellum in 320 slice CT system compared with 16 slice CT system. There was a significant ( $p < 0.05$ ) reduction of SNR of GM in cerebellum by 13% and reduction of CNR in cerebellum by 40% in 320 slice CT system compared with 64 slice CT system. The qualitative analysis showed the beam hardening artifact in posterior fossa region; there was no significant difference ( $p > 0.05$ ) in visualization of beam hardening artifact among three different CT systems which have different detector sizes.

**Conclusions:** The study concludes that highest image quality in 64 slice system following the 16 slice system in posterior fossa region; while 320 slice system provided the least quality images of posterior fossa region. Subjective analysis concluded that there is no significant difference in the presence of beam hardening artifact in posterior fossa region among three systems with different detector row width.

## PP 9

### **Relationship between selected anthropometric measurements, time spent on physical activity of different intensities and duration of sedentary behaviour among 11-13 year-old adolescent girls in Colombo, Sri Lanka**

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**Background:** Body Mass Index (BMI), waist circumference (WC) and waist-to-height ratio (WHtR) are valid methods of measuring body composition. Physical activity (PA) is essential in promoting healthy body composition and data on associations between intensity of PA and anthropometric parameters are limited.

**Objective:** To investigate the relationship between selected anthropometric parameters and time spent on different intensities of PA and sedentary behavior among 11-13 year-old adolescent girls from Colombo.

**Method:** A purposive sample of 46 school girls was recruited from the Colombo Municipal Council area. WC, height and weight were measured using standard methodology and BMI and WHtR were calculated. Duration of light (LPA), moderate (MPA), vigorous (VPA), moderate-to-vigorous (MVPA) PA and sedentary behaviour were determined by waist-worn accelerometers (Actigraph WGT3X-BT). Data were analyzed by SPSS.

**Results:** The mean age of sample was  $12.3 \pm 1$  years. Mean BMI, WC, WHtR were  $17.3 \pm 3.3 \text{ kgm}^{-2}$ ,  $58.7 \pm 8.4 \text{ cm}$  and  $0.4 \pm 0.1$  respectively. Girls spent an average time of  $195 \pm 56.5 \text{ min/day}$  on

LPA,  $25.4 \pm 8.1$  min/day on MPA,  $14.3 \pm 6.9$  min/day on VPA,  $30.7 \pm 14.2$  min/day on MVPA and  $422 \pm 159.4$  min/day on sedentary behavior. BMI, WC and WHtR were significantly ( $p < 0.01$ ) correlated with sedentary behavior ( $r = 0.604$ ,  $r = 0.57$  and  $r = 0.54$ ). WC and WHtR were significantly ( $p < 0.01$ ) inversely correlated with duration of MVPA ( $r = -0.49$  and  $r = -0.38$ ) and VPA ( $r = -0.534$  and  $r = -0.42$ ), whereas BMI was significantly ( $p < 0.001$ ) inversely correlated only with VPA duration ( $r = -0.41$ ).

**Conclusion:** BMI, WC and WHtR were higher among girls who spent more time on sedentary behavior. Further, WC and WHtR were less among girls who spent more time on MVPA and VPA; BMI was less among those who spent more time on VPA.

## PP 11

### **Prevalence of musculoskeletal problems and associated factors among tea pluckers of Maddekanda tea estate in Balangoda area, Rathnapura District, Sri Lanka**

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**Background:** Tea plucking is associated with various occupational health problems due to the nature of tasks involved. This job creates a greater risk of musculoskeletal problems among workers. There is a lack of recent evidence about musculoskeletal health problems among tea pluckers.

**Objectives:** To determine the prevalence of musculoskeletal health problems and associated factors among tea pluckers.

**Methods:** A descriptive cross sectional study was carried out among randomly selected 378 tea pluckers. Workers with arthritis were excluded. A pre-tested interviewer administered questionnaire was used to collect. Descriptive statistics and Chi-square test were used to analyze data using SPSS statistical software (version 16).

**Results:** The majority (43.4%) had lower back pain followed by knee (41.8%), upper back (29.9%), shoulder (25.7%), hand/arm (23.3%), neck (22.5%), elbow (21.2%) and ankle pain (8.7%). Work experience and work stresses were significantly associated with any musculoskeletal pain (OR=2.2, 95% CI: 1.4-3.4, OR=1.9, 95% CI: 1.1-3 respectively).

**Conclusions:** Prevalence of musculoskeletal problems was high among tea pluckers and lower back pain was the most dominant musculoskeletal pain next to knee pain. Actions should be taken to minimize risk factors associated with musculoskeletal health problems.

## PP 12

### **Usefulness of a screening questionnaire, monofilament test and vibration perception threshold in screening for peripheral neuropathy amongst a periurban type 2 diabetic population: Preliminary data**

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**Background:** Prevalence of diabetes mellitus is increasing each year throughout the world. Thus, it is important to screen patients for diabetic peripheral neuropathy (DPN) as it is the major

pathophysiological risk factor for foot ulcers and amputations. Early screening for DPN using simple screening methods is essential to routinely screen patients at busy community clinics.

**Objectives:** To determine the glycemic control and to determine DPN among patients with type 2 diabetes (T2DM) attending community clinics.

**Methods:** A descriptive cross sectional study was conducted on 55 T2DM patients attending selected central dispensaries in Colombo District. Baseline data were obtained by a questionnaire and Michigan Neuropathy Screening Instrument (MNSI) and monofilament test were used to diagnose DPN. Monofilament test was done with 10g Semmes Weinstein monofilament and vibration perception threshold (VPT) was determined using 126 Hz tuning fork. Glycemic control was determined by the HbA1c level.

**Results:** 89.2% T2DM patients had poor glycemic control. Mean HbA1c of the non-neuropathy and neuropathy groups were  $7.89 \pm 1.47$  and  $8.90 \pm 1.66$  respectively. 27.3% patients with T2DM had DPN. 25.5% had abnormal VPT of both lower limbs and 20% had abnormal results for the monofilament test. 45.5% showed abnormal score for the standard Michigan Neuropathy Screening questionnaire. 52% of patients with T2DM who is having positive score for the Michigan Neuropathy Screening questionnaire had abnormal VPT at great toe. The Michigan Neuropathy Screening questionnaire and VPT of great toe were significantly correlated (Pearson correlation coefficient 0.631,  $p < 0.01$ ).

**Conclusion:** Patients with T2DM in the community should be urgently made aware of the importance of glycemic control. Michigan Neuropathy Screening questionnaire and VPT at great toe are the most useful tests to early screen the T2DM patients for neuropathy. These two tests can be easily conducted in the clinic setting to early diagnose neuropathy amongst T2DM patients.

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## PP 13

### **Comparison of haemoglobin estimation by HemoCue method and gold standard cyanmethaemoglobin method for screening anaemia: Interim findings among patients at haematology clinic in Colombo South Teaching Hospital**

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**Background:** The first step to diagnose anaemia is the estimation of haemoglobin level. Among several methods, HemoCue is a type of portable haemoglobinometer which is widely being used to screen for anaemia. Validity of the haemoglobin estimation using HemoCue has been questioned by several studies globally including in Sri Lanka.

**Objectives:** To compare the values of haemoglobin estimation by HemoCue method with gold standard cyanmethaemoglobin automated method.

**Methods:** A descriptive cross sectional study was conducted among patients attending professorial Haematology clinic in Colombo South Teaching Hospital. Three haemoglobin readings were taken from each patient; HemoCue capillary, HemoCue venous and gold standard cyanmethaemoglobin automated reading. Two way ANOVA in SPSS database software version 21.0. was used to compare the haemoglobin values of above three methods.

**Results:** This is an interim report of the study which had a calculated sample size of 115. Only results of 79 patients are included. Sensitivity and specificity of HemoCue capillary method were 91.1% and

91.2% while it was 79.5% and 100% for HemoCue venous method. There is no statistically significant difference between means of haemoglobin measured by gold standard cyanmethaemoglobin automated and HemoCue capillary methods ( $p=0.997$ ). However a significant difference between means of haemoglobin measured by gold standard cyanmethaemoglobin automated and HemoCue venous methods was observed ( $p<0.001$ ).

**Conclusions:** HemoCue capillary method is comparable to the gold standard cyanmethaemoglobin automated method in screening anaemia in a clinical setting.

#### **PP 14**

### **Factors associated with cognition among physically independent institutionalized elderly people in Southern Province, Sri Lanka**

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**Background:** Cognition plays a vital role in the quality of life and physical activity level. Although individual factors such as age and educational status are well known associated factors for cognition among elderly people, other associated factors needs to be identified for therapeutic and preventive measures.

**Objectives:** To identify the associated factors of cognition when controlled for age and educational status among physically independent institutionalized elderly people in Southern Province.

**Methods:** Elderly people (421) in elderly care institutions in Southern province were recruited after obtaining informed consent. Cognition was assessed using Mini Mental State Examination (MMSE). Independent sample t test, ANOVA and ANCOVA were used to determine the associations.

**Results:** Mean age of the study sample was  $71.59 \pm 6.36$  years and 65.8% were females. Mean MMSE score was  $22.91 \pm 4.91$  with 56.3%, 14.3% and 29.5% having normal cognition, mild and moderate cognitive impairment respectively. The factors affecting the higher level of cognition, other than  $\leq 70$  years of age and having higher educational status were; being married ( $p<0.001$ ), arrived to facility as their wish ( $p=0.002$ ), visited by family members ( $p<0.001$ ), had not fallen ( $p<0.001$ ), performance of exercises ( $p<0.001$ ), associating friends ( $p<0.001$ ), had not wake-ups at night ( $p=0.029$ ), hold current positions ( $p=0.003$ ), engaged in social activities ( $p<0.001$ ) and both indoor and outdoor group ( $p<0.001$ ) and leisure ( $p<0.001$ ) activities. When controlled for age and educational status as separate factors as well as combining together all the above factors except wake-ups at night remained significant ( $p<0.05$ ).

**Conclusions:** Apart from age and educational status, there are other factors associated with cognition among people in elderly care institutions.

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PP 15

## Association between stress and cognitive function of female adolescents in Galle Educational Zone

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**Background:** Age from 11 to 14 years is regarded as the early adolescence. This period is characterized by physical, psychological, cognitive and social changes. Brain continues to develop into adolescence and these developmental changes in brain are also sensitive to environmental stresses. Female adolescents experience immense hormonal and physical changes with onset of puberty and studies have revealed that, girls often experience higher stress levels than boys.

**Objectives:** To determine association between stress scores and neurocognitive test scores of early female adolescents in Galle education zone.

**Methods:** A school based cross - sectional study was conducted on female adolescents (11 - 14 years, n = 200). Participants were selected using cluster sampling technique. After obtaining baseline data, eight subtests of the Wechsler Intelligence Tests for Children (WISC) were administered to assess cognitive function. The test measures four specific cognitive abilities namely Verbal Comprehension Index (VCI), Perceptual Reasoning Index (PRI), Working Memory Index (WMI), Processing Speed Index (PSI) and Estimated Full Scale IQ (EFSIQ). Educational performance was determined by mathematics, Sinhala and science subject scores. Adolescent Stress Questionnaire (ASQ), which measures 9 dimensions of stress, was used to assess stress. Psychosocial adversity scale was used to assess psychosocial adversities. Bivariate Pearson correlation coefficient test was applied to determine the associations.

**Results:** Perceived stress score ranged from 88 to 208 (142.01±19.9). High stress scores were reported for the component of school performance, school attendance and future uncertainty. High psychosocial adversity scale score is associated with stress group participants. There were negative correlations between ASQ total score with Processing Speed Index (PSI) ( $r=-0.26;p<0.01$ ), Working Memory Index (WMI) ( $r=-0.28;p<0.01$ ) and Estimated Full Scale IQ (EFSIQ) ( $r=-0.21;p<0.05$ ) of WISC. However, ASQ total score was not significantly correlated with Mathematics, Science and Sinhala subject performances.

**Conclusions:** Stress is negatively associated with WMI, PSI and EFSIQ scores.

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**PP 16**

**Patterns of complexity of urinary stone disease based on anatomical sites and stone number: A study conducted among the patients who underwent surgical intervention at Genitourinary Surgical unit, Teaching Hospital, Jaffna**

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**Background:** Urinary stones are commonly formed in the kidney and urinary bladder. Rarely stones can form in the ureter and urethra when functional or anatomical defects are present in the urinary tract. Mode of presentation of disease, morbidity and mortality, type of intervention required, rate of stone clearance after intervention, urgency of intervention and selection of anatomical site for intervention depends on anatomical site and stone burden.

**Objective:** The majority of the previous studies have considered the anatomical sites of the urinary stones based on the site where intervention was performed, while this study is to describe all the anatomical sites of the stones irrespective of the intervention site in the patients who underwent interventions.

**Method:** This descriptive cross sectional study was carried out between October 2016 and November 2017 on patients who underwent intervention at Genitourinary Surgical Unit, Teaching Hospital Jaffna. All the patients had CT scan before intervention.

**Results:** Among the 115 patients selected, males (66.1%) were more affected than females (33.9%). The age of the subjects having stones ranged from 07 to 85 years with the mean age of 50.9 ( $\pm 16.2$ ) years. The majority of the males (65.7%) and females (66.6%) were in the productive age group (21 to 60 years). Out of 115 patients, 61.7% had stones in single site while 38.3% had stones in multiple sites. Among those with single site, 38, 35.2, 19.7 and 7% had in ureter, bladder, kidney and urethra respectively. Among those (n=44) with multiple sites, 79.5% had in the upper urinary tract, 20.4% had in the upper and lower urinary tract and 65.9% (n=29) had on bilateral sides of the urinary tract. Among the 29 patients, 9 had in bilateral kidney & unilateral ureter; 9 had in kidney & ureter of opposite side; 3 had in bilateral ureter; 2 had in bilateral ureter & bilateral kidney; 2 had in bilateral ureter & unilateral kidney; 2 had in bilateral kidney and 2 had in bilateral kidney & bladder. Of the 115 patients, 68 renal units were affected by stones; 32 had multiple stones, 32 had single stone and 4 had staghorn stone. Among the patients who had stones at multiple sites, 18.2% had multiple stones at multiple sites and on bilateral sides of the tract.

**Conclusions:** Significant number of patients (18.2%) had stones in multiple anatomical sites with multiple stones on bilateral sides, creating a challenge for the health system to manage and such complexity can lead to high risk of morbidity and mortality.

## PP 17

### **Comparison of red cell distribution width and the syntax score values among patients suspected of coronary artery disease attending National Hospital of Sri Lanka**

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**Introduction:** Red Cell Distribution Width (RDW) a red-cell parameter of Full Blood Count (FBC) indicates size inconsistency of erythrocytes. Narrowing of coronary arteries (coronary artery disease) leads to reduction of blood flow to myocardium and resultant myocardial ischaemia/infarction. Syntax Score is the angiographic scoring-system commonly used to assess the severity and complexity of CAD. We studied the variability of RDW with CAD to ascertain a relationship between RDW & CAD.

**Objective:** To compare the relationship between RDW and presence/ severity of CAD (determined by Syntax-Score) in patients presenting to National Hospital, Sri Lanka.

**Methods:** 35 patients undergoing angiography at cardiology-unit were included. 35 age/ sex matched healthy individuals were selected as the control group. RDW was obtained from FBC in cardiac patients and control group. Angiographic data of cardiac patients were used to calculate syntax-score. S.ferritin/S.creatinine was done on CAD patients to exclude iron-deficiency/ renal-impairment as these conditions influence RDW. Further data on medication, presence /absence of other diseases, FBS, lipid-profile etc were obtained from questioning patients and perusing clinical records.

**Results:** Mean Hb of control group and CAD group were  $13.39 \pm 1.54$  mg/dL and  $12.87 \pm 1.40$ . Hb levels were not significantly different between two groups ( $p=0.188$ ), but RDW showed a statistically significant difference ( $p=0.000$ ) between groups. Patients' with CAD demonstrated a higher RDW (mean RDW of CAD group =  $13.29 \pm 0.698$ : Mean RDW of control group  $12.60 \pm 0.51$ ). There was a statistically significant increase of RDW with increase of syntax-score (Pearson correlation coefficient 0.341 and  $p=0.049$ ). The cut-off value for RDW-CV as determined by the Receiver Operator Characteristic (ROC) curve is 12.75% with specificity of 71.4% and sensitivity of 60.5%.

**Conclusion:** There is a statistically significant increase of RDW with increase of syntax score indicating an increase of RDW with increasing severity of CAD. Therefore RDW can be used as a supportive diagnostic tool to identify CAD patients from healthy individuals. The cut off value for presence of CAD as determined by ROC curve is RDW of 12.75%.

## PP 18

### **Are we successful? A descriptive study on exclusive breast feeding practices among mothers in a baby friendly hospital**

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**Background:** WHO defines Exclusive Breast Feeding (EBF) as “no other food or drink, not even water, except breast milk for 6 months of life, except ORS, vitamin and medicine drops. Being a baby friendly hospital, Colombo South Teaching Hospital (CSTH) is bound to practice 10 steps to promote EBF. It also has a lactation management centre (LMC) which provides maternal education and staff training to promote EBF

**Objectives:** To assess infant feeding practices during the first 6 months of life.

**Methods:** A descriptive cross sectional study, among mothers with babies aged 6 months to 1 year, using an interviewer administered questionnaire was conducted after informed consent.

**Results:** Out of 165, the initiation of breast feeding within 1 hour of life was done in 148 (89.7%) babies. The majority (85.5%) knew the correct and current recommendation regarding EBF. Mothers have received education regarding EBF in the antenatal clinics (n=121) and postnatal wards (n=114). In addition, fifty were referred to the LMC postnatally. Still 87 (52%) babies had some fluid other than breast milk during the first 6 months of life. Commonest fluid given was water (n=34) and next was formula feeds (n=20). Breach of EBF practice has happened mostly between 4<sup>th</sup> and 5<sup>th</sup> month of age (67%) under the influence of an “experienced” family member. Maternal knowledge regarding expressed breast milk and its usage was poor.

**Conclusions:** Although baby friendly initiative steps are practiced, EBF rate was not satisfactory. It is recommended to identify the barriers and rectify them carefully.

## PP 19

### **Comparison of four in-house prepared culture media on mycelial growth and morphology of selected medically important fungi: A pilot study**

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**Background:** Production of spores and fruiting bodies are important in morphological identification of fungi. However sporulation of moulds are influenced by different media used for culture.

**Objectives:** This study was done to compare morphological variations of mycelia on in-house prepared tomato agar (TA), potato carrot agar (PCA), water agar (WA), soil agar (SA) with commercially prepared Sabouraud dextrose agar (SDA).

