National Health Research Symposium 2019

ABSTRACT BOOK

"Transforming Primary Health Care by Generating Evidence, Best practices & Innovations"

Education Training & Research Unit
Ministry of Health, Nutrition & Indigenous Medicine
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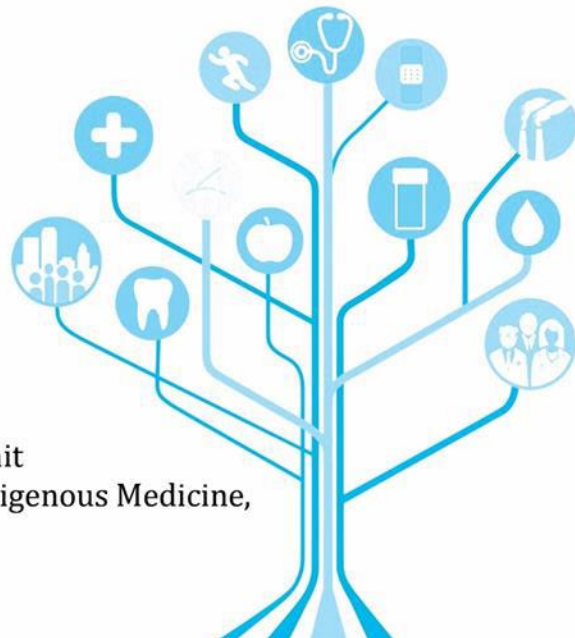
NATIONAL HEALTH RESEARCH SYMPOSIUM 2019

Ministry of Health, Nutrition and Indigenous Medicine,
Sri Lanka
in collaboration with
National Health Research Council

"Transforming Primary Health Care by Generating Evidence,
Best practices & Innovations"

22nd and 23rd October 2019
Waters Edge, Battaramulla, Sri Lanka

Organized by
Education, Training and Research Unit
Ministry of Health, Nutrition and Indigenous Medicine,
Sri Lanka.

CONTENTS

NATIONAL HEALTH RESEARCH SYMPOSIUM – 2019

National Health Research Symposium is the supreme biennial research forum organized as a combined effort of Education, Training and Research unit and National Health Research Council (NHRC). The inaugural symposium was held in 2017 and this year it is conducted for the second time. This symposium has become a land mark event in history of medical, health systems and health policy research in Sri Lanka.

Theme:

The theme of this year's symposium is "Transforming Primary Healthcare by Generating Evidence, Best Practices and Innovation".

Objectives of National Health Research Symposium 2019:

- To promote research culture by sharing evidence including best practices and innovations among health professionals
- To create a national platform to present research evidence generated through good quality researches
- To develop competencies among health professionals on research methodology and research ethics to create a research culture in Sri Lankan health field
- To take initiatives to encourage relevant stakeholders of the Ministry of Health and beyond to translate evidence into practice

National Health Research Symposium is remarkable not only because it is a national event but also it is open to all the health care professionals and researchers spread across many diverse research areas and disciplines. Two hundred and eight papers on research, best practices and innovative projects are presented in this symposium as oral and poster presentations.

The selection of abstracts was a stringent and an anonymous process. Hundred and twelve technical experts from various disciplines meticulously reviewed the abstracts and a group of experts in research ethics scrutinized them to select the final ones which included 110 oral presentations and 98 poster presentations.

ABSTRACT REVIEW PROCESS

A total of 394 abstracts were received for National Health Research Symposium 2019 covering diverse spectrum of disciplines from all the categories of health professionals throughout the country, including private and public sector.

An Abstract Review Committee was formulated to coordinate the review process and for providing the necessary technical inputs. This committee prepared the standard guidelines and protocols required for the process. The abstracts were called through an online template.

Reviewing abstracts was a complex and tiresome process and was accomplished through a very dedicated and impartial panel of reviewers consisting of more than 100 local and international specialists of various disciplines. Each abstract was reviewed by two reviewers, a content specialist and a research specialist maintaining anonymity of both authors and the reviewers. Their intellectual contribution amidst their busy schedules is sincerely acknowledged by the abstract review committee.

A standardized instrument and a marking scheme were used for the decision making. The ethical aspects of the presented abstracts were ensured by tracking the ethical clearance certificates and through further scrutinization by a committee consisting of representatives from National Health Research Council and members of ethics review committees.