**Methods:** *Exophiala* sp., *Exserohilum* sp., *Fusarium* sp., *Ochroconis* sp. and *Trichophyton* sp. isolates from the National Pathogenic Fungal Culture collection was used for the study. PCA, TA, SA and WA were prepared in-house. Conidial suspension (Mc Farland 2.0) was used to inoculate each media. Diameter, colour and texture of obverse and reverse of the colony were assessed. Degree of sporulation and ability to identify the mould correctly were assessed microscopically on day 7 and 14 independently by three observers blinded to media and identification.

**Results:** Submerged growth was observed in all fungi on WA and SA. Reverse of colony was difficult to assess on PCA and TA due to colour of the media. Diameters were difficult to assess due to spillage of conidial suspension. Best sporulation and identification for *Exserohilum* sp. was observed in TA (day 7) and SA (day 14) while SDA showed minimum sporulation. SA was the optimum media for sporulation and identification of *Ochroconis* sp. (day 7 and 14) whereas PCA was the least. *Exophiala* sp. sporulation and identification was best with PCA (day 7 and 14) and SDA (day 14) and least with WA. All culture media supported growth of *Trichophyton* sp. and *Fusarium* sp. equally. Cost of (1 L) media was highest for SDA and least for SA.

**Conclusion:** Different moulds have differing capacity to grow and induce sporulation on different in-house prepared media and single type of medium is inadequate to induce sporulation. The colony appearance and the duration to sporulation varies with different media. However, in-house prepared media is not cost effective compared to commercial culture media as specimens cannot be primarily/only inoculated on in-house media due to above reasons.



## PP 20

### **Problems associated with urine specimen collection, storage and transportation for laboratory testing by nurses at a selected hospital in Colombo District, Sri Lanka**

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**Background:** Urine is the second most common clinical specimen obtained from patients. Urine specimens are collected in a variety of ways according to the type of specimen required, the collection site and the patient's condition. Nurses are the main professionals who are involved in activities of pre-analytical stage of laboratory testing which include specimen collection, storage and transportation. Thus, the quality of the pre-analytical stage needs to be guaranteed in order to improve the accuracy of test results.

**Objectives:** This study endeavors to assess the problems associated with collection, storage and transportation of urine samples for laboratory testing by nurses.

**Methods:** A descriptive cross sectional study was conducted with a sample of 205 nurses selected by non-probability convenience sampling method. A structured, self-administered questionnaire was used to collect data. Data was analyzed by using SPSS (Version 23). Significant level was kept as  $p < 0.05$ .

**Results:** The majority (53%) was male nurses and 78% were from general wards. Nearly 68% of the participants had less than 5 years of working experience. Results revealed that lack of cooperation (62.9%) of the patients was the main problem associated with urine collection, since patients were not following the correct collection procedure as instructed by the nurses. Increased work load of nurses was another matter in collection of urine samples as stated by 37.1% of the participants. Lack of staff members was the main problem associated with transportation of urine samples as stated by 28.8% of participants and lack of facilities (22%), poor knowledge (11.2%) were stated as problems associated with storing of urine samples.

**Conclusion:** Accurate specimen collection techniques, storage and transportation facilities are essential to reduce the pre analytical errors. Therefore, it is recommended to update nurses' knowledge and practice on pre-analytical stage through institutional protocols while providing them with adequate facilities.

## PP 21

### **Demographic and socio-economic characterization of cutaneous leishmaniasis patients in four selected medical officer of health (MOH) areas in Kurunegala District, Sri Lanka**

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**Background:** Cutaneous leishmaniasis (CL) is one of the main infectious diseases where, nearly 98 countries including Sri Lanka are affected. Recent increases in the spread of this disease in Sri Lanka highlights the importance of extensive understanding about the disease.

**Objectives:** To identify socio-demographic risk factors of CL in Maho, Polpithigama, Galgamuwa and Giribawa MOH areas in Kurunegala District, Sri Lanka.

**Methods:** A descriptive cross-sectional household survey was conducted on demographic, social and economic factors of CL patients as reported to MOH offices from 2013-2016 using a pre-tested questionnaire. Results were entered to Microsoft Excel and analyzed using Minitab 17.0 software package.

**Results:** A total of 101 patients responded. The majority (55.45 %, n=56) of these respondents are males while, most patients are between the age 21-40 (41.58%, n=42). The marital status of the majority (78.22 %, n=79) of patients were married. A percentage of 64.35 % (n=65) had received education at least up to Ordinary Level. The average family size of patients was predominantly ranged from 4-6 (54.46%, n=55). Interestingly, more than half of the employed patients (57.35%, n=39 out of 69) were farmers. Most common house condition of patients was noted as “Moderate” (51.49%, n=52) followed by “Poor” house condition (15.84%, n=16). The monthly income level of the majority (47.52%, n=48) was observed as <Rs. 25,000. Overall, the level of awareness on patients on Leishmaniasis disease was noted as “Poor” (97.03%, n=98) among the study population.

**Conclusions:** Outdoor occupations and poor knowledge about the disease could be considered as potential socio-economic risk factors for the spread of disease in the area. Lack of knowledge on the disease among people living in endemic areas may cause serious implications in disease transmission.

## PP 22

### Detection of carbapenemase producing *Enterobacteriaceae* in two tertiary care hospitals

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**Background:** *Enterobacteriaceae* is a large family of Gram negative bacilli causing a range of infections. Carbapenemase producing *Enterobacteriaceae* have emerged as a global threat.

**Objectives:** To confirm the carbapenemase production of collected *Enterobacteriaceae* isolates from clinical specimens and to correlate the carbapenemase production with the age, gender and the duration of hospital stay.

**Methods:** A descriptive cross sectional study was carried out using 120 clinical isolates of *Enterobacteriaceae* at Colombo South Teaching Hospital and Sri Jayewardenepura General Hospital from 22<sup>nd</sup> November to 30<sup>th</sup> November 2017. Information regarding the clinical history of the relevant patients was gathered. All isolates were identified up to species level by API 20E kits. Resistance to carbapenem was detected using meropenem, imipenem and ertapenem. Modified Hodge Test was performed to confirm the carbapenemase production.

**Results:** Out of 120 isolates, 14 (11.67%) were resistant to at least one of the carbapenems tested. Carbapenemase production was confirmed in 10 (8.3%) isolates. The majority of the confirmed isolates were *Klebsiella pneumoniae* (4, 40%) followed by *Klebsiella oxytoca* (2, 20%), *Escherichia coli* (1, 10%), *Serratia marcescens* (1, 10%), *Enterobacter cloacae* (1, 10%) and *Proteus mirabilis* (1, 10%). From carbapenemase producing isolates, 6 were from urine specimens (60%), 2 were from catheter tips (20%), 1 each from a wound swab (10%) and bronchial aspirate (10%). Eight (80%) out of the carbapenemase producing *Enterobacteriaceae* harboring patients were males and 8 (80%) were aged above 50 years. Mean duration of hospital stay is 7.2 days ( $\pm$ SD 5.65 days).

**Conclusions:** This study shows 8.3% of the clinical isolates were carbapenemase producers. It is a significantly higher proportion which is in line with the recent studies done in India and other Asian countries. Giving false positive results for cefotaxime-Munich (CTX-M) positive and ampicillin-C (AmpC) hyper producing *Enterobacteriaceae* and false negative results for New Delhi Mettalo- $\beta$ -lactamase (NDM) producers are limitations of Modified Hodge Test.

## PP 23

### **Imprint cytology: A supportive diagnostic method for *Helicobacter pylori* in dyspeptic patients**

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**Background:** Diagnosis of *Helicobacter pylori* in Sri Lanka is currently being carried out by histological interpretation of a gastric biopsy specimen. This process takes at least 3-5 days and needs specialized equipment and trained personnel. Using a combination of diagnostic methods can improve the diagnostic accuracy.

**Objectives:** To assess the usefulness of two staining methods of imprint cytology for diagnosis of *H. pylori* in gastric biopsy specimens.

**Methods:** Gastric biopsy specimens obtained from dyspeptic patients attending routine upper gastrointestinal endoscopy, were placed on glass slides to obtain imprints. The imprints were air-dried, stained with Toluidine blue and Giemsa stains and observed for the presence of *H. pylori* using light microscopy. The diagnosis was confirmed by a consultant pathologist blinded to the histology results. The sensitivity, specificity, positive predictive value (PVP) and negative predictive value (NPV) of each stain were calculated and benchmarked against histological diagnosis.

**Results:** Out of 55 patients, 7 were positive for *H. pylori* by histology. Five were positive for *H. pylori* by Toluidine blue stain and 4 by Giemsa stain. The sensitivity of Toluidine blue stain was higher than the Giemsa stain (57.1% and 42.9% respectively) while the specificity was equal (97.9%). PVP and NVP were 80.0% and 94.0% for the Toluidine blue stain and 75.0% and 92.2% for the Giemsa stain, respectively. Giemsa stain had a better discrimination for identification of *H. pylori* bacteria. The cost of carrying out imprint cytology was less than Rs. 5.00 for each stain and the results could be given in less than an hour from specimen collection.

**Conclusions:** Using imprint cytology for the diagnosis of *H. pylori* is a rapid, simple and cost effective method that can support histological diagnosis.

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## PP 24

### **Hantavirus infection among renal patients and community residing in Kandy District, Sri Lanka: A hidden public health burden?**

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**Introduction:** Hantavirus infection causes haemorrhagic fever with renal syndrome (HFRS) mainly in Eurasia. The renal syndrome may lead to inflammation of the kidneys. Recently in Sri Lanka, higher sero-positivity to hantavirus in renal patients and controls was reported in a hotspot of chronic kidney disease with unknown aetiology (CKDu). The aim of this study was to investigate the exposure to hantavirus infection among renal patients vs community in Kandy District: a non-endemic area of CKDu in Sri Lanka.

**Methods:** Hospital and community based cross-sectional study was conducted from 2107-2018. Patients who attended the renal clinic, Teaching Hospital Kandy (KTH) were recruited as cases. People who are >18 years old, with normal serum creatinine, residing in Kandy were randomly recruited as controls. Demographic data and 5 mL of blood samples were obtained from both groups. Indirect-immunofluorescent antibody assay (IFA) was performed to detect IgG antibodies using recombinant nucleocapsid protein of Thailand virus (THAIV) expressed in Vero E6 cells. Descriptive analysis, comparison of possible risk factors and association of variables in sero converted individuals were analysed. The P value lower than 0.05 ( $p \leq 0.05$ ) was considered as statistically significant. Odds ratios (OR) were calculated corresponding its 95% confidence interval (CI).

**Results:** Sero-prevalence of 18% and 7% were determined in renal patients and controls respectively (OR 2.64, 95% CI 1.07 to 6.54,  $p < 0.05$ ). Possible risk factors for exposure to hantavirus were identified as  $\geq 40$  years of age, males, exposed to agricultural activities, witnessed rodents and presence of their excreta in or around house ( $p < 0.05$ ).

**Conclusion:** Higher sero-prevalence to THAIV was detected in renal patients than of controls. Further, being a male, farming, exposure to agriculture activities and rat infestation could be possible risk factors to hantavirus in the area. In conclusion, acquiring hantavirus infection might be a possible risk factor for renal impairment.

**Acknowledgement:** This work was supported by the research grant funded by National Science Foundation (Research Grant No: RPHS/2016/CKDu/06).

## PP 25

### **Adherence to anti-diabetic medications: A descriptive study in patients attending a medical clinic at a tertiary care hospital**

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**Background:** Prevalence of diabetes mellitus is high in Sri Lanka. Adherence to the prescribed medications is essential for achieving adequate control of diabetes and preventing complications.

**Objectives:** To describe the level of adherence to anti-diabetic medications and the factors influencing poor adherence in patients attending a medical clinic at a tertiary-care hospital in Sri Lanka.

**Methods:** This was a cross sectional descriptive study among randomly selected diabetes patients attending a medical clinic at a selected tertiary-care hospital. Data collection was done with an interviewer administered questionnaire. Percentage medication adherence was calculated for each patient by the investigators by comparing the dose and frequency of each anti-diabetic medication prescribed, against the dose and frequency of each medication claimed to be taken by the patient.

**Results:** A total of 260 patients participated (women - 65%; mean age 61.2±9.2 years). Mean duration of diabetes was 9.2±6.7 years. 39.2%, 51.2% and 9.6% were on one, two and three anti-diabetic medications, respectively. Metformin (80.2%), gliclazide (41.2%), bi-phasic insulin (19.2%) and tolbutamide (15.8%) were the most commonly used medications. 31.1% did not adhere to the prescribed dose and 47.7% did not adhere to the prescribed frequency, of at least one medication. Mean percentage adherence in the study population was 73.9%. There was no difference in the mean adherence based on gender, age, education level, employment status, number of medications or the type of medications (insulin-users vs non-insulin users). 36.2% reported forgetfulness as a reason for non-adherence. Other reasons included: being scared of harmful effects of medications (24.2%), experiencing side effects (17.2%), stopping medications when feeling better (15.4%).

**Conclusions:** In the study population, level of adherence to anti-diabetic medications was suboptimal. Forgetfulness was the most frequently reported reason for poor adherence. It is worthwhile studying whether interventions like medication calendars, pill boxes and counseling could improve medication adherence.

## PP 26

### **Screening of nephroprotective activity of *Abelmoschus moschatus* (Kapukinissa) leaf extract in rats with adriamycin induced acute renal toxicity**

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**Background:** *Abelmoschus moschatus*, commonly known as Kapukinissa (Family; Malvaceae) is widely used for the treatment of renal diseases in the indigenous system of medicine in Sri Lanka. However, its efficacy upon nephroprotection has not been scientifically investigated *in vivo*.

**Objective:** The aim of the present study was to determine the nephroprotective activity of the aqueous leaf extract of *A. moschatus* in rats with Adriamycin (ADR) induced acute renal toxicity.

**Method:** Twenty four Wistar rats were divided into four groups (n=6/ group). Renal injury was induced with ADR (20 mg/kg, ip) in Wistar rats. Group one and two served as healthy and ADR induced control groups and received saline (0.9% NaCl). Adriamycin induced rats in group three and four were orally administered with the lyophilized powder of the aqueous refluxed extract (4h) of *A. moschatus* (400 mg/ kg; equivalent human therapeutic dose) and fosiopril (0.09 mg/ kg) respectively. Intervention was carried out for three consecutive days. Blood and urine were used for the estimation of selected biochemical parameters to assess the nephroprotective activity. H & E stained sections of the kidney tissues were used for the assessment of histological changes in acute renal toxicity upon plant extract treatment.

**Results:** Administration of the aqueous leaf extract of *A. moschatus* resulted in a percentage reduction in serum concentrations of creatinine (21%),  $\beta_2$ -microglobulin (65%) and urine total protein (45%) compared to ADR induced control rats ( $p < 0.05$ ). A 9% increase was resulted in both serum concentrations of protein and albumin ( $p < 0.05$ ). There was no significant difference between the

selected serum biochemical parameters in rats treated with the plant extract and fosinopril ( $p > 0.05$ ). Kidney tissues of ADR induced control rats showed features of acute tubular necrosis. Treatment with plant extract significantly decreased the ADR induced histological changes in rats.

**Conclusion:** The results revealed that the administration of *A. moschatus* leaf extract possesses significant nephroprotective activity in rats with ADR induced acute renal toxicity.

**Acknowledgement:** This work was supported by two research grants funded by NSF competitive research grant (Research Grant No: RG/2016/HS -03), and UGC block grant (Research Grant No: RU/PG- R/16/14).

## PP 27

### Bioactivities of *Holarrhena mitis* (Vahl) R.Br.

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**Background:** The variety and richness of flora and fauna in Sri Lanka and the high percentage of endemic plants present in the island makes it a fertile testing ground for pharmaceutical discovery. *Holarrhena mitis* is one such endemic plant growing mainly in the dry regions. Kiri-mawara and kuluppalai are the common names of this plant in Sinhala and Tamil respectively.

**Objectives:** Purpose of this study is to assess the antimicrobial and antioxidant activities, cytotoxicity and the total phenolic content of the dichloromethane, ethyl acetate and methanol extracts of the leaves and bark of *Holarrhena mitis*.

**Methods:** Dichloromethane, ethyl acetate and methanol extracts of both leaves and bark were tested in triplicate for antibacterial activity against *Staphylococcus aureus*, *Escherichia coli* (agar dilution assay), antifungal activity against *Candida* spp. (agar well diffusion assay), antioxidant activity (DPPH), cytotoxicity (brine shrimp (*Artimesalina*) lethality assay) using oxacillin, ketoconazole,  $\alpha$ -tocopherol and potassium dichromate as positive controls for each test respectively and the total polyphenol content (TPP) (Folin-Ciocalteu method) as gallic acid equivalent.

**Results:** All the tested six extracts exhibited significant antibacterial activity. Antifungal activity was shown only by methanol extract of bark (MB). The highest antioxidant activity and considerable TPP contents were detected in the methanol and ethyl acetate extracts of leaves (IC<sub>50</sub> 29.8, 16.9 and 473.2, 138.7 mg (GAE)/g) respectively. In the cytotoxicity studies, both dichloromethane extracts of bark and leaves showed considerable cytotoxicity with the LC<sub>50</sub> values of 9.4 ppm, 27.1 ppm respectively while MB was in nontoxic range (LC<sub>50</sub> 1223 ppm).

**Conclusion:** Results revealed that the non-toxic MB which has prominent antimicrobial activity would be a potential antimicrobial natural product source and the toxic dichloromethane extract of leaves (DL) and dichloromethane extract of bark (DB) would be a natural source for anticancer lead compounds. Antioxidant activity may be associated with the phenol content of the plant.

## **PP 28**

### **Factors associated with compliance to recommended antihypertensive medications among patients with hypertension: Preliminary results from a teaching hospital, Sri Lanka**

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**Background:** Hypertension is a major public health burden. In Sri Lanka, prevalence of hypertension is highest among other chronic diseases. However there was limited information on factors associated with compliance in patients to recommended antihypertensive medication in Sri Lanka.

**Objective:** To determine factors associated with compliance to recommended antihypertensive medications among patient with hypertension in a teaching hospital, Sri Lanka.

**Methods:** A descriptive cross sectional study design was used. A sample of 50 patients, aged over 18 years, who attended the cardiology clinic at Colombo South Teaching Hospital (CSTH) from December –February year, were selected for the study by using systematic sampling method. Patients were categorized according to their compliance level using Morisky Green Levine Scale. Data was analyzed for descriptive statistics. Ethical approval was obtained from both ethics review committees of University of Sri Jayewardenepura and CSTH.