A core abstract review group made the final decisions and decisions regarding the mode of presentation. These decisions were based on reviewers' decisions and decisions made at the ethics scrutiny. An intensive protocol was maintained to ensure that all accepted abstracts are presented at the symposium by tracking the authors and encouraging them to abide with the tight time schedule.

The details of the abstracts are as follows:

Total number of abstracts received   -   394

Total number of abstracts rejected   -   181
      Rejected during the review process   -   87
      (52 rejected due to methodological reasons and 35 due to repetition)
      Rejected during ethical review process   -   94
      (This consisted mainly of student research projects from a few training schools)

Withdrawn by author due to personal reasons   -   5

Total number selected   -   208
      Selected for oral presentation   -   110
      Selected for poster presentation   -   98

Finally, 110 oral presentations, categorized into 22 thematic free paper sessions and 98 poster presentations under 20 thematic areas were selected for presentation at the National Health Research Symposium 2019.

GENERAL INFORMATION

Venue   : Waters Edge, Battaramulla

Dates   : 22nd to 23rd October 2019

Registration : Participants are kindly requested to confirm their registration each day at the registration desk located at the main Lobby in ground floor. No registration fee is charged. Registration desks are open throughout the symposium. Registration areas are allocated for different categories of participants in the registration desk as follows:

1.   Registration Area 1 : Invitees, Reviewers, Judges and Chairs

2.   Registration Area 2 : Oral and Poster Presenters

3.   Registration Area 3 : Non-presenting participants and others

Pre and Post-Symposium workshops:

1.   Abstract Preparatory Workshops

2.   Workshop on Qualitative Research

3.   Workshop for Ethics Review Committee members on "Research Ethics & Guidelines"

4.   Online Research Methodology Programme

Scientific sessions: There will be 22 free paper sessions on different disciplines at four venues: Albatross (1st floor), Link (1st floor), Eagle (2nd floor) and Grand Ball room (3rd floor). All poster sessions will take place at the lobby of Albatross (1st floor). Please refer Site map and Conference Programme in Pages 9 to 11 for further information.

Refreshments: Morning tea and lunch will be served at Grand Ballroom (3rd floor). Evening tea during the free paper sessions will be served at all four venues i.e. Albatross, Link, Eagle and Grand Ball room. The refreshment tokens for each day will be issued at the time of registration.

For more information: Please visit the website of the National Health Research Symposium 2019 at http://www.health.gov.lk/nhrs2019