**Results:** Twenty participants were males while 30 were female. Among them 10% were in low compliance level, 68% were in medium and 22% were in high compliance level. Mean blood pressure levels were within normal range (Systolic=128.6+/-14.4 mmHg, Diastolic = 80.0+/-5.7). Demographic factors were not associated with compliance. Number of drug class combinations prescribed ( $p=0.029$ ), medicine administering pattern ( $p=0.098$ ), belief that long term medication is good for health ( $p=0.011$ ) and purchasing medicine at community pharmacy when antihypertensive drugs are not available at hospital ( $p=0.032$ ) were associated with the compliance. There was no correlation between compliance level and blood pressure. There was no significant association between compliance and blood pressure level.

**Conclusion:** Blood pressure levels are within normal range. Medication compliance is much higher (90%) among the participants (medium or higher level of compliance). Advising on importance of long term medication process, medicine administering pattern and purchasing the prescription from any pharmacy have significant influence on increased patient compliance. Antihypertensive drug combination prescribed by medical practitioners is also an important factor.

## **PP 29**

### **An intervention to improve the effectiveness of warehouse management of Regional Medical Supplies Divisions, Western Province, Sri Lanka**

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**Background:** Warehousing has been recognized as one of the main operations to gain competitive advantage and as a critical function. However it has been identified that there is a gap in the medical supply distribution process.

**Objectives:** To assess the current process and practices at selected Regional Medical Supplies Divisions, to identify gaps in the system, to develop an interventional package and staff training (n=28), and to measure the outcome after implementation of the interventional package.

**Methodology:** This study was done at Regional Medical Supplies Divisions (RMSD) (n=3), Western Province, Sri Lanka. Descriptive cross-sectional study was done to assess the current process and practices by using a warehousing checklist and focus group discussions of RMSD staff (n=23). Quantitative assessment of availability of Essential Non Communicable Disease (NCD) drugs (n=16) at selected clinics (n=23) was done. Key-informant-interviews were conducted with 18 informants from policy and institutional level from the Ministry of Health. Series of expert panel discussions were done to develop a standard operationing procedure (SOP). Post assessment was done with the same study instruments.

**Results:** The absence of a described step by step process for receiving, storing, distributing, allocation of responsibility and accountability, was observed at the study RMSDs. Following the intervention, availability of essential medicine at NCD clinics improved by, 12.65% in Colombo group, 0.04% in Kalutara and 9.4% in Gampaha. Improvement of warehouse conditions in Colombo from 18% to 81%, Kalutara from 42% to 88% and Gampaha from 24% to 77% respectively was observed.

**Conclusions:** Introduction of a SOP and training of staff on SOP improved the warehouse functions and recommended to adopt such SOPs to all RMSD warehouses in Sri Lanka to improve effectiveness.

### PP 30

## Isolation and purification of antibacterial compounds from sea weed *Laurencia natalansis*

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**Background:** Seaweeds are considered as a rich source of bioactive compounds as they are able to produce a great variety of secondary metabolites characterized by a broad spectrum of biological activities including, antibacterial and antifungal properties.

**Objectives:** The objective of the study was isolation and characterization of antibacterial compounds of *Laurencia natalansis*.

**Methods:** In the present study, three different solvent extracts (hexane, methanol and deionized water) of *L. natalansis* was tested against two human pathogenic Gram-positive bacteria (*Bacillus* sp., *Staphylococcus aureus*-ATCC 2593) and Gram-negative bacteria (*Escherichia coli*-ATCC 25922, 2785 and *Salmonella typhi*) using agar disc diffusion and bioautochromatography assay. The Minimum Inhibitory Concentration (MIC) and Minimum Bactericidal Concentration (MBC) of extracts were determined. Chromatography techniques were employed to purify antibacterial active ingredient in methanol crude extract.

**Results:** The highest antibacterial activity of both methanol and hexane crude extracts were detected against *S. aureus* and mean diameter of inhibition zones were  $12.16 \pm 0.26$  mm and  $10.40 \pm 0.37$  mm respectively. Lowest MIC and MBC were recorded as  $81.24 \pm 0.01$  mg/L and  $310.25 \pm 0.01$  mg/L against *S. aureus* respectively. Antibacterial activity of one clear band (A1), which was developed using toluene, ethyl acetate (93:7) solvent system and three clear bands (B1, B2 and B3) which were developed using ethyl acetate: methanol: water (100:13.5:10) solvent system were recorded in bioautochromatography test. A1, B1 and B3 bands showed antibacterial activity against *Bacillus* sp, *E. coli* and *S. aureus* where B2 showed antibacterial activity against *E. coli* and *Bacillus* sp. There was no activity recorded against *Salmonella typhi*. The secondary chemical screening gave a positive result for arbutin, anthraquinone glycoside and alkaloid.



**Conclusions:** The crude extracts of seaweed of *L. natalansis* demonstrate antibacterial activity against the tested human pathogenic bacteria due to presence of arbutin, anthraquinone glycoside and alkaloid class compounds and can be used as a potential candidate to produce antibiotics in future.

### PP 31

#### **Assessing the appropriateness of medicines among elderly using the ‘Modified STOPP/START criteria’ for Sri Lanka**

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**Background:** ‘Screening tool of older people’s prescriptions (STOPP) and screening tool to alert to right treatment (START)’ criteria is a tool which is widely used to assess the appropriateness of medicines among elderly in the West. STOPP criteria identifies inappropriate medicines which should be stopped and are termed potentially inappropriate medicines (PIMs). START criteria identifies omitted medicines which needs to be started and are termed potential prescription omissions (PPOs). Previously we experienced practical issues when using this tool in Sri Lanka, and hence was modified using a Delphi consensus methodology.

**Objectives:** This study aims to identify inappropriate use of medicines among elderly in two selected cohorts of Sri Lanka using the ‘modified STOPP/START criteria’ for Sri Lanka.

**Method:** A multicentre study was conducted. Patients aged  $\geq 60$  years attending medical and psychiatry clinics at two teaching hospitals were selected through systematic random sampling. Medical/medication related information of patients was obtained through interview and review of medication records. Medical/medication related information of each patient was matched with 70 STOPP and 35 START criteria to identify PIMs and PPOs respectively.

**Results:** A total of 702 prescriptions were screened using the modified tool (Study hospital 1(SH1)=402; Study hospital 2(SH2)=300). Mean age of patients was  $67 \pm 5.8$  (SH1) and  $68.5 \pm 5.5$  (SH2), and 56.2% (SH1) and 62% (SH2) were females. There were 209 and 84 potentially inappropriate prescriptions in SH1 and SH2 respectively, which included 114 PIMs and 95 PPOs in SH1 and 32 PIMs and 52 PPOs in SH2. Unavailability of the estimated glomerular filtration rate (or creatinine clearance) was identified as a practical issue when using the modified tool.

**Conclusion:** Inappropriate use of medicines among the elderly was identified using the ‘Modified STOPP/START criteria for Sri Lanka’. Application of this tool in routine practice will help to improve medication safety among this group.

**Acknowledgement:** This work was supported by the research grant funded by the University of Sri Jayewardenepura (Research Grant No: ASP/01/RE/MED/2015/46).

**PP 32**

**Poor attachment to anti-hypertensive treatment: An important health problem in Bangladesh**

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**Background:** Hypertension is an important health problem throughout the world. It causes 9.4 million deaths each year which accounts for 13.5% of total global deaths. Bangladesh is passing through a phase of epidemiological transition from communicable diseases to non-communicable diseases. In 1995 to 2009, the prevalence of hypertension among  $\geq 18$  years population ranged from 7.8% to 18.6%. On the other hand, poor attachment to anti-hypertensive treatment has been identified as the main cause of failure to control hypertension.

**Objectives:** To find out the prevalence of hypertension, factors affecting poor attachment to treatment and its consequences on health.

**Methods:** This cross-sectional study was conducted among  $\geq 25$  years population in rural Bangladesh from January to March 2017. Sample size was 1204. Data were collected purposively. Hypertension was identified when the average of two blood pressure readings was  $\geq 140/90$  mm of Hg. Those who were already under treatment were considered as old cases of hypertension.

**Results:** This study found that the prevalence of hypertension was 19% in both sexes, more in male (26%) than female (16%). In 25-34 years group, prevalence was 5% in contrast, to 46% among  $\geq 65$  years. 29% was found to discontinue medication within first 6 months of starting treatment, 49% was found to take medicine irregularly and only 22% had regular medication. Young age, male sex, lower economic status, undefined symptoms, ignorance to the consequences of hypertension and type of healthcare providers were causes for the discontinuation of medication. 6% of respondents had been suffering from stroke, renal failure and cardiac diseases. Of them, 91% had the history of irregular intake of anti-hypertensive drugs.

**Conclusions:** Increasing prevalence of hypertension with poor attachment to treatment is a significant risk factor of other non-communicable diseases. Proper intervention is needed to control hypertension immediately.

**PP 33**

**Association of diabetes self-care activities and glycaemic control among adults with type 2 diabetes: Preliminary findings from a selected teaching hospital, Sri Lanka**

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**Background:** The prevalence of Type 2 Diabetes Mellitus (T2DM) and complications related to diabetes continue to rise across the globe including Sri Lanka. Diabetes Self-care Activities (DSCA) such as diet control, regular physical activities, adherence to recommended medication, self-monitoring of blood glucose levels and foot care are promising behaviours to reduce complication and to achieve good glycaemic control. There is a paucity of data regarding DSCA and its association with glycaemic control among patients with T2DM in Sri Lanka.

**Objectives:** To determine association between DSCA and glycaemic control among patients with T2DM in a teaching hospital, Sri Lanka.

**Methods:** A descriptive cross-sectional study was conducted among purposively selected patients (n=50) with T2DM. The revised summary of diabetes self-care activities questionnaire was used to collect data. Data were analysed by using descriptive statistics and Chi –square test. Ethical approval was obtained from the Ethics Review Committees of Faculty of Medical Sciences; University of Sri Jayewardenepura and Sri Jayewardenepura General Hospital.

**Results:** Out of 50 participants the majority (66%) were female. Twenty (40%) of them were in 50-64 years. The majority of them (74%) were on oral medicine. 20% had both oral hypoglycaemic and insulin. Forty (80%) of them followed a healthy eating plan on 4 or more than 4 days out of 7 days and 60% exercised for 3 or less than 3 days out of 7 days. More than half (60%) did not perform self-monitoring of blood glucose. Nearly half (52%) did not adhere to foot care even a single day. The majority (72%) had their HbA1c  $\geq 7\%$ . Chi –square test analysis indicated that adherence to diet control, exercise and medication were significantly associated with their glycaemic control ( $p < 0.05$ ).

**Conclusions:** There was lack of adherence to DSCA among most of the participants. Health education interventions are necessary to enhance adherence to DSCA in order to improve their glycaemic control.

### PP 34

## **Factors affecting non-adherence to insulin therapy among patients with type 2 diabetes mellitus: Preliminary results from a teaching hospital, Sri Lanka**

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**Background:** Diabetes Mellitus (DM) is a metabolic disorder where the blood glucose levels are abnormally high and affect the entire body. Type 1 DM and Type 2 DM (T2DM) are the main types of diabetes. In T2DM the body is unable to produce sufficient amount of insulin when the body develops resistance to its effect. Medication adherence is one way of managing the complications of T2DM.

**Objective:** To determine factors affecting adherence to insulin therapy among patients with T2DM in a tertiary care hospital, Sri Lanka.

**Methods:** A descriptive cross sectional study was conducted among purposively selected T2DM patients (n=110). A pretested interviewer-administered questionnaire and eight item Morisky medication adherence scale were used to collect data. Descriptive statistics and Chi-square test were used to analyse data. Ethical approval was obtained from the Ethics Review committees, Faculty of Medical Sciences, University of Sri Jayewardenepura and Colombo South Teaching Hospital.

**Results:** Most of the participants were males (61; 55.5%) and 49 (44.5%) were females. The majority of them (70%) were diagnosed with T2DM for 2 - 15 years and taking insulin as their medication treatment for 1 -5 years (85.5%). The overall adherence rate was (n=47) 42.7% and non-adherence was (n=63) 57.3%. The overall non-adherence to the insulin therapy was (n=63) 57.3%. Statistically significant associations were found between increasing non-adherence and forgetting to take insulin ( $p=0.000$ ), having emotional problems or stress ( $p=0.000$ ), having difficulty in taking insulin at the same time, everyday ( $p=0.000$ ) and skipping meals ( $p=0.001$ ).

**Conclusion:** Non-adherence to insulin therapy among participants was high. Therefore, healthcare providers should provide more effective health education interventions to enhance adherence to insulin therapy for patients with T2DM.

## PP 35

### The characteristics of male heroin users entering rehabilitation centres in Sri Lanka

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**Background:** Heroin is one of the most common illicit drugs used in Sri Lanka. It has become a significant problem during recent years and required more rehabilitation facilities for users.

**Objective:** This study was conducted to describe the characteristics of male heroin users entering rehabilitation centres.

**Methods:** A descriptive cross-sectional study was conducted among 396 male heroin users in five selected rehabilitation centres. Data were collected using an interviewer-administered questionnaire and analyzed using SPSS statistical software.

**Results:** The majority of the sample were Sinhala (82.1%) and Buddhists (69.2%) with a mean age (SD) of 32.6 (10.1) years. The mean age (SD) of the first heroin use was 21.4 (5.0) years. The highest percentage of the heroin users were from the Western province (78.0%), followed by Kurunegala (5.1%), Galle (3.1%), Pollonnaruwa and Matara districts (both 2.8%). Nearly 1/3<sup>rd</sup> of heroin users were early school dropouts and 43% were re-admissions. In 80%, heroin was introduced by friends followed by self-introduction (5.1%). The majority (89.1%) had initiated heroin use with smoking and started heroin use as an experiment (80.8%) or due to peer pressure (8.1%). Nearly 3/4<sup>th</sup> of heroin users were unaware of harmful outcomes of heroin use and able to conceal their behaviour from family for more than one year. A considerable proportion (85.1%) had easy accessibility to heroin and the majority (94.4%) was able to easily purchase heroin. The age of the first heroin use was positively correlated with the age of first illicit drug use ( $r=0.598$ ;  $p<0.01$ ) age of the first alcohol use ( $r=0.448$ ;  $p<0.01$ ) and first smoking ( $r=0.368$ ;  $p<0.01$ ).

**Conclusion:** Heroin use is very common in Western province. Level of education, experimental usage, peer influence, availability, accessibility and previous use of other substances were identified as main instigators of heroin addiction. These findings will be useful in designing and targeting interventions for prevention of heroin addiction in Sri Lanka.

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## PP 36

### Outpatient penicillin antibiotic prescriptions in Colombo, Sri Lanka

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**Background:** Globally, penicillins have been reported to be the most commonly prescribed antibacterial agents (ABA) in outpatient settings. Recently, a shift from narrow-spectrum to broad spectrum and combination penicillins (e.g.; with beta-lactamase inhibitors) has been observed.

**Objectives:** To describe the utilization pattern of penicillins in outpatient settings in Colombo District.

**Method:** Data related to oral systemic penicillin use were extracted from a large community based ABA prescription survey carried out in Colombo between 2012 and 2013. Penicillin use was

categorized according to Anatomical Therapeutic and Chemical Classification system and quantified using Defined Daily Doses (DDD). Utilization pattern was analyzed in term of age, gender and sector. State sector included State Hospitals outpatient department (OPD) pharmacies and private sector included private- hospitals OPD, retail and Rajya Osusala (ROS) pharmacies.

**Results:** Of the 22321 ABA prescriptions, 11105 (49.75%) had penicillin accounting for 38.84% (45592.1/117409) of total ABA DDDs with an average use of 3799.3 (3468.8- 4050.7) DDDs/month. Penicillin + beta-lactamase inhibitors (44%, co-amoxiclav) was the leading penicillin prescribed followed by extended-spectrum penicillins (41%) (amoxicillin 40.7%). State-hospital OPD pharmacies accounted for 63.4% of penicillin volumes dispensed compared to the private sector settings (32.2%- 34.5%). Amoxicillin (76.8%) was the leading penicillin in state sector compared to co-amoxiclav (56.3%- 65.8%) in private sector. No significant association was observed between utilization pattern and age or gender.

**Conclusions:** Restrictions in supply of ABA to OPD pharmacies in State Hospitals could have accounted for the difference in the utilization patterns between state and private sector. Use of co-amoxiclav appears to be inappropriately high in private sector outpatient settings.

**Acknowledgement:** This work was supported by the research grant funded by Ministry Higher Education, Sri Lanka (Research Grant No: HETC/HRD/SJP/O-MS/N2).

### **PP 37**

## **Nature and frequency of drug related problems (DRPs) in prescriptions dispensed at a community pharmacy**

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**Background:** Drug Related Problems (DRPs) in prescriptions could result in patient harm. The aim of this study was to examine the nature and frequency of DRPs in prescriptions dispensed in a selected community pharmacy.

**Methods:** A prospective, cross-sectional study was conducted in a selected community pharmacy in Sri Lanka where a researcher reviewed for DRPs in prescriptions selected through systematic random sampling. The British National Formulary, Australian Hand Book of Medicines and Medscape Drug Interaction Finder were used as reference sources. Identified DRPs were classified according to the Pharmaceutical Care Network Europe DRP classification V8.01.

**Results:** Two hundred prescriptions from state hospitals (30.5% n=61), private hospitals (58.5% n=117) and general practitioners (11.0% n=22) were reviewed which included 1057 medicines and 491 DRPs. Among the 1057 medicines, four medicine doses were incorrect (0.38%), 214 doses were missing (20.3%), 11 medicines frequencies were incorrect (1.0%), 123 frequencies were missing (11.6%), 8 medicine durations were incorrect (0.8%), 86 durations were missing (8.1%), 263 medicines that needed specific instruction for their administration were missing (24.9%) and 146 error-prone abbreviations were identified. There was no significant difference in the prevalence of DRP in private and public sector.

**Conclusions:** DRPs are frequent in prescriptions dispensed in the community. Pharmacists need to review these DRPs, assess the potential seriousness of the DRPs and initiate corrective action.

## PP 38

### **Appropriateness of medication administration and storage among elderly inmates in selected elderly care homes in Colombo District, Sri Lanka**

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**Background:** Improper administration and storage of medicines may harm patients. Elderly inmates residing in elderly care homes, may be more exposed to this danger.

**Objectives:** To identify the prevalence and types of medicine administration and medicine storage errors among elderly inmates residing in selected elderly care homes in Colombo District, Sri Lanka.

**Methods:** A prospective, cross-sectional, multi-centred study was conducted. Elderly care homes were selected through convenience sampling. All mentally stable inmates in the selected settings, with chronic, non-communicable diseases were recruited. Their medication administration practices were directly observed at least once in the morning and once in the night by two researchers, and accuracy of administration was assessed against their most current prescription instructions. Medicine storage practices were also observed in terms of exposure to temperature and sunlight, suitability of container, and adequacy of separation when multiple medicines were used.

**Results:** One hundred inmates in nine elderly care homes were included. Mean age of inmates was 70±10.5 years and most were women (72%). Among 451 medicines, there were 94 medication administration errors. There were 45 inmates with at least one administration error, where 27 were assisted by caregivers and 18 administered medicines themselves. The commonest error was medicine omissions (N=48), followed by wrong dose (N=22), wrong timing (N=15), extra doses (N=7) and wrong frequency (N=2) errors. Wrong drug, wrong dosage form, and wrong route of administration errors were not observed. Among the medicines observed, there were 143 storage errors, where 83 medicines were not properly separated from other medicines when storing, 50 had improper containers, and 10 were exposed to improper temperature and sunlight.

**Conclusions:** Medication administration and storage errors were present among inmates residing in elderly care homes. Services of a dedicated healthcare professional may help to improve quality use of medicines in this population.

## PP 39

### **Measuring safety culture among pharmacists involved in the dispensing process of a selected teaching hospital**

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**Background:** Safety culture is the way patient safety is thought about and implemented within an organization. It is essential to ensure that the medication dispensing takes place in an environment with optimum safety culture since it is a vital step in the treatment process.

**Objectives:** To assess the safety culture, as perceived by pharmacists involved in the dispensing process of a selected teaching hospital in Sri Lanka.

**Methods:** This is a sub-study of an interventional, cross sectional study. An interviewer administered questionnaire, developed in-house based on published literature (and content validated), was administered to all dispensing pharmacists. Safety culture was assessed in terms of six domains; environmental, human, supervision, communication, documentation, and reactions to mistakes. A five

point Likert’s scale was used to obtain responses, and for calculating scores. A composite score was calculated for each question based on the number of participants selecting a particular point of the Likert’s scale, and a mean composite score (MCS) ranging from 1 to 5 was calculated for each domain. Higher scores indicated positive perceptions.

**Results:** All eligible pharmacists (N=19) participated. They had a median service period of five to 10 years and 84% were females. The majority (61.1%) disagreed that environmental factors and documentation practices (94.5%) supported a safety culture (MCS=2 for both) while they agreed that supervisors (77.8%; MCS=4) and other human factors (66.1%; MCS=3) supported adequately. Although 69.2% agreed that there is good communication between pharmacists and patients (MCS=3), 84% disagreed that they spent enough time talking to patients. Only 57% agreed that current practices on reactions to mistakes are adequate for a safety culture (MCS=3).

**Conclusions:** Pharmacists believed that environmental factors, communication with patients, documentation practices, and reactions to mistakes, need improvement to establish a sound safety culture in the dispensing process of the study hospital.

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## **PP 40**

### **Impact of the circular on priority medicines for non-communicable diseases on the availability of medicines in the medical supplies division, Sri Lanka**

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**Background:** A list of priority medicines for Non-Communicable Diseases was issued via a circular by the Ministry of Health in 2013 to improve availability.

**Objectives:** This study looks at the impact of the circular on availability of the medicines included in the list.

**Methods:** Aggregated data was retrieved from the database of Medical Supplies Division from 2012 to 2017. Medicines were classified according to 2015 version of Anatomical Therapeutic Chemical classification and volume was expressed as Defined Daily Doses (DDD) per 1000 population per day.

**Results:** Sixteen medicines were included in the priority list. Regarding availability, atorvastatin increased exponentially (10.92 in 2012, 12.17 in 2014) to 28.74 DDDs in 2017. Adrenaline increased (0.10 in 2012) to 0.19 and aspirin increased (12.61 in 2012, 13.78 in 2014) to 18.09 DDDs in 2017. Enalapril and furosemide reduced from 8.20 and 8.53 DDDs in 2012 to 4.86 and 6.34 in 2014 but increased to 10.31 and 9.21 by 2017 respectively. Hydrochlorothiazide increased (7.80 to 12.15) from 2012 to 2016 but reduced to 9.16 in 2017. Nifedipine SR and atenolol increased markedly from 8.92, 5.51 in 2012 to 9.43, 6.04 in 2016 but declined to 6.71, 1.89 DDDs in 2017 respectively. Sublingual glyceryl trinitrate gradually decreased from 2012 to 2016 (0.71 to 0.65) and further to 0.33 DDDs in 2017. Metformin increased by 1.7 folds (8.25 to 14.63) and glibenclamide decreased by 2 folds (4.92 to 2.56 DDDs) from 2012 to 2017. Hydrocortisone, beclomethasone and theophylline increased from 0.42, 4.63, 1.81 in 2012 to 0.69, 7.81, 2.95 DDDs in 2017 respectively. Salbutamol oral was included in the list, but oral utilization reduced (3.74 to 2.12) while inhaled increased markedly (2.44 to 6.10 DDDs) from 2012 to 2017.

**Conclusions:** The circular had an impact on availability of some critical medicines. The decline of utilization probably reflects changes in guidelines. Therefore circulars may need frequent updating.

#### PP 41

### **Development and validation of a health and pharmacy literacy assessment tool (HPLAT) for Sri Lanka**

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**Background:** General health and pharmacy literacy of patients is essential for safe use of medicines. There is currently no such validated assessment tool for Sri Lankans, and tools developed in other countries cannot be directly translated to our country.

**Objectives:** To develop, content validate, and face validate, a health and pharmacy literacy assessment tool (HPLAT) for Sri Lanka.

**Methods:** We followed the format of the Short Answer Health Literacy Tool–English for health literacy and, an in-house format for pharmacy literacy assessment. The first draft of HPLAT was generated in English through literature survey and in-house discussions (HPLAT-E). A ‘best of multiple choices’ scoring method was used. HPLAT-E was content validated by six healthcare professionals, and face validated by 10 English speaking individuals from the general population.

**Results:** Experts included two clinical pharmacologists, and two academics each in pharmacy, nursing and medical laboratory sciences. Experts agreed on 15 items to assess health literacy, of which 11 were from already validated tools, and four were in-house. Six items were added, one removed, and nine were re-worded from the draft HPLAT-E on expert recommendation. Experts agreed on 21 items (in-house) to assess pharmacy literacy, representing three domains; dosage forms, route of administration, and interpreting medicine label instructions. Experts advised on replacing words by images to represent dosage forms, revising the order of items, removing uncommon/misleading items, and adding two important dosing instructions (12 hrly and once a week). The content validated version of HPLAT-E was administered among 10 participants (mean age of 31(±9.9) years and 60% were females), who scored 33(±1.3) out of 36, and endorsed the tool without further changes.

**Conclusions:** HPLAT English version was developed and validated (face and content) to assess, print, numeracy and oral literacy, related to general health and pharmacy, among Sri Lankans and is awaiting psychometric validation.

#### PP 42

### **Health benefits of endemic plant species *Wrightia antidysenterica* and *Osbeckia octandra***

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**Background:** Up to now, natural products have been a successful source for the development of drugs. For many years natural products have played a major role in human health. Sri Lanka is home to around 3700 floral species and of these, 24% is endemic to the country. Less than 1% of these plants have been scientifically evaluated.

**Objectives:** To determine the health benefits of *Wrightia antidysenterica* (‘Walidda’) and *Osbeckia octandra* (‘Heenbovitiya’) by biological assays.



**Methods:** Dried and finely powered leaves, stem, roots, flowers and the whole plants were subjected to sequential extraction with hexane, dichloromethane and methanol. Anti-oxidant, anti-lipase, anti-amylase and anti-inflammatory assays were carried out to determine the medicinal effects of the endemic plants.

**Results:** We found that the methanol stem extract of *Wrightia antidysenterica* (WA) and methanol whole plant extract of *Osbeckia octandra* (OO) demonstrated the highest anti-oxidant activity compared to butylated hydroxytoluene (+ve control). The IC<sub>50</sub> values for WA were 0.27 mg/mL, 0.20 mg/mL and 0.05 mg/mL, IC<sub>50</sub> values for OO were 0.009 mg/mL, 0.03 mg/mL and 0.04 mg/mL and IC<sub>50</sub> values for butylated hydroxytoluene were 0.11 mg/mL, 0.3 mg/mL, 0.02 mg/mL for DPPH, FRAP and ABTS assays respectively. WA showed good anti-lipase activity similar to orlistat (+ve control). The methanol stem extract (inhibition- 39%) and methanol whole plant extract (40%) of WA showed inhibition similar to orlistat (43%). On the other hand the methanol stem extract (IC<sub>50</sub> 0.31 mg/mL) of WA and methanol whole plant extract (IC<sub>50</sub> 0.19 mg/mL) of OO showed excellent anti-inflammatory activity compared to aspirin (+ve control) (IC<sub>50</sub> 0.59 mg/mL). None of the extracts showed anti-amylase activity.

**Conclusion:** WA demonstrated excellent anti-oxidant, anti-lipase and anti-inflammatory activity while OO demonstrated excellent anti-oxidant and anti-inflammatory activity. Chemical compounds are being isolated and characterized from active extracts.

### PP 43

## Pattern of tobacco smoking and its association with alcohol consumption and other socio economic variables: Preliminary results

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**Background:** Worldwide tobacco smoking is a rising health problem. WHO Report on the Global Tobacco Epidemic (2017) reports 29.4% of Sri Lankan adult males are currently smoking. The effects of mixing tobacco and alcohol can lead to reduced life span, interpersonal problems, and health effects.

**Objectives:** The current study aimed at determining the pattern of tobacco smoking and its association with alcohol consumption and other socio economic variables among a selected sample of adult male tobacco smokers in Colombo District, Sri Lanka.

**Methods:** Consenting current male adult tobacco smokers (n=60), aged 21-56, were randomly selected. Smoking status, smoking frequency, pattern of tobacco use, socio-economic status, alcohol use and alcohol consumption details were collected by using an interviewer administered questionnaire. Data were analyzed using SPSS software.

**Results:** The monthly income of 76.6% smokers was over 30,000 Sri Lankan rupees. The mean daily tobacco smoking frequency was 5.8 (±4.2 SD) cigarettes per day. The majority have smoked filtered cigarettes (n= 55, 91.7%) while the rest used both cigarettes and beedi. The mean monthly expenditure for tobacco was around 8,700 Sri Lankan Rupees (±7200 SD). The majority of the smokers were educated only up to ordinary level (n=52,86.7%). There was a significant association between increased cigarette usage and low education level ( $p<0.05$ ). The majority of the smokers were drivers (n=18,30%) and industrial workers (n=20, 33%). Among the smokers, 90% (n=54) consumed alcohol. The mean monthly alcohol consumption was 3.9 Litres (±4.4 SD).

**Conclusions:** Smoking was common among people with low education level and amongst occupational categories with higher physical demands. Further, alcohol consumption was common among the current smokers and smoking and alcoholism was found to occur concurrently in most smokers. Urgent

measures to address smoking cessation should be implemented with alcohol cessation in the low socioeconomic status populations to decrease the adverse health effects of alcohol and tobacco.

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#### **PP 44**

### **Anxiety provoking situations among medical students during clinical training**

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**Background:** Medical students experience anxiety in multiple situations during clinical training.

**Objectives:** Our objective was to describe perceived level of anxiety and associated factors in various clinical encounters in medical students and its relationship to perceived stress.

**Methods:** This descriptive cross-sectional study was conducted in third, fourth and final year students in Faculty of Medicine, University of Colombo. Students rated perceived anxiety level and reasons for anxiety in 44 situations related to clinical teaching/learning, performing procedures, communication and daily routines in wards. Perceived Stress Scale was used to assess stress levels.

**Results:** Of 337 students, 60.2% were females. Mean age was 24.6 years (SD=1.3). Mean anxiety scores were: clinical teaching/learning encounters 31.5 (SD=6.2, range:15-60), performing procedures 22.0 (SD=6.2, range:11-44), communicating with staff/patients 19.2 (SD=5.4, range:11-44) and daily routines in wards 10.6 (SD=3.2, range:7-28). Highest anxiety provoking situations were performing/presenting in front of consultants, endotracheal intubation and helping with a cardiac arrest. Cumulative anxiety score was significantly high in third year [F(2,337)=4.11,  $p=0.012$ ]. Anxiety in performing procedures significantly reduced with advancement in clinical training [F(2,337)=8.76,  $p=0.000$ ]. Anxiety in daily routines was significantly high in third and final years [F(2,337)=6.14,  $p=0.002$ ]. Commonest reasons for anxiety were lack of experience and fear of scrutiny by consultants. Perceived stress level did not differ among batches. Females had significantly high anxiety [t(337)=3.22,  $p=0.001$ ] and stress levels [t(337)=3.31,  $p=0.001$ ]. Positive partial correlation was found between anxiety and stress, controlling for gender and batch ( $r=.326$ ,  $n=337$ ,  $p=0.000$ ).

**Conclusions:** Clinical teaching/learning encounters provoked highest anxiety. Persistence of anxiety in communication and teaching/learning encounters indicate need for interventions. Stress levels had a major impact on determining anxiety among undergraduates.

#### **PP 46**

### **A comparative study of interprofessional education in global health professions education: A systematic review**

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**Background:** The World Health Organization (WHO) and its partners identify interprofessional (IP) collaboration in education and practice as an innovative strategy that plays an important role in mitigating the global health workforce crisis.

**Objectives:** This systematic review was conducted to describe IPE practices in undergraduate and postgraduate education in developed and developing countries.

**Methods:** The PubMed, Embase, Web of Science, and Google Scholar were searched from their inception to January 31, 2016 for relevant studies regarding the development of inter-professional education (IPE) worldwide, IPE undergraduate and postgraduate programs, IP interaction in health education, IPE content, clinical placements, and teaching methods.

**Results:** The total of 65 studies from 41 countries met the inclusion criteria, including 45 studies from 25 developed countries and 20 studies from 16 developing countries. Compared with developing countries, developed countries had more IPE initiatives. IPE programs were mostly at the undergraduate level. Overall, the university was the most common academic institution that provided IPE programs. The contents of the curricula were mainly designed to provide IP knowledge, skills, and values that aimed at developing IP competencies. IPE clinical placements were typically based in hospitals, community settings, or both. The didactic and interactive teaching methods varied significantly within and across universities where IPE programs were conducted. Among all health care disciplines, nursing was the discipline that conducted most of the IPE programs.

**Conclusion:** The results of this review emphasize the need to better elucidate health education policy, implement policies to reduce the inequities in IPE initiatives, and improve the quality and quantity of IPE programs to seek global health equality.

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## PP 47

### Effect of heating and reheating on the antioxidant capacity and polyphenol content of different oils

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**Background:** Use of re-heated oils is a common practice in Sri Lanka. Repeated heating, increase free radicals and decrease antioxidant capacity in oils. Free radicals play a key role in onset and aggravation of non communicable diseases.

**Objective:** To estimate the antioxidant capacity and total phenolic content (phenolics-main antioxidants in plants) of selected edible oil samples at unheated, heated and re-heated stages.

**Methods:** Seven types of oil samples, coconut oil 1 (loosely packed, sold in retail markets), coconut oil 2 (pure, sold in bottles), olive oil, soya oil, sunflower oil, palm oil and *mee* oil (*Madhuca longifolia*) were used at unheated, heated (100 mL boiled for 5 mins) and reheated (re-boiled for 5 mins) stages in the absence of a food material. Antioxidant capacity and total polyphenolic content were determined by 2,2-azinobis-(3-ethylbenzothiazoline-6-sulphonate) radical scavenging assay (expressed in Trolox equivalent antioxidant capacity-TEAC) and Folin-ciocalteu method respectively (n=3/stage).

**Results:** At unheated stage, highest antioxidant capacity was observed in *mee* oil (220.71±5.45 TEACµg/g) followed by olive oil (22.10±2.77 TEAC µg/g) and coconut oil 1 (13.02±2.77 TEACµg/g). Other unheated oils showed negligible antioxidant capacities. Antioxidant capacities of all oils significantly decreased ( $p<0.05$ ) with heating and highest antioxidant capacity was observed in *mee* oil (124.43±4.81 TEACµg/g) followed by coconut oil 1 (7.57±2.10 TEAC µg/g) among heated oils. After re-heating, all oils showed negligible antioxidant capacities except for *mee* oil (86.89±2.77 TEACµg/g). Olive oil showed the highest percentage decrease in antioxidant capacity from un-heated

to heated (163%) and un-heated to re-heated (290%) stage. Unheated, heated and reheated *mee* oil had the highest phenolic content ( $12610.6 \pm 28.8$ ,  $8471.70 \pm 68.0$  and  $7345.91 \pm 78.6$  GAE/100gFW respectively). However in any oil type, significant change ( $p < 0.05$ ) was observed in the phenolic content between unheated and reheated stages. There was a significant positive correlation ( $p < 0.05$ ) between the total phenolic content and antioxidant capacity of oils at all stages ( $r^2 > 0.9$ ).

**Conclusion:** Based on antioxidant capacity and percentage antioxidant reduction, *mee* oil and coconut oil 1 were comparatively safe for re-use.

## PP 48

### **Binding and structural studies of the complexes of type-1 ribosome inactivating protein from *Momordica balsamina* with uracil and uridine**

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**Background:** The ribosome inactivating proteins (RIPs) are N-glycosidases known to cleave specific purine residue from the sarcin/ricin (S/R) loop of the large rRNA which results in the inhibition of protein biosynthesis in the cell. The previous structural studies have shown that RIPs bind specifically to adenine base. It has been further indicated that RIPs recognize the 5' end of mRNAcap structures with  $m^7Gppp^N$  where N is any base.

**Methodology:** The freshly purified samples of type 1 ribosome inactivating protein from *Momordica balsamina* (*MbRIP1*) were lyophilized. The powdered sample of *MbRIP1* was dissolved at a concentration of 20 mg/mL in 20 mM sodium phosphate buffer at pH 7.3. The crystallization experiments were carried out in a 24 well cell culture plates. The 4  $\mu$ L protein drops were equilibrated against a reservoir solution containing 14% PEG-6000 and 200 mM sodium phosphate buffer, pH 7.3 using hanging drop vapor diffusion method. The two compounds, uracil and uridine were dissolved separately in the reservoir solution at concentrations of 50 mg/mL. The crystals of *MbRIP1* were soaked in these two solutions separately. The crystal structures of the complexes of *MbRIP1* with a pyrimidine base, uracil and its nucleoside uridine were determined at high resolutions.