SITE MAP AND ACCESS

		3rd Floor
Toilet	Banquet	

Inauguration

Grand Ballroom

Venue 04

2nd Floor

The Eagle

Venue 01

1st Floor

The Albatross

Venue 02

Poster display area

The Link

Venue 03

Lift — Ground Floor

IT Desk

Entrance

Lobby

Registration

Security Check
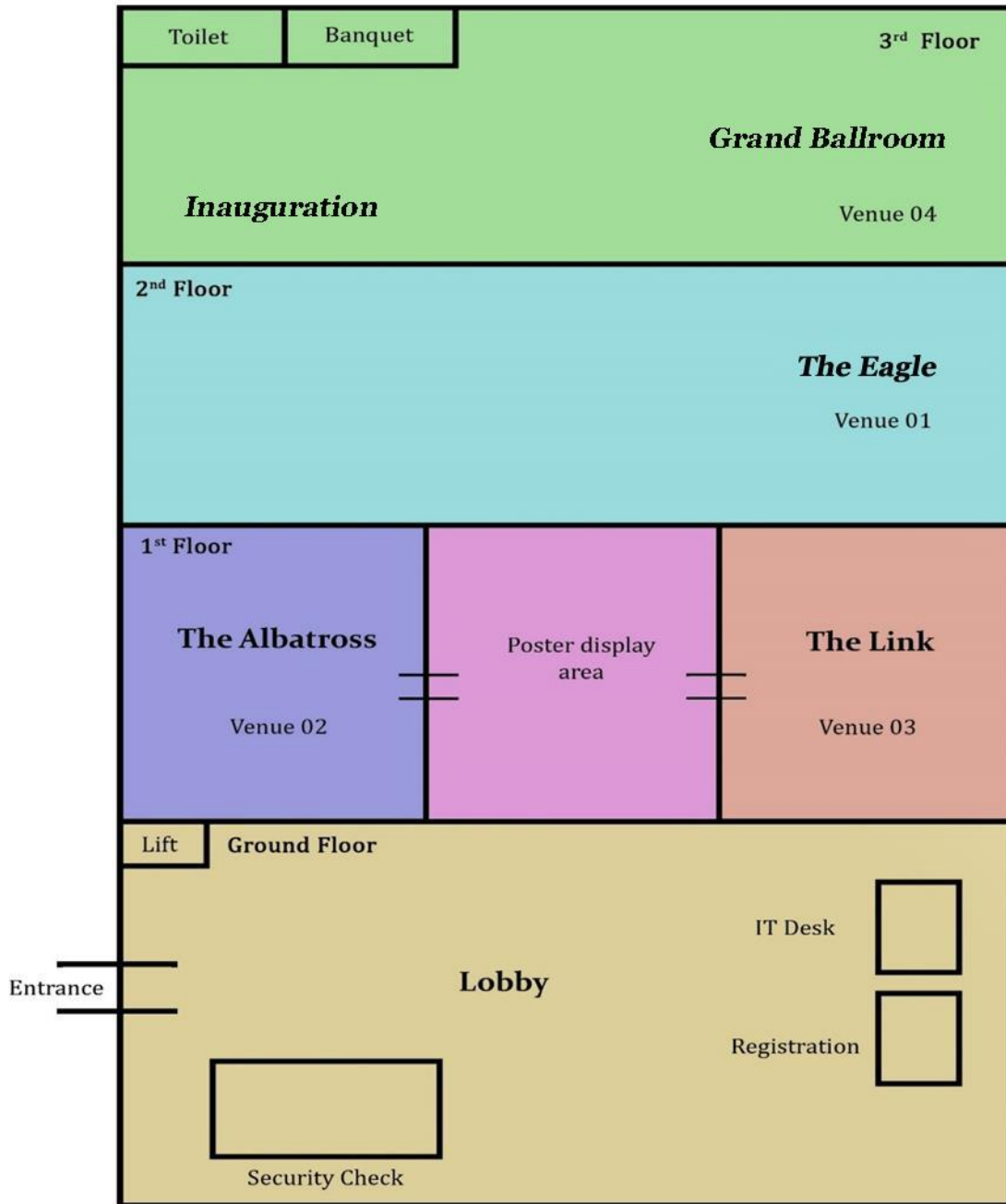
NATIONAL HEALTH RESEARCH SYMPOSIUM – 2019

PROGRAMME AT A GLANCE

Day 1 - 22nd October 2019 (Tuesday)			
8.30 am – 9.30 am	**Registration** *Venue: Main Lobby (Ground Floor)*		
9.30 am – 10.00 am	**Morning Tea** *Venue: Grand Ballroom (3rd Floor)*		
9.30 am – 12.30 pm	**INAUGURATION CEREMONY** *Venue: Grand Ballroom (3rd Floor)*		
12.30 pm – 1.00 pm	**Poster session 1** *Venue: Lobby of Albatross (1st Floor)* **CANCER**	**Poster session 2** *Venue: Lobby of Albatross (1st Floor)* **LABORATORY SCIENCES I**	**Poster session 3** *Venue: Lobby of Albatross (1st Floor)* **CURRENT HEALTH ISSUES I**
1.00 pm – 1.30 pm	**Poster session 4** *Venue: Lobby of Albatross (1st Floor)* **FOOD, NUTRITION AND HEALTH**	**Poster session 5** *Venue: Lobby of Albatross (1st Floor)* **HEALTH SYSTEMS & PATIENT SAFETY**	**Poster session 6** *Venue: Lobby of Albatross (1st Floor)* **HEALTH PLANNING AND MANAGEMENT**
1.30 pm – 2.30 pm	**Free paper session 1** *Venue: Eagle (2nd Floor)* **CANCER AND CARDIOVASCULAR HEALTH**	**Free paper session 2** *Venue: Albatross (1st Floor)* **DISEASE EPIDEMIOLOGY**	**Free paper session 3** *Venue: Link (1st Floor)* **ENVIRONMENTAL HEALTH**
2.30 pm -3.30 pm	**Free paper session 4** *Venue: Eagle (2nd Floor)* **FOOD, NUTRITION AND HEALTH**	**Free paper session 5** *Venue: Albatross (1st Floor)* **HEALTH SYSTEMS & PATIENT SAFETY**	**Free paper session 6** *Venue: Link (1st Floor)* **HEALTH PLANNING AND MANAGEMENT**
3.30 pm – 4.30 pm	**Free paper session 7** *Venue: Albatross (1st Floor)* **COMPLEMENTARY AND ALTERNATIVE MEDICINE**	**Free paper session 8** *Venue: Eagle (2nd Floor)* **HEALTH INNOVATIONS AND BEST PRACTICES**	**Free paper session 9** *Venue: Link (1st Floor)* **CLINICAL CARE I**
4.30 pm – 5.00 pm	**Poster session 7** *Lobby of Albatross (1st Floor)* **PATIENT PERSPECTIVES, COMPLEMENTARY AND ALTERNATIVE MEDICINE**	**Poster session 8** *Lobby of Albatross (1st Floor)* **HEALTH INNOVATIONS AND BEST PRACTICES**	**Poster session 9** *Lobby of Albatross (1st Floor)* **CLINICAL CARE**
5.00 pm – 5.30 pm	**Poster session 10** *Lobby of Albatross (1st Floor)* **HEALTH SERVICES I**	**Poster session 11** *Lobby of Albatross (1st Floor)* **MATERNAL AND CHILD HEALTH**	**Poster session 12** *Lobby of Albatross (1st Floor)* **QUALITY OF PATIENT CARE**