**Conclusions:** The binding studies of *MbRIP1* with compounds, uracil and uridine indicated affinities in the range of  $10^{-6}$  M to  $10^{-7}$  M. The structures showed that both compounds bound to *MbRIP1* at the substrate binding site. The orientation of uracil in the cleft was found to be different from that of adenine or guanine indicating a difference in the mode of binding of purine and pyrimidine bases. Since, adenine containing nucleosides/nucleotides work as substrates, the uracil containing nucleosides/nucleotides seem to act as inhibitors.

## PP 49

### **Knowledge on non-communicable diseases among selected occupational categories in a rural area in Sri Lanka**

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**Background:** Knowledge and awareness regarding non communicable disease (NCD) risk factors in a population is essential in preventing these diseases. Based on level of education and income; different occupational categories have different level of knowledge on NCDs.

**Objectives:** To identify the level of existing knowledge in different occupational groups in Anuradhapura Municipal Council area in Sri Lanka

**Methods:** Study was a self-administered questionnaire (WHO STEPwise approach to chronic disease risk factor surveillance) based cross sectional study (ERC/2016/71) conducted with government school teachers, government nurses and policemen/women.

**Results:** Teachers (n=32), nurses (n=30), policemen/women (n=27) were recruited (males=34; females=55). A family history of NCD was present in 71% (hypertension 38%, diabetes 40%, heart attacks 10%, chronic kidney disease 7%). From the population, 93%, 100%, 85% of teachers, nurses and policemen/women respectively knew that NCD cannot spread between people. Almost 17%, 10%, 29% and 20%, 7%, 59% of teachers, nurses and policemen/women were not aware that the family history has a relationship with CVD and DM respectively. Tobacco use as a risk factor for NCDs was not known by 15% of policemen/women. Almost 100% of teachers and nurses and 90% of policemen/women knew high salt consumption triggers hypertension and stress is a risk factor for NCDs. Almost 26% of policemen/women was not aware that reuse of certain cooking oils is not a good health practice. Recommended minimum time for exercises/day/person was not known by 31%, 20% and 37% of teachers, nurses and policemen/women respectively. Further, 7% nurse, 52% teachers and 78% policemen/women did not know the normal range of BMI for Sri Lankans. Furthermore 4%, 70% and 4% of teachers, nurses and policewomen knew very well and 30% and 21% of policewomen and teachers knew nothing about self breast examination. 50%, 25% of policewomen and teachers did not know anything on cervical cancers and pap smear test. Only 5 of the whole population were unaware about “well women clinic”.

**Conclusions:** Compared to teachers and nurses, policemen/women had a lower knowledge on NCDs.

## PP 50

### **Knowledge, attitudes and practice regarding contraceptive methods among the female garment factory workers in Katunayake free trade zone**

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**Background:** Contraception is the prevention of pregnancy by interfering the process of conception. Information on knowledge, attitude and practice regarding contraceptive methods among garment factory workers are scanty. Therefore, it is vital to study on the above as an attempt to reduce abortion related maternal deaths and unintended pregnancies among garment factory workers.

**Objective:** To determine knowledge level, attitudes and practices regarding contraceptive methods among garment factory workers in Katunayake Free Trade Zone.

**Methods:** A cross sectional study was conducted in Free Trade Zone, Katunayake, with 426 female garment factory workers who were between 15-45 years. Data was collected using a pre-tested self-administered questionnaire.

**Results:** The majority 90.4% (n=348) were Sinhala, Buddhist (86.5%, n=333). The educational level of 43.4% (n=167) workers was up to O/L. More than half of the participants (52.5%, n=202) were married. The overall knowledge on contraceptive methods was poor (57.7%, n=222). Participant had more knowledge on temporary methods compared to permanent methods. Participants had good knowledge on Oral Contraceptive Pills (OCP) (21.8%, n=84) and condoms (20.5%, n=79) relative to other methods. The knowledge on implants, LRT and vasectomy was very poor. Nearly half (53%,

n=204) of participants had neutral attitudes on contraceptive. When considering about the contraceptive practice, OCP was the most common (37.6%, n=76) method and the second highly used method was male condoms (26.2%, n=53). There was a significant association between age ( $p=0.000$ ,  $p=0.041$ ,  $p=0.004$ ) and marital status ( $p=0.000$ ,  $p=0.049$ ,  $p=0.000$ ) with level of knowledge, attitude and practice on contraceptive methods respectively. It was identified that health care professionals were the sources of information for the majority of this study (73%, n=282). The other most common method was books, magazines and leaflets (15%, n=61).

**Conclusions:** The knowledge on contraceptive methods was poor while the majority had neutral attitude towards contraceptive methods and practiced modern temporary contraceptive methods.

## PP 51

### **A feasibility study to develop a rapid method to measure erythrocyte sedimentation rate among patients in Apeksha Hospital Maharagama, Sri Lanka**

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**Background:** Erythrocyte Sedimentation Rate (ESR) is a laboratory investigation for assessing inflammatory or acute response associated with bacterial infections, malignant and autoimmune diseases. ESR is the measurement of the rate of fall of a column of red cells in plasma within 1 hour. The routine recommended Westergren method for ESR estimation is relatively simple and cheap, but time-consuming and requires a relatively large blood volume. Therefore finding an alternative ESR method is needed.

**Objectives:** To introduce a rapid ESR method using less blood volume.

**Methods:** The leftover blood samples collected for conventional ESR investigation from 94 patients of Apeksha Hospital were used. With a special apparatus capillary vertical and capillary angle ESR was done for the sample. Results were recorded at 5 minute intervals in the capillary vertical method and at 1 minute intervals in the capillary angle method. Statistical analysis was performed to define correlation between the two methods with Westergren method.

**Results:** The highest significant correlation between the Westergren method results and the capillary vertical method was seen at 35th minute ( $r=0.806$ ). A regression equation was derived to estimate conventional ESR results using capillary vertical method results and a direct association was observed between the two variables ( $r=0.927$ ). The results of capillary angle method shows a fairly good correlation ( $r=0.6$ ) with Westergren results from 5 to 15 minutes. A regression equation was obtained to estimate conventional ESR results using capillary angle method results.

**Conclusions:** This study was designed to establish capillary vertical and capillary angle methods as alternative methods for ESR Westergren method. Capillary vertical method takes 35 minutes and is time consuming, but 5<sup>th</sup> minute results of capillary angle method could be suggested to be used in emergency situations. However, prior to establishing the method as a method of testing a large sample cohort representing a wide range need to be carried out.

## PP 52

### Surface modification of super-paramagnetic magnetite nano particles for bio-conjugation

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**Background:** Unique structural and functional properties of iron oxide nanoparticles (IONP) have become important in most biomedical applications such as laboratory diagnostics, therapeutics and targeted drug delivery. These applications require magnetic IONP to be essentially non-toxic and bio compatible. In order to achieve bio-compatibility, these magnetic IONP required to be coated with appropriate polymers or inorganic materials.

**Objectives:** To synthesize super-paramagnetic IONPs modified with Polyethylene glycol (PEG) and Rhodamine B (Rh) fluorescent dye.

**Methods:** Magnetite (Fe<sub>3</sub>O<sub>4</sub>) nanoparticles were synthesized by co-precipitation of Iron (II) chloride tetrahydrate and Iron (III) chloride maintaining Fe<sup>2+</sup>:Fe<sup>3+</sup> molar ratio 1:2 in the presences of a basic solution. X-Ray diffraction (XRD) spectroscopy and Fourier-transform infrared spectroscopy (FTIR) were conducted to confirm chemical and physical properties of synthesized nanoparticles. Verified Fe<sub>3</sub>O<sub>4</sub> nanoparticles were coated with PEG and subsequent modification with Rh as the fluorescent material was carried out.

**Results:** The crystal structure of synthesized nano particles was investigated by XRD. The XRD pattern of the sample matches well with the standard XRD graph of Fe<sub>3</sub>O<sub>4</sub> with six characteristic peaks for Fe<sub>3</sub>O<sub>4</sub>. Reduced particle size can be observed by the increased intensity of the peaks due to prevention of aggregation of nanoparticles. Acquired FTIR spectrums suggested PEG- Fe<sub>3</sub>O<sub>4</sub> *via* its carbonyl groups and conjugated aromatic ring of Rh. Thus, successful surface modification of PEG coated Fe<sub>3</sub>O<sub>4</sub> nanoparticles with fluorescent material, Rh was confirmed by XRD and FTIR.

**Conclusions:** In this study, PEG coated super-paramagnetic magnetite (Fe<sub>3</sub>O<sub>4</sub>) nanoparticles were successfully modified with Rh. Bio-conjugation of Rh-PEG- Fe<sub>3</sub>O<sub>4</sub> nanoparticles can be achieved by making use of the functional groups of polymer surface. These bio-conjugated super-paramagnetic iron oxide nanoparticles can be further improved as florescent detection probes.

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## PP 53

### Knowledge and attitude regarding stress coping strategies among advanced level students in a national school of Sri Lanka

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**Background:** Stress is the way that our body responds to the demands made upon us by the environment, our relationships and our perceptions and it affects people’s behavior, communications, healthy life and efficiency of the students.

**Objectives:** To identify the stress level according to subject stream among advanced level students, to describe the knowledge about stress coping strategies among advanced level students and to identify the attitudes regarding stress coping strategies among advanced level students.

**Methods:** Descriptive cross sectional study was done in A/L students (Grade 12 and 13) in Sri Rahula National School-Alawwa during 26<sup>th</sup> of October 2015 to 30<sup>th</sup> of October 2015 by using convenience sampling method. To measure the perceived stress “perceived stress scale” was used. 384 of Advanced Level students including those who are in GCE(A/L) classes including four main subject streams in selected school excluding students who were not willing to participate and who were not present on data collection date participated. SPSS 21 version was used to analyze the data.

**Results:** Mean stress level is  $17.28 \pm 5.98$  (SD). More students have moderate level stress 170 (45.9%) and moderate level of knowledge about the stress and stress coping strategies. Significantly high level of stress was observed among those who have siblings  $\geq$  two ( $p=0.015$ ). There was a highly significant ( $p=0.000$ ) knowledge level observed with female students. The majority of students had favorable attitudes 319 (86.2%). With regard to attitudes and associated factors those who had free time possessed favorable attitudes ( $p=0.004$ ) and those who had higher stress possessed favorable attitudes ( $p=0.01$ ).

**Conclusions:** Although stress level of most A/L students were moderate, the majority of them possess favorable coping strategies.

## PP 54

### **The effect of bilirubin on estimation of creatinine in buffered saline solution: A comparison between Jaffe reaction and creatinase enzymatic method**

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**Background:** Jaffe reaction is used world-wide in serum creatinine determination, but, Jaffe reaction is affected negatively by bilirubin. Therefore, it is important to compare Jaffe reaction and creatinase method as it has been reported that creatinase method is more accurate though it is of relatively high cost.

**Objective:** To estimate and compare the creatinine in buffered saline solution with different bilirubin concentrations using Jaffe reaction and creatinase enzymatic method.

**Methods:** Ten different creatinine concentrations and eleven different bilirubin concentrations were prepared by using standard solutions of creatinine in buffered saline solution and bilirubin with the concentrations of 20 mg/dL and 60 mg/dL, respectively. Each creatinine concentration of the gradient was spiked with eleven different bilirubin concentrations to obtain 110 different combinations of creatinine and bilirubin concentrations. After spiking, the creatinine and bilirubin concentrations in the final matrix were 0,1,2,3,4,5,6,7,8,9 mg/dL and 0,3,6,9,12,15,18,21,24,27,30 mg/dL, respectively. The total bilirubin, creatinine concentration by Jaffe reaction and creatinase kit method were determined by Indiko™ Clinical and specialty Chemistry System. Prior to specimen analysis the analyzer was calibrated for bilirubin, Jaffe reaction and creatinase method. Statistical analysis was done by linear regression analysis.

**Results:** Jaffe reaction showed a significant underestimation in creatinine concentrations of 0,1 and 2 mg/dL with all the bilirubin concentrations. From 3 mg/dL onwards, a significant overestimation could be observed with high bilirubin concentrations. The minimum bilirubin concentration required for overestimation varied with the creatinine concentration. According to the creatinase method, as the bilirubin concentration increases a significant underestimation was given by creatinine concentrations above 1 mg/dL. The lowest bilirubin concentration needed for creatinine underestimation varied with



the creatinine concentration. The underestimation observed with increased bilirubin concentration was increased when creatinine concentration of the standard solution increases.

**Conclusions:** Creatinase method is better compared to Jaffe reaction in the determination of creatinine in buffered saline solution with the concentration of  $\leq 1$  mg/dL.

## PP 55

### **Electronic device usage among children: A descriptive cross sectional study among a selected group of children**

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**Background:** Electronic devices (ED) which interconnect people have become an essential need. Children's and adolescents' recreational activities are mostly confined to the usage of such devices. Acquiring and sharing knowledge is the main advantages of the ED and it also helps to develop hand eye coordination and concentrating power. However, over usage without supervision can lead to disastrous consequences.

**Objectives:** To identify the prevalence of usage of ED among a selected group of children.

**Methods:** Descriptive study among children who attended Colombo South Teaching Hospital.

**Results:** Total sample was 330. The age range was 4-12 years. There were 172 males (52.1%). Most (87.8%) of them study in the Sinhala medium. Out of them 322 were watching television (97.5%) and 260 (78.7%) were using mobile phones. Some form of computer usage was 27.8% (n=95) seen. The most popular TV programs were Sinhala dubbed cartoons (84%). Other than mobile phones, they used game and watch consoles (n=40) and Tablets (n=20). Except 02, others have not even heard about the expensive game consoles like Play Stations and Nintendo. Most of them used these hand held devices to play games, while 20% have used them to enjoy music. In 20% they had spent >1hr/per day with these devices. According to parental perception the academic activities were affected mildly but physical activities were affected significantly.

**Conclusions:** Electronic devices have influenced the life style of many children. To get a better picture more extensive data collection and assessment should be arranged.

## PP 56

### **Characteristics of *Salmonella* bacteraemia in a tertiary care center, Sri Lanka**

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**Background:** *Salmonella* causes one of the commonest food borne diseases in the world ranging from gastroenteritis to enteric fever and severe extra-intestinal complications. *Salmonella* bacteraemia needs prompt medical attention with correct treatment.

**Objectives:** To study the epidemiology, different presentations and the outcome of *Salmonella* bacteraemia.

**Methods:** Retrospective analysis of laboratory records on *Salmonella* bacteraemia was carried out from January 2015 to December 2017 in the teaching hospital Karapitiya, Sri Lanka. Clinical information was obtained from the bed head tickets. Repeatedly positive blood cultures from the same patient were excluded.

**Results:** There were 27 cases of *Salmonella* bacteraemia during the period. The majority (56%) were females. Age ranged from one month to 95 years including 22% of less than 1 year, 37% of 1-12 years age, and 33% of >40 years age. There were 8 (30%) *Salmonella* serotype Typhi, one Paratyphi A and 67% non-typhoidal *Salmonella* isolates from positive blood cultures and 21 (78%) cultures were flagged positive by the automated machines within 24 hours. All isolates were sensitive to ceftriaxone while 26% were fluoroquinolone resistant. Patients presented with gastroenteritis (33%), enteric fever (33%), intra-abdominal sepsis (19%), pyelonephritis (7%) and meningitis (7%). *Salmonella* serotype Typhimurium caused majority of non-intestinal cases (22%). Bacteraemic patients (63%) often presented with normal total white cell count (WCC) but 7% suffered from leucopenia (<2x10<sup>9</sup>/L) while 30% had WCC more than the normal range. Associated co-morbidities like cirrhosis (7%), malignancy (7%), chronic renal disease (7%) and others were present in 33% of total cases. Three were cared in the intensive care unit and one died. There was only one relapse.

**Conclusions:** *Salmonella* bacteraemia can present in any age but extremes of age seem more affected. *Salmonella* can cause different presentations and the blood culture could be the most important and fastest method for the definitive diagnosis.

## PP 57

### **Knowledge, practices and perception on hospital acquired infections of nursing undergraduates in University of Ruhuna and University of Peradeniya**

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**Background:** Hospital acquired infections (HAIs), also called nosocomial infections are one of the major challenges faced by hospitals in Sri Lanka. All healthcare workers, especially the nurses hold a significant responsibility in preventing the occurrence and spread of these infections. Hence it's important for them to have a good level of knowledge and attitudes since the foundation years of their career.

**Objectives:** To assess the knowledge on HAIs of nursing undergraduates in University of Ruhuna (UOR) and University of Peradeniya (UOP) and describe their attitudes on practicing prevention methods at the ward setup.

**Methods:** A descriptive cross sectional study was conducted with the participation of 226 nursing undergraduates from UOR and UOP. Their knowledge and attitudes were assessed using a self-administered questionnaire. This questionnaire was developed by referring literature on similar studies conducted worldwide and obtaining assistance from senior medical officers/teachers. A pilot study was conducted on fifty undergraduates to assess the precision of the questionnaire.

**Results:** Out of the 226 participants only two students (0.88%) did not know what HAIs are and six (2.6%) did not know the methods of spreading HAIs. Eight (3.5%) undergraduates were not aware how to use universal precautions to minimize the spreading of HAIs. In assessing the attitudes of the undergraduates, 19.9% of them did not believe it's a serious health issue and 35.4% believed it's not the nurses responsibility to prevent these infections. 10.6% believed it's only the duty of the nurses to prevent the HAIs. 21.7% nursing undergraduates were of the perception that hand washing is not important if the gloves are being used.

**Conclusions:** Though students from all four academic years in both universities had a fairly good knowledge on HAIs, implementation of their knowledge in the clinical setting was unsatisfactory.

Encouraging the nursing undergraduates to practice prevention methods within the wards and assessing the barriers for implementing these practices is important.

## **PP 58**

### **Quality of Life (QOL) among low income families in hill country, Sri Lanka**

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**Background:** Quality of Life (QOL) is defined as a concept that addresses health and welfare. It focus on the satisfaction of the life. Dimensions of QOL are housing, physical environment, safety, social relationship, education, financial & job security, infrastructure facilities, and health. There is a paucity of research evidences on the measurements of the QOL among residence low income families of hill country, Sri Lanka.

**Objectives:** Study was planned to assess the QOL among low income families in Gangawatakorale MOH area and the impact of the physical environment, infrastructure facilities and health and wellbeing towards the QOL.