Lunch

Venue:
VIP: VIP room
Others: Grand Ballroom (3rd Floor)

Evening tea
Venues:
Eagle
Albatross
Link

Day 2 – 23rd October 2019 (Wednesday)

Time				
7.30 am - 8.30am	**Registration** *Venue: Main Lobby (Ground Floor)*			
8.30am-9.30am	**Free paper session 10** *Venue: Albatross (1st Floor)* **ORAL HEALTH**	**Free paper session 11** *Venue: Eagle (2nd Floor)* **MATERNAL AND CHILD HEALTH I**	**Free paper session 12** *Venue: Link (1st Floor)* **CLINICAL CARE II**	**Free paper session 22** *Venue: Grand Ballroom (3rd Floor)* **CURRENT HEALTH ISSUES**
9.30am-10.30am	**Free paper session 13** *Venue: Albatross (1st Floor)* **PATIENT PERSPECTIVES AND PATIENT ENGAGEMENT**	**Free paper session 14** *Venue: Link (1st Floor)* **HEALTH MANPOWER**	**Free paper session 15** *Venue: Eagle (2nd Floor)* **HEALTH PROMOTION**	
10.30am - 11.00am	**Poster session 13** *Lobby of Albatross (1st Floor)* **MENTAL HEALTH**	**Poster session 14** *Lobby of Albatross (1st Floor)* **HEALTH MANPOWER**	**Poster session 15** *Lobby of Albatross (1st Floor)* **LABORATORY SCIENCES II**	**Morning Tea** *Venue: Grand Ballroom (3rd Floor)*
11.00am – 12.30pm	**Symposium** **'PRIMARY HEALTH CARE REFORMS'** *Venue: Grand Ball Room (3rd Floor)* **Guest Speech I: Prof. Narada Warnasooriya** **Guest Speech II: Dr. Ajantha Sisira Kumara** **Guest Speech III: Dr. P.D.K. Adhikari**			
12.30pm – 1.00 pm	**Poster session 16** *Lobby of Albatross (1st Floor)* **RADIOLOGY, LABORATORY SCIENCES AND E-HEALTH**	**Poster session 17** *Lobby of Albatross (1st Floor)* **INNOVATIVE PROJECTS**	**Poster session 18** *Lobby of Albatross (1st Floor)* **HUMAN RESOURCES FOR HEALTH AND CLINICAL CARE**	**Lunch** *Venue: Grand Ball room (3rd Floor)*
1.00pm -1.30pm	**Poster session 19** *Lobby of Albatross (1st Floor)* **CURRENT HEALTH ISSUES II**		**Poster session 20** *Lobby of Albatross (1st Floor)* **HEALTH SERVICES II**	
1.30pm-2.30pm	**Free paper session 16** *Venue: Albatross (1st Floor)* **NOVEL HEALTH ISSUES**	**Free paper session 17** *Venue: Eagle (2nd Floor)* **NON-COMMUNICABLE DISEASES**	**Free paper session 18** *Venue: Link (1st Floor)* **HEALTH CHALLENGES**	
2.30pm-3.30pm	**Free paper session 19** *Venue: Albatross (1st Floor)* **MATERNAL AND CHILD HEALTH II**	**Free paper session 20** *Venue: Link (1st Floor)* **ENVIRONMENTAL AND OCCUPATIONAL HEALTH**	**Free paper session 21** *Venue: Eagle (2st Floor)* **CLINICAL MEDICINE**	
3.30pm -4.00pm	**Guest Lecture** *Venue: Grand Ballroom (3rd Floor)* **'ROLE OF MRI IN MEDICAL RESEARCH: PAST, PRESENT AND FUTURE'**			
4.00pm -4.30pm	**CLOSING CEREMONY** *Grand Balroom (3rd Floor)*			
4.30pm -5.00pm	**Tea** *Grand Ballroom (3rd Floor)*			