**Methods:** Cross-sectional community based survey was carried out as two parts, descriptive study followed by structured observational study. Systematic random sampling method was used. A total number of 24 families were assessed. Data collection was done through interview administered questionnaire and validated observational guideline. Observational study assessed quality of housing, physical environment and infrastructure facilities.

**Results:** According to the calculated overall QOL score, Mean=  $35.67 \pm 7.98$ , and grade wise, 54.1% (13) families poor, 29.1% (7) families in moderate QOL and only 16.6% (4) families showed satisfactory QOL level. From the Chi-square test, significant association was identified between family type and physical environment ( $df=3, p=0.012$ ), infrastructure facilities ( $df=3, p=0.021$ ) and health & well-being ( $df=3, p=0.023$ ).

**Conclusion:** Main conclusion is QOL of low income families in Gangawatakorale MOH area was poor. Comparatively, nuclear families presented high QOL score than extended families. Structural community health program is needed to improve their QOL in every aspect and to determine their issues further.

## **PP 59**

### **Validate the effectiveness of session plan for simulation mediated teaching in undergraduate nursing education**

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**Background:** Simulations are effective education complements for, demonstrating, performing and improvement in knowledge, skills and attitudes among health professionals. Implementing a standard lesson planning for simulation sessions is crucial to enhance student centred learning.

**Objective:** Developing and validating effectiveness of a session for simulation mediated teaching in undergraduate nursing education for selected procedure (wound dressing procedure).

**Methodology:** Study was carried out at the Department of Nursing, University of Peradeniya. Planning phase of the simulation session on wound dressing was based on five steps following setting objectives, obtaining student support, applicability of simulation and fidelity, ability of problem solving of students,

and debriefing of the lesson followed by Jeffrey model for simulations. Planned session was piloted with the group of 36 students registered in 2<sup>nd</sup> year 2<sup>nd</sup> semester. Opinions of the students were obtained.

**Results:** Case scenario on wound dressing was developed based on expert opinions. Learning objectives were identified. Information and instructions regarding practical was delivered. Low fidelity simulations were used for demonstrations. Cues were provided during the practical sessions to improve the critical thinking ability. Increase in the knowledge, skills and practices of the learner and level of achieving learning objectives were discussed under the step of problem solving. In the step of the debriefing both lecturer and the students reflect about the session by giving clinical reasoning. Constructive feedback was initiated and teacher facilitated group discussions. Clarity of the session, level of understand ability, student engagement was strongly agreed with the session plan.

**Conclusion:** It was identified that session planning is effective in implementing the student centered learning. Repetitive practice and the provisional feedback improve the effectiveness of the session.

## PP 60

### Association between malaria and living conditions in Kataragama Medical Officer of Health (MOH) area

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**Background:** Existence of malaria has shown to be associated with socio-demographic and environmental factors. Research on this relationship is not adequately studied in Sri Lanka.

**Objectives:** To describe associations between malaria case incidence and selected living conditions of the population in Kataragama Medical Officer of Health (MOH) area from year 1990-2015.

**Methods:** Household survey was conducted from May-September 2015 in a multi-stage cluster sample of 724 households. An interviewer-administered questionnaire was used to collect data, both current and retrospective (1990 to 2015), on household living conditions including house types and sanitary facilities available. Efforts were made to minimize recall bias. Households were categorized into 5 types using a scoring system, where type 1 to 5 represented poorest to best-type. Malaria case incidence was obtained from Malaria Research Station, University of Colombo and Anti-Malaria Campaign. Associations were analyzed between possible factors and malaria incidence using Pearson correlation.

**Results:** Response rate was 95.02%. Thirty nine percent of houses were type 1 in 1990-1994 period however, the proportion gradually decreased to 1.6% in 2015, whereas the type 5 increased from 49% to 92%. Households with electricity (31% to 94%), pipe-borne water (34% to 84%) and water-sealed sanitary facilities (45% to 96%) gradually and steadily increased from year 1990 to 2015. Malaria case incidence decreased from 8.41 (year 1991) to 0.91 (year 2002) per 100 population and declined to zero by 2005. While poor house construction ( $p=0.029$ ), using surface water for domestic use ( $p=0.031$ ) and having unsealed/open sanitary facilities ( $p=0.015$ ) were significantly associated with malaria case incidence; better house construction ( $p=0.03$ ) and having water sealed sanitary facilities ( $p=0.015$ ) were significantly negatively associated. Although having pipe-borne water and availability of electricity were negatively associated with malaria, these associations were not statistically significant ( $p>0.05$ ).

**Conclusions:** Improvement of living conditions were seen to be negatively associated with malaria case incidence during this period.

**Acknowledgement:** This work was supported by the World Bank, HETC-QIG-W3 project, Faculty of Medicine, University of Colombo (Research Grant No: HETC/QIG/W3/Medicine-TOR7. I)

## **PP 61**

### **Breast cancer awareness, attitude and practice of breast self-examination among female school teachers in Katuwana educational division in Southern Province of Sri Lanka**

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**Background:** Breast cancer is the most common cancer among women in Sri Lanka. Many breast cancer patients die early, since it is diagnosed late. It is important to make the general public aware of breast cancer for early detection. School teachers are considered an educated group who are resourceful for guidance. Studies in other countries have found inadequate knowledge, attitudes and practices on breast cancer among school teachers.

**Objectives:** The purpose of the study was to describe knowledge, attitudes towards breast cancer and practices of breast self-examination among female school teachers.

**Methods:** This descriptive cross sectional study was conducted among a convenience sample of 173 female school teachers from randomly selected eight Government schools in Katuwana division using a pre-tested self-administered questionnaire developed through literature and expert opinion. Ethical approval was obtained. Data were analyzed using SPSS version 20.0.

**Results:** The majority of participants was above 40 years (64.8%), married (82.7%) and degree holders (48.8%). Most participants knew that breast cancer is common among females (98.8%). The majority was aware of symptoms such as a hard mass fixed (81.5%), blood stained nipple discharge (76.3%) and nipple retraction (63.6%). Awareness of risk factors related to age of puberty (11%), age of having first child (29.5%), late menopause (35.8%), weight gain after menopause (23.7%) and directions of palpating the breast (24.9%) was inadequate. The majority had positive attitude towards performing breast self-examination (89.1%) and improving knowledge on early detection (83.8%). Although 87.9% have heard about breast self-examination, only 23.1% had practiced it regularly while 36.4% had never practiced.

**Conclusions:** Most participants were knowledgeable of symptoms of breast cancer but deficiencies were found in some areas. Although positive attitudes were evident towards breast self-examination, self-reported practice was inadequate. Awareness programmes for school teachers would enable early detection of breast cancer in the generations to come.

## **PP 62**

### **Mothers' preference for infant body size and weight gain patterns in a suburban area in the Colombo District**

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**Background:** Body size of an infant at a glance, is an apparent indicator of growth as well as overall good health. Growth pattern on the weight for age chart on the CHDR (Child Health Development Record) shows the trend in weight gain of the infant and is useful to predict the body size of an infant in the months to come. Mothers of infants who appear well grown are seen as ideal mothers both by health workers and society at large.

**Objectives:** The objective of this study was to determine the preferred weight gain patterns and the body size of infants by mothers.

**Methods:** A descriptive cross sectional study was conducted at selected child welfare clinics in the Piliyandala Medical Officer of Health (MOH) area. Mother-baby pairs of infants over 6 months comprised the study population. These mothers were shown a series of weight gain patterns on the CHDR and a series of photographs of 1 year old infants graded from thin to fat according to their weight for age chart in CHDR and were asked to select their preferred pattern/s and photograph/s.

**Results:** A total of 189 mother baby pairs were interviewed. Out of the 6 growth patterns shown, a pattern showing a low birth weight (LBW) baby showing rapid weight gain pattern in the weight for age chart in the CHDR was preferred by 69.8% of mothers to a growth pattern showing slow but steady weight gain of the same LBW baby (21%). A large proportion (44.4%) of mothers preferred infants who appeared fat, while only 34.4% preferred a normal sized infant.

**Conclusions:** Mothers seem to appreciate weight gain patterns which show accelerated weight gain and prefer a fat baby to a normal sized or thin baby. There is a need to address this issue considering the long term consequences of rapid weight gain in infancy.

## PP 63

### Determination of the antimicrobial and antioxidant activities of garcinol capped silver nanoparticles

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**Background:** Garcinol is a polyisoprenylated benzophenone derivative isolate from some plants of Clusiaceae family. It shows extensive range of biological activities and is been used to treat for various human diseases. In addition, garcinol can be used as a reducing and capping agent to produce silver nanoparticles.

**Objectives:** The objectives of this study were to determine the antimicrobial and antioxidant activities of garcinol capped silver nanoparticles (G-AgNPs).

**Methods:** Garcinol was isolated from the dried fruit rinds of *Garcinia quaesita* Pierre and characterized through UV-visible spectroscopy, Nuclear Magnetic Resonance (NMR) and Fourier transform-infrared (FTIR) spectroscopy. G-AgNPs were synthesized with silver nitrate by using garcinol as the reducing agent. G-AgNPs were characterized by UV-visible spectroscopy, FTIR spectroscopy and Transmission Electron Microscopy (TEM). Antimicrobial activity was tested against seven microbial species including *Staphylococcus aureus* (ATCC 25623), *Pseudomonas aeruginosa* (ATCC 27853), *Escherichia coli* (ATCC 25922), *Candida albicans* (ATCC 10231) and clinical isolates of Methicillin Resistant *Staphylococcus aureus* (MRSA), *Acinetobacter baumannii*, *Klebsiella pneumoniae* using well diffusion assay. Antioxidative activity was determined through 1,1-diphenyl-2-picrylhydrazyl (DPPH) assay.

**Results:** G-AgNPs were confirmed by UV-vis as having a maximum absorbance at 418 nm wavelength. TEM imaging revealed 20 nm spherical shaped nanoparticles. G-AgNPs had mean zones of inhibition against *Staphylococcus aureus* (15.5 mm), MRSA (14 mm), *Pseudomonas aeruginosa* (11 mm) and *Candida albicans* (15.3 mm). G-AgNPs gave an EC<sub>50</sub> value of 0.048 Lg/ml by the DPPH assay.

**Conclusions:** Garcinol show higher antimicrobial activity to the tested gram positive bacteria and the *Candida* species. Further, G-AgNPs displayed antioxidant activity.

**Acknowledgement:** This work was supported by the research grant funded by the University of Sri Jayewardenepura (Research Grant No: ASP/01/RE/SCI/2017/19).

#### **PP 64**

### **Knowledge, attitude and practices of dietary management among ischaemic heart disease patients treated at Teaching Hospital Karapitiya, Sri Lanka**

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**Background:** Ischemic heart disease (IHD) has become a major cause of deaths in the world. Unhealthy dietary pattern is an indirect risk factor for IHD. Assessing about the knowledge, attitude and practices about dietary management is important to evaluate and plan programs to prevent these unnecessary deaths due to IHD.

**Objectives:** To evaluate the knowledge, attitude and practices in dietary management among IHD patients.

**Methods:** A cross sectional study was carried out using 150 patients with IHD. Data collection was done by using an interviewer administered questionnaire. Scoring system was used to assess the knowledge, attitudes and practices. Data were analyzed using the SPSS version 20.

**Results:** Out of 150 patients 40% had good knowledge about the disease and 45.3% had good knowledge about dietary management. Fifty-one percent of the sample was willing to change their dietary pattern however only 27% agreed to reduce their salt intake. Both knowledge and attitude about dietary management have significant relationship between the level of education ( $p < 0.001$ ) and monthly income ( $p < 0.001$ ). There was a significant relationship between fruits and vegetables usage and level of education ( $p < 0.001$ ), monthly income ( $p < 0.001$ ) and nationality ( $p = 0.002$ ). Even after diagnosis of the disease a significant proportion (62%, 43% and 87% - salt, fat and fruits and vegetable intake respectively) did not change the dietary habits.

**Conclusions:** The patients had an average knowledge regarding the disease condition and its dietary management. However, their attitudes and the practices were poor. Special programs to emphasize the importance of dietary management are needed.

#### **PP 65**

### **Identification and control of black colour speck fungal formation in virgin coconut oil**

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**Background:** Virgin coconut oil (VCO) is one of the major exported edible oil in Sri Lanka. Nowadays this industry faces numerous problems including fungal contaminations which leads to black colour speck formation.

**Objectives:** This study was carried out to distinguish the type of fungal growth and for determination of a remedial action to overcome afore said issue.

**Methods:** VCO was extracted by cold press method and subjected to eight treatments. Efficacy of treatments were evaluated in terms of changes in microbial properties [yeast and mould count (YEC) and aerobic plate count (APC)], physicochemical properties [moisture and volatile matter % at 105 °C (MV), specific gravity at 30 °C (SG), saponification value (SV), iodine value (IV), peroxide value (PV),

acid value (AV), relative fatty acid profile (RFAP) by gas chromatography and free radical scavenging activity (DPPH assay)] along with a non-treated sample.

**Results:** The results revealed that the presence of *Aspergillus sp.* as the black colour speck in VCO and among those treatments the VCO subjected to 65°C, 253.7 nm UV radiations for 60 seconds combination (T7) was identified within the APCC standards. It was observed 0 CFU/mL in YEC, 15 CFU/mL in APC, 0.12±0.01 in MV % and 0.9194 ± 0.00 in SG. Under the chemical parameters IV, SV, PV and AV were obtained as 5.52±0.37 mg/g, 263 ±0.16 mg KOH/g, 2.96±0.02 mEq/Kg and 0.14±0.04 mg/g respectively. The T7 sample had a higher lauric acid percentage (50.5 ±0.01) compared to the non-treated (T1) sample (49.7±0.001). Lower EC<sub>50</sub> value was noted for T7 (0.327±0.001 mg/L) compared to T1 (0.337±0.001 mg/L) sample.

**Conclusion:** Relatively, the present results suggest that combination of heat, UV radiation with time has significant influence on retarding the black speck formation in VCO.

## PP 66

### Introduction of skills inventory sustainable model to the health sector

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**Background:** Researching skills in un- skilled employee categories is a novel and challenging mission in the Sri Lankan Health Sector. Managing Human resource for health and maintaining infrastructure of the health facility which is conducive to patient care is an identified need and a challenge.

**Objectives:** The purpose of this intervention was to assist health managers to develop and maintain employees' skills inventories, thereby reducing the cost of health care-services and to improve efficiency by saving lead-time of getting various things done.

**Methods:** Base Hospital, Homagama is a middle level curative state health sector institution. As a pilot study this setting was selected due to convenient accessibility. During the study period, a survey questionnaire was introduced to minor employees at Base Hospital, Homagama. Respondents were asked to provide information on their experiences in skills for profiling and developing skills inventories. Qualitative assessment was done with Managerial staff during pre-assessment and post assessment on utilising the skills base.

**Results:** During the study period, a survey questionnaire was introduced to approximately 170 minor employees at Base Hospital, Homagama and 127 responded (74%). The output of the study was a data base, skills competency matrix, individual database for skills and organisational skills at a glance. A training road-map was developed which ensured sustainability of the skills inventory maintaining.

**Conclusions:** Study done at Base Hospital, Homagama revealed the absence of a formal mechanism for tracking skills as confirmed by the employees. Managers collectively agreed on gaps seen in soft skills including communication skills, team work skills and job related hard skills. However, at the skill audit it was found that employees were having more soft skills.



**PP 67**

**The prevalence of anxiety, stress and associated factors among undergraduates in the Faculty of Medical Sciences, University of Sri Jayewardenepura**

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**Background:** Anxiety and stress are two interrelated experiences that everyone encounters at once or more in good or bad times in the life. Ignoring the experiences may affect with mental health of the person. University students’ mental health is an increasing concern worldwide.

**Objectives:** To determine the prevalence of anxiety, stress and associated factors among undergraduates in Faculty of Medical Sciences, University of Sri Jayewardenepura.

**Methods:** A cross sectional study was conducted among a convenient sample of students in the Faculty of Medical Sciences. Anxiety and stress scale (DASS21) was used to assess stress and anxiety levels of the respondents who consented to participate in the study. Analysis was done using SPSS version 23.

**Results:** Mean age of the sample (n=397) was 24.1 years (SD±2.5). Half (61.0 %) of the respondents had a normal level of stress while 15.1%, 8.1% of respondents presented moderate and severe levels, respectively. The majority of the respondents (45.8%) presented with normal level of anxiety while 20.2%, 8.3%, 14.6% respondent presented with moderate, severe and extremely severe level of anxiety. Results showed a significant positive relationship between stress and anxiety ( $r=0.644$ ,  $p<0.001$ ). Age, gender, academic year and monthly income of the family were factors significantly associated with stress while age and academic year were factors significantly associated with anxiety.

**Conclusions:** Stress and anxiety are highly prevalent in different levels among undergraduates in the Faculty of Medical Sciences. Age, gender, academic year and monthly income were the significantly associated factors. Necessary interventions to reduce stress and anxiety are vital to limit mental health issues among undergraduates.

**PP 68**

**Maternal knowledge and practice related to usage of oral suspensions (Paracetamol and antibiotic) for common childhood illnesses in semi urban area, Colombo District, Sri Lanka**

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**Background:** Antibiotics and paracetamol are widely used medicines among children. Most of them are suspensions supplied in liquid form or in dry powder form for reconstitution. As the primary care giver, mothers face many challenges to during administration of these medications to their children in a safe and effective manner.

**Objectives:** To evaluate maternal knowledge and practices related to usage of oral suspensions (paracetamol and antibiotic) for common childhood illnesses in two selected MOH areas.

**Methods:** A descriptive cross-sectional survey was carried out among mothers who attended MOH clinics in Boralassgamuwa and Dehiwela areas over a five month period, using a pretested interviewer administrated questionnaire.

**Results:** Total number of 401 mothers participated. Mothers’ knowledge and practices regarding dose measuring, storage, strength etc were evaluated. Out of them 21.7% (n=87) used good practices (90%-100% of score) and 8.5% (n=34) had good knowledge (65%-100% of score) related to oral suspensions. Though the maternal age did not show significant association with knowledge ( $p=0.792$ ) and practice ( $p=0.064$ ), maternal educational level showed a significant association with knowledge ( $p=0.000$ ) and practice ( $p=0.000$ ). Out of them 69.8% used correct practices during reconstitution. Only 3.5% of them knew the strength of paracetamol syrup while 14% knew antibiotics are used for bacterial infections.

**Conclusions:** The majority of mothers in the study group had fair knowledge and practices regarding usage of oral suspensions (liquid medications) for common childhood illnesses.