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OP 1
Delays in breast cancer care in Sri Lanka

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Background: Despite excellent prognosis, breast cancer is the leading cancer-specific cause of deaths among women in Sri Lanka. Initiating timely treatment is a key to success in breast cancer management.

Objectives: To assess delays in breast cancer care and their associated factors.

Methods: This hospital-based cross-sectional study interviewed 800 consecutively sampled female breast cancer survivors diagnosed within 12 months of the survey attending four out of the nine state Provincial Cancer Treatment Centers. Presentation delay (>2 weeks to present to health system since detecting the suspicious breast lesion), diagnosis delay (>4 weeks to confirm the diagnosis since presentation) and treatment delay (>4 weeks to initiate definitive treatment since diagnosis) were defined by an expert panel to suit the local context.

Results: Two thirds had experienced presentation delay (63.3%, 95%CI=59.9-66.6%). Diagnosis delay (36.7%, 95%CI=33.4%-40.0%) and treatment delay (13.2%, 95%CI=10.8-15.5%) were less common. Low family monthly income (OR=6.3; 95%CI=4.2-9.3) and poor knowledge on breast cancer (OR=2.7; 95%CI=1.8-3.8) were associated with presentation delay. Poor health literacy (OR=1.7; 95%CI=1.1-2.7) and more than one initial visit with the first contact health provider (OR=7.2; 95%CI=4.6-11.1) were associated with diagnosis delay, while visiting an appropriate specialized health provider reduced diagnosis delay (OR=0.3; 95%CI=0.2-0.4). The mode of diagnosis being biopsy (OR=0.5; 95%CI=0.3-0.8) and having done a mammogram (OR=0.6, 95%CI=0.4-0.9) reduced the likelihood of treatment delay.

Conclusions & recommendations: Higher proportions of women experience presenting and diagnosis delay in breast cancer care in Sri Lanka. National Cancer Control Programme should assess effective strategies to promote early presentation of women with suspicious breast lesions, especially targeting economically disadvantaged women. More attention to women with poor health literacy at health care institutions would improve timely diagnosis.

Key words: *breast cancer, delay in care, presentation delay, diagnosis delay, treatment delay, associated factors*

OP 2

Opportunities for conservation surgery in localised breast cancer: preliminary report of a clinicopathological review of patients treated with mastectomy.

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Background: Multifocality and tumour volume, relative to breast volume are determinants of breast conservation surgery versus mastectomy in localized breast cancer. In Sri Lanka, breast conservation rates are low due to clinician and patient perceptions of unsuitability.

Objectives: To identify the proportion of patients who could have been potentially treated with a breast conservation strategy in two healthcare institutions

Methods: Patients with localized breast cancer treated with modified radical mastectomy at two institutions during 2018/2019 were included in the study. Histopathology reports and clinical records were retrospectively reviewed and data was obtained on the following variables: age, tumour size, breast size, pathological stage, clinical stage, imaging findings, grade, immunohistochemical profile and multifocality. In tumours with unifocal disease, tumour to breast volume was calculated and a cut-off of 5% was used to determine suitability for breast conservation. Statistically package R version 3.4.1 was used for analysis.

Results: The sample size was 123. The mean age in the cohort was 59 years (range: 33-84) while median tumour volume was 7.85 mm^3 (range: 0.01 – 207.3) and median breast volume was 771.8 mm^3 (range: 33.5 – 4976). Sixteen patients (13%) had multi-focal tumours. The mean tumour to breast volume ratio in patients with unifocal disease was 3.64% (range 0 – 55). Eighty nine patients (71%) had unifocal disease with a tumour to breast volume ratio less than 5%. Full clinical and radiological information was available in 13 of the 16 patients with multifocal disease. Ten of these patients had clinically multifocal or locally advanced disease while another two patients had multifocal disease confirmed on ultrasonography. Multifocality was confirmed solely on mammography in only one patient.