## PP 69

### **Knowledge and self-reported practices of nurses on the last offices of a deceased at the National Hospital of Sri Lanka**

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**Background:** Care after death is fundamental for nurses in any health care setting. Last-offices is the care given by nurses to a deceased patient, focused on fulfilling religious and cultural beliefs, health and safety and legal requirements.

**Objectives:** The aim of this study was to describe the knowledge and practices among nurses in relation to the last offices of a deceased.

**Methods:** This descriptive cross-sectional study was conducted on a convenience sample of 368 nurses working in randomly selected 15 wards/units in the National Hospital of Sri Lanka using a pre-tested self-administered questionnaire. Ethical approval was obtained. Data were analyzed using SPSS (version 16). Knowledge and practice levels were classified according to percentiles.

**Results:** The response rate was 87.2%. Mean age and years of experience of the participants were 33.57 (SD=±6.9) and 8.33 years (SD=±6.8) respectively and the majority were females (92.4%). The majority of the participants (43.8%) had ‘average’ level of knowledge, 27.4% had ‘good’ level of knowledge and 28.8% had poor level of knowledge on the last offices. Most participants had good knowledge in recording last offices (72.3%), dead body preparation (71%), eye donation (58.7%), information to relatives (52.7%), responsibility of property of the deceased (98.4%) and respecting the religious and cultural wishes (98.4%). Poor knowledge was evident on certification and registration of death (57.9%), supporting family members (52.2%), health and safety (50.3%) and legal requirements (50.3%). Only 27.7% had good self-reported practices while 44.3% had fair self-reported practices and 28% had poor self-reported practices. The majority showed poor practices in supporting relatives (76.4%) and respecting their religious or cultural wishes (62.2%).

**Conclusion:** Although the majority showed average knowledge and fair self-reported practices towards the last offices, deficiencies in both areas were identified. Nurses’ knowledge and practices regarding last offices could be improved through continuing education and establishing practice guidelines.

# Abstracts of Case Reports

PP 70

**T lymphoblastic lymphoma presenting as pleural effusion in pregnancy:  
Diagnosis by flow cytometry**

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**Introduction:** Serous effusions are a common complication of lymphomas. Although the frequency of pleural effusion is 20–30% in non-Hodgkin's lymphoma (NHL) and Hodgkin's disease (HD), the involvement of peritoneal and pericardial cavities is uncommon. Lymphoblastic lymphoma (LBL) is a rare and aggressive malignancy which accounts to <2% of the NHLs. We hereby report a case of T lymphoblastic lymphoma – cortical thymocyte type presenting with pleural effusion in a young female patient who was diagnosed by flow cytometric analysis of the pleural fluid.

**Case Report:** A 19 year old primigravida of 8 weeks gestation, presented with dry cough and right sided chest pain since one week. There was no peripheral lymphadenopathy nor abnormal lymphoid cells on peripheral smear. Chest X-ray showed a right sided pleural effusion and a mediastinal mass. Chest computed tomography showed a perihilar mass. Pleural fluid cytology showed sheets of abnormal lymphoid cells with high nuclear cytoplasmic ratio, pleomorphic hyperchromatic nuclei and condensed chromatin, with interspersed small lymphocytes. Flow cytometry was performed on the pleural fluid. The moderate to bright CD45 positive cells were gated. The cells were positive for CD38 and T cell markers CD 1a, CD2, sCD3, CD4, CD7 and CD8; negative for CD10, CD19, CD20, CD25, sKAPPA, sLAMBDA and CD34. A final diagnosis of T Lymphoblastic lymphoma- cortical thymocyte stage was made.

**Discussion:** Lymphomas with pleural effusion at the time of presentation are associated with extremely poor outcome, it is also a predictor of disease relapse after chemotherapy and decreased survival. T cell LBL is more common than B cell LBLs. It is more common in late childhood, adolescents and young adults with a slight male preponderance. Cytology along with ancillary tests like flow cytometry can help in quick diagnosis of lymphoma and sub classification of the lymphoma.

PP 71

**A case of midgut malrotation presenting as subacute intestinal obstruction in an adult**

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**Introduction:** Midgut malrotation commonly presents during the neonatal period. The reported incidence of adult midgut malrotation is between 0.0001% and 0.2%.

**Case Report:** A 68 year old male presented with nausea and abdominal bloating for three months. Clinical examination was unremarkable. He underwent upper gastrointestinal (UGI) endoscopy twice after optimal preparation. Food particles were seen in the pyloric region. Scope could not be negotiated beyond the second part of the duodenum. UGI contrast studies demonstrated midgut malrotation. Computed Tomography showed gross dilatation of 1<sup>st</sup> and 2<sup>nd</sup> parts of duodenum with wall thickening. Diagnostic laparoscopy showed malrotated midgut, atretic 3<sup>rd</sup> part of the duodenum with multiple Ladd's bands around the duodenum, the caecum and the ascending colon. Adhesions were surgically

divided. A side to side diversion gastrojejunostomy was created. Patient was asymptomatic after 24 months follow-up.

**Discussion:** Peritoneal fibrous bands known as Ladd’s bands fix the small intestine and the undescended caecum to the posterior abdominal wall in malrotation. Ladd’s bands compress the duodenum and can potentially cause duodenal obstruction. It can lead to acute or chronic intestinal obstruction. However, adults commonly present with chronic intestinal obstruction. Plain radiographs may show absence of stool filled colon in right lower quadrant. Twisting of the intestine and the mesentery around the axis of the superior mesenteric artery is seen ultrasonically as “whirlpool sign”. Malposition of bowel loops can be accurately diagnosed by Computed Tomography and UGI contrast studies. Surgical division of these adhesion bands, known as the “Ladd’s Procedure” is the gold standard treatment. Data on long term post-operative outcome between open and laparoscopic approach are limited in adults. However, there is increasing evidence to suggest that the Laparoscopic Ladd’s procedure can be performed safely in selected patients without increasing short term complications.

## **PP 72**

### **‘Chilaiditi’s sign’ as a cause that mimics pneumoperitoneum**

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**Introduction:** Chilaiditi’s sign is a rare occurrence which can mimic pneumoperitoneum. It is commonly observed among elderly males with an incidence of 0.25% - 0.28%. Being mindful about the presence of this sign will help make an accurate diagnosis and avoid unnecessary interventions.

**Case Report:** A 73 year old male was admitted for an elective uncomplicated inguinal hernia repair. Apart from a mitral valve replacement five years ago and being on Warfarin therapy, rest of the history was not significant. Despite an inguinal hernia, no other abnormality was detected during the clinical examination. Gas under the right hemidiaphragm was noticed on his upright postero-anterior chest radiograph during preoperative investigations. The right hemidiaphragm was elevated with down displacement of liver. Plicae circulares were evident in the subdiaphragmatic region. Patient recovered uneventfully following surgery.

**Discussion:** A case series of hepato diaphragmatic interposition of bowel was described by Demetrius Chilaiditi, a Viennese radiologist in 1910. The term “Chilaiditi’s sign” is used when elevated right hemidiaphragm, depressed upper border of the liver below the level of the left hemidiaphragm and distended bowel loops above the liver are observed during radiographic finding on an asymptomatic patient. When these radiological findings are associated with gastrointestinal symptoms, the clinical entity is described as “Chilaiditi’s syndrome”. Probable aetiological factors include increased bowel motility, enlarged lower thoracic outlet in conditions such as pregnancy, emphysema, and cirrhosis with ascites. Chest and abdominal radiographs were used to diagnose this condition in almost all the cases. It is treated symptomatically, with volvulus of the colon being one of the commonest indications for surgery.

## **PP 73**

### **A case of small bowel diverticulosis**

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**Introduction:** Small intestinal diverticulosis is a rare clinical entity. The majority of cases involve jejunum with a prevalence of 2-5%.

**Case Report:** A 63 year old female presented with postprandial dyspeptic symptoms, episodic vomiting and loss of 20 kilograms over five years. She had a distended abdomen with visible peristalsis. Biochemistry revealed macrocytic anaemia (8.9 g/dl), hypoalbuminaemia (25.3 g/l), hypovitaminosis-B12 and hypocholesterolaemia. Barium meal and follow-through and Computed Tomography revealed a slightly distended duodenum without evidence of obstruction. Magnetic Resonance Enterography revealed multiple dilated small bowel loops with loss of valvulae in the right side of the abdomen. On exploratory laparotomy, multiple large diverticuli were noted extending from the first part of the duodenum to the proximal ileum. Small bowel was not surgically resected. She had a remarkable recovery following conservative management with broad-spectrum antibiotics and nutritional modifications.

**Discussion:** Small intestinal diverticuli are submucosal pulsion-type pseudodiverticuli, which are outpouchings at the sites where blood vessels pierce the weak intestinal wall. They are congenital or acquired, but commonly multifactorial in origin. Most patients are asymptomatic, while others present with features of malabsorption, postprandial abdominal discomfort, diverticulitis, perforation and intestinal obstruction. Mainstay of diagnosis is based on imaging studies which include Computed Tomography and Magnetic Resonance Enteroclysis. Upper gastrointestinal endoscopy and contrast studies can be used in the absence of acute diverticulitis or suspected intestinal perforation. Uncomplicated cases can be managed conservatively with dietary modifications, antibiotics and antispasmodics, whereas; complicated cases usually require surgical resection of the involved intestine.

## **PP 74**

### **A very rare mutation in the RyR2 gene detected through clinical EXOME sequencing in a child with frequent atrial arrhythmias and a family history of sudden cardiac death**

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**Introduction:** Mutations of the RyR2 gene can lead to familial sudden cardiac death (SCD) syndromes.

**Case Report:** A nine-year-old boy presented with recurrent ischaemic type chest pain induced by exercise over three days. He was the third-born child to healthy non-consanguineous Sinhalese parents. The first-born male suffered a sudden cardiac death at the age of 6 years. The second-born male was healthy. The resting and the exercise electrocardiogrammes were normal. Frequent effort-induced atrial tachyarrhythmias were detected on Holter-monitoring. The echocardiogram was unremarkable. Genetic diagnosis through Next Generation Sequencing revealed a very rare germline heterozygous missense mutation of the RyR2 gene (1q43) denoted as c.11416T>A[dbSNP:rs397516504]c. This mutation was absent in his living sibling. Index case also had CYP2D6 gene mutations. The child was advised not to engage in sports. He was started on metoprolol. He is asymptomatic after 36 months follow-up.

**Discussion:** The present variant is reported to be very rare (NHLBI Exome Variant Server (Minor Allele Frequency [MAF](A)=0.000); 1000-Genomes(MAF(A)=0.0002; 1 allele). It causes a conservative substitution of Cysteine by Serine at position 3800[p.Cys3800Ser] during translation. This variant is predicted to be damaging when analyzed using function prediction software. The functional significance of this variant is not determined by laboratory tests. Collective evidence suggests that this variant is likely pathogenic for right ventricular dysplasia (ARVD) type 2 [OMIM:600996] and Catecholamine polymorphic ventricular tachycardia (CPVT) type 1 [OMIM:604772]. This is the first report of the RyR2 mutation associated with isolated exercise induced atrial arrhythmias. All the reported cases with RyR2 gene mutation associated atrioventricular arrhythmias were treated with beta-blockers. A minority required Implanted Cardioverter Defibrillators. Metoprolol is a poor metabolizer in patients with CYP2D6 mutations. This might be a reason for the dramatic response in the proband. Thus, personalized management according to pharmacogenomics might improve survival in selected cases.

## PP 75

### **Cryptococcaemia in Systemic Lupus Erythematosus (SLE): Pitfalls in management**

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**Introduction:** Systemic Lupus Erythematosus (SLE) patients are prone to infections and they have poorer prognosis. Among fungi, *Candida* species and *Cryptococcus neoformans* are the commonest. Cryptococcal meningitis is an important cause of mortality.

**Case Report:** A 33-year-old female with SLE and bone marrow suppression presented with fever and generalized body swelling. On admission, she was having pneumonia, right lower limb cellulitis and sepsis. Her initial white cell count was  $8.1 \times 10^3/\text{mm}^3$  with 85% neutrophils, low haemoglobin and platelets with elevated C-reactive protein. She was in acute respiratory distress, with pulmonary embolism and renal impairment. Initial blood cultures revealed pan-drug resistant coliforms and *Acinetobacter* species. She was started on IV meropenam, oral mycophenolate-mofetil, pulsed methyl-prednisolone and IV cyclophosphamide. However, her CRP and neutrophils were increasing, while CT scan (chest) revealed ongoing pneumonia. Ten days later, her blood cultures were positive for yeast. The same organism was isolated in the repeat blood culture. She was started on IV fluconazole, but switched over to IV liposomal amphotericin B after five days. A lumbar puncture was not performed due to the patient's unstable condition. Both isolates were identified as *Cryptococcus neoformans*. Unfortunately, before proper treatment was initiated, she succumbed, due to exacerbation of her condition.

**Discussion:** We present a patient with SLE, with multiple comorbidities, where cryptococcal infection was diagnosed via blood cultures. Due to its non-specific clinical presentation, cryptococcal meningitis in SLE can be misdiagnosed. This may lead to inappropriate and delays in administration of antifungal agents. Therefore, cryptococcal meningitis should be a consideration when SLE patients present with headache, nausea, vomiting or fever, especially those with active disease, and on immunosuppressive regimes. It is also important to exclude meningeal involvement in those patients with cryptococcaemia.

## PP 76

### **A rare form of dystonia: Pantothenate kinase associated neurodegeneration (PKAN) (previously known as HALLERVORDEN-SPATZ DISEASE-HSD)**

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**Introduction:** PKAN is a rare inherited disorder characterized by progressive extrapyramidal dysfunction and dementia. This is a familial brain degeneration characterized by iron deposition in the brain.

**Case Report:** A Nine year old boy a product of second degree consanguineous parents presented with involuntary movements of limbs, trunk and tongue. His development was normal up to 3.5 years and noted to have frequent falls which worsened gradually. He had regression of speech but hearing remained normal. By 6 years he was mute and lost his ability to ambulate. At 9 years a rapid deterioration noted with the onset of dystonic movements involving limbs and oropharyngeal musculature with intermittent stridor. These spasms were relieved by sleep. His older brother died of a similar illness at 10 years. No history of convulsions or loss of vision in both siblings. Examination revealed severe dystonia resistant to drugs. He had nystagmus with fixed contractures of lower limbs. There was no organomegaly. His MRI brain T2 images showed bilaterally symmetrical, hyperintense signal changes in the anteromedial globus pallidus, with surrounding hypointensity (eye-of-the-tiger sign). Basic blood and urine testing was normal and possibility of Wilson’s disease was ruled out. There was early optic atrophy. He succumbed to aspiration pneumonia at 9 years.

**Discussion:** Symptoms in PKAN includes dystonia, significant speech disturbances, dysphagia, dementia and visual impairment. Symptoms usually begin in the first decade with a motor disorder predominating extrapyramidal symptoms, spasticity and dysarthria. Diagnostic criteria for PKAN have been proposed in 1991 A specific gene locus for PANK2 has been localized to chromosome 20. Genetic testing was not done in our patient due to financial constraints The clinical features, investigations and diagnostic criteria 1991 suggested the most likely diagnosis was Pantothenate kinase associated neurodegeneration (PKAN). Treatment for PKAN remains symptomatic. Progression of the disease usually occurs over 10-12 years, and death occurs in second or third decade.

## PP 77

### **Intra-cerebral haemorrhage after tenecteplase: A management dilemma**

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**Introduction:** In ST-elevation myocardial infarction (STEMI) immediate reperfusion with a thrombolytic reduces morbidity and mortality. A recognized serious complication of thrombolysis is intracerebral haemorrhage (ICH). Streptokinase which is widely available in state sector hospitals of Sri Lanka is a non-fibrin specific thrombolytic. Tenecteplase which became available recently is a fibrin-specific thrombolytic. Fibrin-specific thrombolytic agents are more effective in clot dissolution but the risk of ICH is higher when compared with non-fibrin specific thrombolytic agents.

**Case Report:** A 55-year-old male with an inferior STEMI received immediate thrombolysis with tenecteplase. Low-molecular-weight heparin, aspirin and clopidogrel were given as per guideline recommendations. After 4 hours he developed a headache and became confused. A CT scan of brain revealed a right temporo-parietal ICH. The clot was not evacuated but heparin, aspirin and clopidogrel



were withheld. A repeat scan done after 48-hours revealed no expansion of the ICH. He was discharged after 9 days, without anti-platelet drugs. Fourteen days after the first event he was re-admitted with chest pain and ECG showed a new non ST elevation MI. Troponin-I was elevated. Echocardiography showed the previous infarct which has evolved into a hypokinetic segment. CT-scan of the brain showed the persistent previous ICH, reduced in size. Low-molecular-weight heparin and dual anti-platelets were not started considering risk of ICH expansion. He was discharged without complications after six days with low dose aspirin and atorvastatin.

**Discussion:** This case illustrates the difficulties of management of a patient who develops ICH following thrombolysis. Anti-platelets and anti-coagulants cannot be used in the acute setting. The safe time to re-start anti-platelet drugs is not clear. Also thrombolysis is contraindicated after an ICH. In current guidelines, there are no recommendations on management of these situations. As this complication may be seen more frequently with widespread use of tenectaplastase, a local protocol will be useful.

## PP 78

### An unusual cause for chronic fungal sinusitis

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**Introduction:** Fungal sinusitis due to *Pseudoallescheria boydii* is rare. Though this emerging pathogen appears similar to *Aspergillus* on direct visualization, the two must be differentiated by culture as it is typically resistant to amphotericin B.

**Case Report:** A 58-year-old female was admitted due to intractable headache and bilateral progressive visual impairment. She was a diabetic with poor glycemic control. Her left eye was blind, and the right had severely impaired vision. She was started on oral prednisolone for optic neuritis. A CT scan (head) showed opacities in bilateral sphenoid sinuses. A functional endoscopic sinus surgery was performed, and the necrotic debris sent for fungal studies. She was started on oral itraconazole for fungal sinusitis. A lumbar puncture excluded neurological involvement. The sample was positive in direct smear and culture for *Pseudoallescheria boydii*. As there was little response to itraconazole after 2 weeks, she was switched to oral voriconazole 200 mg twice-daily. The repeat CT after a week showed clear R/sphenoidal sinuses. After ten days, as her liver functions started increasing, voriconazole was reduced to 100 mg twice-daily. After 16 days, the normal dose was resumed and continued for six weeks and she made a good recovery.