Conclusions and Recommendations: A large proportion of patients currently treated with mastectomy could potentially be offered breast conservation surgery. Multifocality can be established by clinical examination and ultrasonography in a high proportion of patients. A confirmatory study is needed to validate these findings in a larger cohort.

Keywords: *Breast Cancer, Mastectomy, Breast Conservation, multifocality*

OP 3

The cytokine expressions in the bronchial carcinoma after treatment with indigenous drug regimen – a case report

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Background: Cancer is the most dreaded disease in worldwide, which is a major cause of morbidity and mortality, with approximately 14 million new cases and 8 million cancer- related deaths in 2012. The recent data have shown that a total of 239,320 new cases of lung cancer and 161,250 deaths from lung cancer in United States in 2010.

Objectives: To evaluate the Cytokines expression for the Indigenous medical treatment in the management of Bronchial Carcinoma.

Methods: A clinical study was conducted from May to August 2017 in the outpatient department of Bandaranaike Memorial Ayurvedic Research Institute (BMARI) to test the antitumor activity of the Indigenous drug regimen, which is used to manage the Bronchial carcinoma. A fifty two years old male Retired Garbage lorry driver who had diagnosed with Bronchial carcinoma volunteered to the study. Ethical approval has been taken from the Ethic Review Committee, Institute of Indigenous Medicine, University of Colombo Sri Lanka (ERC No: 15/46). Detailed history, clinical examinations and relevant investigations were conducted at BMARI and the Department of Zoology, Faculty of Science, University of Ruhuna. The Indigenous drug regimen which was majority consisted as *Tinospora cordifolia, Glyzerryza glabra*, fruit of *Terminalia chebula, Terminalia bellerica, Piper nigrum, Embelia ribes, , Hyoscymus niger,* rhizome of *Zingiber officinale* and it was given for the patient throughout the period of the study. Serum Interleukin-2, Interleukin-5, Interleukin-17, (Interferon)-ɣ, p53 Upregulated Modulator Apoptosis (PUMA) were quantified using ELISA before and after the treatments.

Results: As for the results of the ELISA, IL-2 concentration was increased from 1736.2pg/ml to 3416.3pg/ml and IFN-ɣ concentration was increased from 249.3pg/ml to 287.4pg/ml. In addition IL -17 concentrations was significantly decreased from 434.5pg/ml to 117.4pg/ml. Also IL-5 concentration was slightly increased from 202.2pg/ml to 259.2pg/ml and PUMA concentration was not significantly change. Symptoms of Bronchial carcinoma were improved during the treatment as indicators such as dyspnea and cough.

Conclusions & recommendations: The changes of the expression in cytokines over time indicating the possible control of Bronchial carcinoma by the Indigenous drug regimen. Further investigations are required to evaluate the efficacy of this drug regimen in controlling Bronchial carcinoma.

Key words: *Cytokines, indigenous drug regimen, ELISA, Bronchial Carcinoma*

OP 4
Follow-up of HPV/DNA screening test positive women in Kalutara district

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Background: Persistent HPV infection with high risk oncogenic HPV genotypes can cause cervical cancer within 10-15 years, with a progression rate of 10%. Genotypes 16 and 18 contribute to about 70% of all cervical cancers worldwide. Other high-risk types are genotypes 31, 33, 35, 39, 45, 51, 52, 56, 58, 59, 66, and 68. One major drawback of the present cervical cancer screening programme is the suboptimal sensitivity (53%) of the Pap smear to detect Cervical Intraepithelial Neoplasia. However, the sensitivity of the cobas 4800 HPV/DNA test is 92.9%. In HPV/DNA screening, only screened positive women are subjected to Pap smear, reducing the need for Pap smear testing. Moreover, unlike in pap smear screening, only HPV/DNA screened positive and those who have cytology results in the Pap smear ≥ Atypical Squamous Cell Undetermined Significance (ASCUS) are referred to colposcopy, thereby reducing the colposcopy burden by 40%-50%.

Objectives: Describe follow-up of HPV/DNA screening test positive women among 35 year age cohort ever married women in Kalutara district

Methods: A cross-sectional study was conducted in the MOH areas of Kalutara district (sample size=822). Cluster sampling technique was used. A Public Health Midwife area was taken as a cluster (number of clusters=413). HPV/DNA cervical specimen collection was carried out by MOOH/PHNSS at Well Woman Clinics in the community. HPV/DNA specimen screening was carried out at the laboratory of District General Hospital Kalutara. All HPV/DNA screen positives were referred for conventional Pap smear test to a community well woman clinic. All HPV/DNA positives and cytology results ≥ ASCUS were referred for a colposcopy.

Results: Total number of HPV/DNA screened positive women was 51 (6.2%). Of the total sample, 1.7% (n=14) were positive for genotype 16 only, 0.24% (n=2) were positive for genotype 18 only, 0.12% (n=1) were positive for genotype 16 with 12 pooled high risk genotypes, while the remaining 4.14% (n=34) were positive for 12 pooled high risk. Percentage of cytological abnormality among all HPV/DNA screened positives was 29.4% (n=15) while the percentage of cytological abnormality among HPV/DNA screened positive for genotypes 16 and 18 was 35.29% (n=6). The percentage of cytological abnormality among HPV/DNA screen positive for 12 pooled high risk genotypes was 28.57% (n=10). The percentage of biopsy tissue abnormality among HPV/DNA screen positive for genotypes 16 and 18 was 35.29%(n=6). The percentage of biopsy tissue abnormality among HPV/DNA screen positive for 12 pooled high-risk genotypes was 20% (n=7). Management adherence percentage of HPV/DNA+ves, up to pap screening within 3 months of the initial screening was 100%(n=15) while the colposcopy reaching percentage within one month of referral was 86.7%(n=13).

Conclusions & recommendations: HPV/DNA screening test as a primary cervical cancer screening method is very versatile for Cervical Cancer Screening programme in Sri Lanka. Follow-up of the HPV/DNA screening test positive women is feasible.

Key words: *cervical cancer screening, HPV/DNA screening, pap screening*

OP 5

Knowledge and attitude on cardiovascular risk factors among patients attending to clinics at Ayurvedic Hospital Nawinna, Sri Lanka

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Background: The rapidly growing burden of cardiovascular diseases (CVD) such as ischemic heart disease and cerebrovascular diseases is a global public health threat both in developed and developing countries. Alcohol and tobacco use, unhealthy diet and physical inactivity are behavioral cardiovascular risk factors which lead to metabolic risk factors such as obesity, hyperlipidaemia, hypertension and hyperglycemia. World Health Organization (2018) estimated non communicable diseases (NCD) to account for 83% of deaths in Sri Lanka, out of that 34% was due to cardiovascular diseases (CVD). Perception of CVD risk factors by community will facilitate prevention.

Objective: To assess knowledge and attitude of patients regarding cardiovascular risk factors.

Method: A cross sectional descriptive study was conducted as a pilot study under a main project (main project: Knowledge of, attitudes towards and practices on cardiovascular risk factors among patients in a tertiary Indigenous medicine health care facility in Sri Lanka) at Ayurvedic hospital attached to the Bandaranaike Memorial Ayurvedic Research Institute, Nawinna from February to April 2019. All the 90 patients (18-80 years old, who consented to participate) of the CVD risk management clinics who attended during the period were recruited. The data collection was carried out through interviewer administered pretested questionnaire. Knowledge was assessed by 13 questions and attitude was assessed by 10 statements with 5 points Likert scale. (Practices were not assessed in this pilot study). Those who scored more than 40% were considered as satisfactory with respect to knowledge and attitude. Data were analyzed by Statistical Package for the Social Sciences (IBM SPSS version 22).

Results: The mean age (SD) of the study participants (n=90) was 61.3 (11.4) years, 56.7% (n=51) were females, all of them passed at least grade five education and 13.3% (n=12) were undergraduate/ postgraduate qualified. Among them 31.1% (n=28) were ischemic heart disease patients and 4.4% (n=4) had history of stroke. Majority (96.6%, n=87) had satisfactory knowledge and 77.8% (n=70) had satisfactory attitude on CVD risk factors. Poor knowledge on normal values of blood sugar (36.7%, n=33), blood pressure (43.3%, n=39), body mass index (93.3%, n= 84) and unsatisfactory attitude towards relationship between CVD and alcohol consumption (42.2%, n=38), excess sugar intake (43.3%, n=39) and fatty foods (74.4%, n=67), were observed. There was a weak positive correlation between knowledge and attitude (Spearman's rho=0.262, p<0.05). No significant differences were observed in knowledge (p=0.107) and attitude (p=0.14) between males and females.