**Discussion:** Fungal aetiology should be suspected in patients with chronic sinusitis. The clinical manifestations depend on the hosts' immune status. *Pseudoallescheria boydii* is a soil-dwelling, emerging fungal pathogen. Pedal mycetoma is the commonest non-invasive infection, while pulmonary and upper respiratory tract infections are also possible. The ideal therapeutic options are yet unknown, as it has been established that this agent shows reduced susceptibility to conventional antifungal agents like amphotericin B. However, newer triazoles such as voriconazole and posaconazole have demonstrated activity against these fungi. Therefore, accurate identification of the etiology for fungal sinusitis is essential for effective pharmacotherapy.

**PP 79**

**Angioimmunoblastic T-cell lymphoma with bone marrow metastasis: The Masqueraders**

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**Introduction:** Diagnosis of lymphomas have always been enigmatic from the pathologist’s perspective. Histopathology and immunohistochemistry play a pivotal role in management of the patient. Lymphomas of T cell origin constitute 12% of all non-Hodgkin lymphomas. They are not only rare as compared to the B cell ones, but they also carry a worse prognosis. Subtyping these lymphomas usually pose a diagnostic challenge. Angioimmunoblastic lymphomas arise from mature T cells. It constitutes 1-2% of all non-Hodgkin lymphomas.

**Case Report:** A 59 year old female patient presented with fever, cough, abdominal pain and generalised weakness of one month duration. Patient was treated for dengue at a peripheral health care center and was referred to our hospital for further management. On examination multiple cervical lymph nodes were palpable. The lymph nodes were excised and sent for histopathological examination. On histopathology the lymph node architecture was effaced. Sheets of medium sized lymphoid cells admixed with immunoblasts, proliferating high endothelial venules with thickened hyalinised walls and numerous mitotic figures were seen. The tumor cells were positive for CD3 and negative for CD20, Bcl6 and CD10. Occasional EBV positive cells were seen. The diagnosis given was angioimmunoblastic T- cell lymphoma. Bone marrow aspirate showed occasional atypical cells. On biopsy there were interstitial infiltrates of medium sized lymphoid cells with proliferating high endothelial venules in the background. A diagnosis of angioimmunoblastic T- cell lymphoma metastasis to the marrow was given.

**Discussion:** Angioimmunoblastic lymphomas are aggressive tumors with a five year survival rate of 44%. They can be mistaken for other lymphomas and inflammatory conditions. The patients usually present with fever and lymphadenopathy. Lymph node biopsy is the gold standard. The morphology on bone marrow is similar to that of the lymph node, hence it is important to be able to identify bone marrow involvement even without a prior lymph node biopsy.

**PP 80**

**Nodular lymphocyte predominant Hodgkin lymphoma versus T-cell/histiocyte-rich large B-cell lymphoma: A gray zone**

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**Introduction:** Current classification of lymphomas is based on a complex of clinical, morphological, immunophenotypic and molecular criteria. Lymphomas with different prognostic significance and treatment modalities demonstrating overlapping histological features of two distinct entities cause difficulty in classification. This case is reported with an attempt to summarize the unique and overlapping diagnostic feature of nodular lymphocyte predominant Hodgkin lymphoma and T-Cell/Histiocyte-rich large B-Cell lymphoma.

**Case Report:** A 42 year old male patient presented with painless inguinal lymphadenopathy, history of fever with evening rise of temperature and significant loss of weight. Histopathological examination of the excised lymph node showed complete effacement of architecture and replacement by polymorphous

population of medium to large sized abnormal lymphoid cells having convoluted nuclei. Numerous lymphocytic and histiocytic cells with small round nuclei and clear cytoplasm were noted along with scattered mummified and binucleate cells. Background showed diffusely scattered small lymphocytes. Immunohistochemistry revealed that the large cells were positive for CD20, EMA, LCA and negative for CD15, CD30 and CD21. The small lymphocytes were positive for CD3 and negative for CD20. The diagnosis was nodular lymphocyte predominant Hodgkin lymphoma T cell/Histiocyte rich large B cell like variant.

**Discussion:** Nodular lymphocyte predominant Hodgkin lymphoma is usually characterized by background reactive B cells but the puzzling aspect of this case was a significant predominance of background T cells. In a case of T cell/Histiocyte rich Large B cell lymphoma, neoplastic B cells are scattered in a background of T cells as the main lymphoid population. The diagnosis in this case is an uncommon pattern of nodular lymphocyte predominant Hodgkin lymphoma.

## **PP 81**

### **Points to ponder in managing patients with medico-legal issues in general wards: A case elaboration of an illegal immigrant girl with language barrier who was sexually abused**

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**Introduction:** The authors wish to highlight the importance of following accurate ward-procedures in patients with medico-legal issues. The obligations the clinical staff holds towards patients admitted to general therapeutic units solely for medico-legal purposes are also highlighted.

**Case Report:** An illegally immigrant girl from Myanmar who knew only her native language had been admitted to a medical ward from a detention camp. After completion of her treatment, a police constable who had been appointed for the camp security had proved that he is the legal guardian and got her discharged from the ward and she had been sexually abused by him. She was produced for medico-legal examination which posed numerous legal and procedural difficulties. Circumstances warranted her being admitted to a gynaecological ward for safe custody as well as to facilitate a comprehensive medicolegal examination. The consultant gynaecologist mostly considered this as a problematic admission merely because there was no prima-faciae therapeutic indication for the admission.

**Discussion:** There are numerous administrative procedures in the wards regarding patients though the therapeutic ventures are mostly outspoken and highlighted. A foreign illegal immigrant with language barrier detained in a camp has shifted guardianship. The state has a heavy responsibility regarding the welfare of such individuals. The ward staff should strictly adhere to the procedural guidelines at all times in such cases. The right of the patient to obtain best possible medico-legal care may warrant admission without a therapeutic indication until medicolegal procedures are complete. The clinicians should comply with this as no medico-legal wards are established. Any inconvenience caused by clinical staff hindering medicolegal management, if informed to the judiciary would be interpreted as contempt to courts. Conclusion - Better awareness should be made among the clinical staff regarding possible procedural errors in dealing with medico-legal admissions.

**PP 82**

**Successful management of a patient with recurrent thrombotic thrombocytopenic purpura (TTP) with rituximab**

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**Introduction:** TTP is a rare life threatening thrombotic microangiopathy due to severe deficiency of the von Willebrand factor cleaving serine metalloprotease, ADAMTS13. Relapse occurs in 20 – 50 % of patients. Plasma exchange and rituximab are the treatment modalities considered in the management of relapsed disease.

**Case Report:** We report a case of a 26-year-old man who had two relapses over a period of 18 months. At the initial presentation he was admitted to Colombo South Teaching Hospital with a history of fever, multiple purpuric patches and red coloured urine. The laboratory investigations revealed a haemoglobin of 7.2 g/dL, WBC  $5.4 \times 10^9/L$  and a platelet count of  $58,000/mm^3$ . His blood film showed many fragments confirming microangiopathic haemolysis. His coagulation profile was normal. The serum creatinine was 140  $\mu mol/L$ , reticulocyte count was 3% and direct antiglobulin test (DAT) was negative with an indirect hyperbilirubinaemia. Lactate dehydrogenase (LDH) was markedly elevated with a value of 3293 u/L and D-dimer was negative. His ANA was positive. According to the clinical and laboratory parameters he was diagnosed as a case of TTP and managed with cryosupernatant infusions and prednisolone 1 mg/kg/d which was tailed off over several months. First relapse occurred nine months later with a transient ischaemic attack (TIA) and the second relapse occurred 15 months later again with a TIA. On both occasions he was off prednisolone for several weeks. Three months following the second relapse he was treated with four doses of rituximab 375 mg/m<sup>2</sup> weekly and maintained at a low dose of prednisolone for another year. Currently he is off prednisolone for 10 months and in remission without any clinical or laboratory evidence of relapse.

**Discussion:** We highlight that even though the recurrent TTP is a rare condition it can be successfully managed with immunomodulatory therapy such as rituximab.

**PP 84**

**Polycythaemia vera in a patient with congenital heart disease: A rare co-incidence**

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**Introduction:** Polycythaemia vera is a clonal myeloproliferative disorder, characterized by autonomous proliferation of red cells due to an acquired somatic mutation of a marrow stem cell. JAK 2 –V617F mutation is present in 97% of patients. Polycythaemia can occur due to secondary causes as well. Tissue hypoxia due to congenital heart disease is one of the well established causes of secondary polycythaemia. Both polycythaemia vera and secondary polycythaemia give similar clinical manifestations due to hyperviscosity.

**Case Report:** Here we report a case of a 53 year old male who presented with a minor stroke, very high haematocrit and an existing diagnosis of congenital heart disease; an uncorrected atrial septal defect. Two possibilities were considered, one being shunt reversal with Eisenmenger’s syndrome causing secondary erythrocytosis and the other being Polycythaemia vera. Together with a positive JAK2

mutation and characteristic bone marrow morphology, we made the diagnosis of Polycythaemia vera according to 2016 WHO diagnostic criteria. There was no evidence of shunt reversal on echocardiography. Patient was managed with venesections and cytoreductive therapy to keep the haematocrit < 45%, which is the recommended target. Cardiology referral was done and early corrective surgery planned. Patient clinically improved and is currently under multidisciplinary follow up.

**Discussion:** Increased risk of thrombosis associated with Polycythaemia vera has a negative impact on overall survival, thus warrants distinction and more intensive management compared to secondary polycythaemia. Therefore, even in the presence of an apparent secondary cause, high index of clinical suspicion is essential at the diagnostic workup as optimal management strongly predicts overall survival in Polycythaemia vera.

## **PP 85**

### **Uncommon manifestation of leptospirosis: Acute pancreatitis**

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**Introduction:** Leptospirosis, a common tropical infection caused by *Leptospira* species presents commonly as acute febrile illness with thrombocytopenia, renal failure and hepatic dysfunction. We present a case of acute pancreatitis due to leptospirosis in young lady which recovered with treatment.

**Case Report:** A 15 year old girl presented with history of fever of 7 days and upper abdominal pain radiating to back of 5 days duration. On examination she was febrile, had epigastric tenderness and investigations showed raised serum lipase and amylase. Her complete blood count was normal except for thrombocytopenia. Renal and liver function tests were normal. Possibility of acute febrile illness with pancreatitis, infection related was considered. Quantitative Buffy Coat (QBC) for malarial parasite, IgM Scrub typhus, serology for Mumps were negative. IgM *Leptospira* and blood PCR for leptospira were positive. Her serum calcium, phosphorus levels and triglyceride levels done as etiology workup for pancreatitis were normal. Contrast Enhanced Computed (CECT) abdomen showed acute interstitial pancreatitis with modified CT Severity Index (CTSI) of 6/10, showed no gall stone/congenital pancreatic structural abnormality. On treatment with injection ceftriaxone 2g once a day, she improved, was defervescent in 48 hours of treatment and thrombocytopenia recovered. She was kept nil per oral and intravenous fluids initially, was started gradually on oral diet, which was well tolerated and was discharged on improvement.

**Discussion:** Leptospirosis infection commonly seen in tropics, spreads from contact with blood, urine or tissue of infected rodents. Apart from the classic Weil's syndrome (triad of jaundice, hemorrhage and acute renal failure), severe forms can also present with hypotension, aseptic meningitis, pulmonary hemorrhage, rhabdomyolysis and Multi organ dysfunction syndrome. Acute pancreatitis caused by multitude of causes like alcohol, gall stones, inflammatory, autoimmune and infections, is an uncommon presentation of leptospirosis. Other etiologies for pancreatitis were conclusively ruled out and diagnosis of leptospirosis is beyond doubt in our case.

## **PP 86**

### **Clonal eosinophilia with FIP1L1-PDGFR A rearrangement**

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**Introduction:** Eosinophilia is defined as an elevation of the eosinophil count above normal, i.e. above  $0.5 \times 10^9/L$  and categorized as primary, secondary (reactive) and idiopathic. Primary or Clonal eosinophilia refers to a disease entity where the eosinophilia occurs as a part of the neoplastic clone in a haematological neoplasm such as myeloid and lymphoid neoplasms with PDGFRA, PDGFRB, FGFR1 rearrangements, JAK 2 rearrangements, tyrosine kinase fusion genes like ETV6-ABL1, ETV6-FLT3 and ETV6-ABL1. It should be suspected in patients presenting with unexplained isolated eosinophilia of  $>1.5 \times 10^9/L$  because they can be treated according to that particular molecular target.

**Case Report:** A 39 year old man, who has been previously well, presented with a 2 months history of significant constitutional symptoms and left hypochondrial pain. On physical examination he had a palpable, firm spleen 4 cm below the left costal margin. Investigations revealed leucocytosis with marked eosinophilia (absolute eosinophil count being  $27000/mm^3$ ), moderate thrombocytopenia, mild anaemia, high ESR and CRP with ultra-sonic evidence of splenomegaly (17 cm) and hepatomegaly (16.3 cm). Molecular genetic tests revealed FIP1L1-PDGFR A rearrangement by FISH and the absence of BCR-ABL1. He has been treated with tyrosine kinase inhibitor, imatinib at a daily dose of 100mg and showed a satisfactory haematological response with normalisation of blood counts, resolution of symptoms and splenomegaly within 3 months.

**Discussion:** Clonal eosinophilia with FIP1L1- PDGFRA rearrangement is an uncommon disorder, which is known to respond well to tyrosine kinase inhibitor, imatinib mesylate at a low dose. Although imatinib is the treatment of choice for FIP1L1/PDGFR A-positive clonal eosinophilia, little is known about optimal dosing, duration of treatment, risk of relapse following discontinuation and the possibility of cure in this disorder. However the available data suggest the continuation of treatment to control the disease along with molecular monitoring.

## **PP 87**

### **Error in medical judgment: How to categorize these avoidable deaths?**

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**Introduction:** Human error cannot be eradicated. It could however be minimized with genuine interest of the art and adhering to standard protocols. Awareness of the possibility of error of judgment is the crucial factor for preventing medical mishaps due to this preventable entity which is not classified in the International Classification of Diseases (ICD) 10.

**Case Report:** A 34 year old woman with three children had an uncomplicated para-umbilical hernia for two years. She defaulted admission for the repair but was admitted to the same ward with features of acute abdomen two weeks later. She was kept under observation for four days and was pronounced dead due to sudden cardiac arrest. The judicial autopsy revealed gangrenous strangulated bowels with features of peritonitis and septicemia.

**Discussion:** Error in judgment does not always amount to medical negligence. The former is a medical entity while the latter is the decision by a court of law. Medical errors do contribute as the underlying cause of death while in rare occasions it becomes the immediate cause of death. It is considered as the

third leading cause of death in the USA. When medical error is evident, it should be appropriately incorporated into the cause of death. For this purpose, medical error should be recognized as a unique entity by the ICD. Recognizing medical error as a possibility and appropriately documenting its contribution to the cause of death would be a way forward to prevent further occurrences. In conclusion, the preventability of death has to be considered when there is an allegation of medical error. This warrants a thorough analysis around the circumstances. The authors suggest that an extensive method of root cause analysis as a timely need.

## **PP 88**

### **Burkitt lymphoma with permanent neurological damage: A rare occurrence**

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**Introduction:** Burkitt lymphoma is a rare aggressive B cell lymphoma often diagnosed in young adults and children. There are three types, namely sporadic, immunodeficiency associated and endemic. Central nervous system involvement is a known complication and is associated with poor prognosis.

**Case Report:** A 31 year old previously healthy male presented to Accident and Emergency (A&E) unit with sudden onset bilateral weakness of the lower limbs with difficulty in walking. CT imaging showed an enlarged right axillary lymph node along with multiple thoracic paraspinal masses extending into the spinal canal and extradural soft tissue at the level of L5/S1. Magnetic Resonance Imaging confirmed the above findings. The patient underwent CT guided paraspinal mass biopsy and histology confirmed the diagnosis of Burkitt lymphoma which was further confirmed and staged by bone marrow examination, immunophenotyping and cytogenetics. Thus the final diagnosis was given as Burkitt lymphoma stage IVB with t(8;14). The patient was initially treated with radiotherapy for paraspinal masses and was started on the HYPER CVAD chemotherapy regimen (Cyclophosphamide, vincristin, daunorubicin, asparaginase, rituximab, methotrexate). During the course of the disease he developed asparaginase induced coagulopathy and frequent blood culture positive bacterial infections requiring support with fibrinogen, cryoprecipitate and antimicrobials. Repeat MRI following the full course of chemotherapy showed regression of the paraspinal masses. His haematological parameters improved but there was no improvement of his paraplegia even after physiotherapy.

**Discussion:** Paraspinal involvement is a rare but recognized complication of Burkitt lymphoma which shows a rapid response to chemotherapy. Therefore the requirement for surgical intervention is rare. However despite the rapid and satisfactory response of the haematological parameters and regression of the paraspinal masses the neurological deficit failed to improve which is unusual in this setting.

## **PP 89**

### **An unusual presentation of a fatal myocardial infarction**

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**Introduction:** Acute myocardial infarction (AMI) typically presents with retrosternal chest pain with or without sweating, nausea and vomiting. Less commonly, it can present with pain in the jaw, epigastric region or arm. However, headache at rest or on exertion could be the only presenting symptom of AMI on rare occasions, which is then termed “cardiac cephalalgia”.

**Case Report:** A 37 year old man was known to have a headache for one week (history was obtained from the wife). He consulted a neurologist in a private hospital who treated him with an analgesic, pantaprazole and domperidone. However, as the headache was persistent, a Magnetic Resonance Imaging of the brain was performed on day five of the illness. Thereafter, he had developed blurred vision and unsteady gait for a period of 24 hours. He was observed to have sudden jerking of the arms and eyes rolling up followed by unresponsiveness. He was rushed to hospital within 15 minutes and was pronounced dead on admission. There was no past history of hypertension, ischaemic heart disease, diabetes or dyslipidaemia. At post mortem examination, heart was grossly enlarged. All major coronary arteries were occluded (80-90%) with atheromatous plaques. There were areas with evidence of acute infarction and fibrosis in the left ventricle and papillary muscles. In addition, there were extensive atheromatous plaques in the aorta and the circle of Willis.

**Discussion:** This patient fulfilled the International Classification of Headache Disorders (ICHD-III beta) diagnostic criteria for cardiac cephalgia. Pathogenesis of cardiac cephalgia is caused by referred pain to cervical nerve roots, increased intracranial pressure from sudden reduction of cardiac output and cerebral vasodilatation/spasm caused by chemical mediators released during AMI. Cardiac cephalgia is a serious cause of secondary headache and is under-diagnosed and under-reported.



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