Conclusions & Recommendations: Even though overall knowledge and attitude of the participants regarding CVD risk factors were satisfactory, poor knowledge on healthy values of blood sugar, blood pressure, body mass index and high prevalence of unsatisfactory attitudes towards alcohol, sugar and fatty food consumption are matters of concern. Interventions are recommended to enhance positive attitude (enhancing knowledge alone will not give favorable results since the relationship was weak) to promote healthy practices.

Key words*: cardiovascular risk factors, knowledge, attitude, perception*

OP 6

Morbidity profile assessment of outpatients department in Colombo East Base Hospital, Mulleriyawa

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Background: Data on outpatient attendance analyzed by diseases are not collected routinely by Government Hospitals in Sri Lanka. However economic impacts of the mild to moderate ill health conditions are considerable due to the fact that large number of patients utilizing these services. Despite this heavy burden, information on OPD morbidities are not routinely collected and used in healthcare planning.

Objectives: To determine the pattern of morbidity and the demographic characteristics of patients seeking outpatient's department service of the Colombo East Base Hospital Mulleriyawa.

Methods: A cross-sectional study was carried among new outpatients attending to the Base Hospital Mulleriyawa. Systematic sampling technique was used and data was collected using a pretested, interviewer administered questionnaire which consisted of components that collected information on details of patient attended, related demographic factors, the cause of visit and the diagnosis. The follow up visits of the selected patients during the study period were included as separate visits to the outpatient's department. Visits for a new diagnosis by the selected patients during the study period and patient visited to the Emergency Treatment Unit or hospital clinics or those who got admitted during the visit were not considered.

Results: A total of 518 patients were recruited as the study sample. Among them majority (59.3%, n= 307) were females. Highest number of patients (35.5%, n=184) were middle aged, accounted for both sexes. About one fourth of the patients (25.5%, n=132) presented with respiratory symptoms. It was followed by backache and joint pain (17.6%, n=91) and fever (11.8%, n=61). Those leading complains of patients and diagnosis were more like to have variation with compared to the specific age groups and gender (p<0.05).

Conclusions and Recommendations: Adult females made use of hospital service than males and the younger age groups. Respiratory symptoms were the commonest cause of visit to the OPD. These early evidence for probability of changing morbidity patterns with demographic transitions should be taken into account in public program planning.

Key words: *outpatient department, demographic factors, common cause of visit and diagnosis*

OP 7

Sero-prevalence of dengue infection among adults in the Colombo district

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Background: Dengue is endemic in all districts in Sri Lanka, and the incidence of dengue has risen significantly during the last decade. The highest proportion of cases are reported from Colombo district, which is the most populated and urbanised district in the country. Seroprevalence of Dengue infection among adults determines the underlying disease burden, which is a key parameter in policy decision making on the introduction of a successful vaccination strategy in the future.

Objectives: To estimate the seroprevalence of Dengue infection among adults in the Colombo district

Methods: A community-based cross-sectional descriptive study was conducted in the Colombo district in 2017 to assess the sero-epidemiology of Dengue. Residents in the Colombo district from metropolitan, urban and rural sector aged between 20 to 49 years, using an age-stratified, multistage, cluster sampling method, were randomly selected and blood samples analysed for Dengue IgG at a well reputed laboratory. The sample size was 769.

Results: Overall seropositivity was 79.7% which was 61.7% in 20-24 year age-group, reached 84% in 30-34 age-group, and peaked at 86.7% in 40-44 age-group. A higher seroconversion rate was seen in the metropolitan areas, with an overall 90.8% and ranging 82.8% in 20-24 age-group and peaking at 100% in 35-39 age-group. Overall seropositivity in the urban sector was less at 80.2% with 58.3% in 20-24 age-group, peaking at 89.7% in 40-44 age-group. An overall 66.5% were seroconverted in the rural areas ranging from 48.1% in 20-24 age-group and peaking at 72.4% in 35-39 age-group.

Conclusions & recommendations: Dengue seroprevalence in the Colombo district revealed an increasing trend in the age-specific IgG sero-positivity rate with significant differences in the metropolitan, urban and rural areas. Dengue appears to be evolving from an urban illness, spreading further into more rural regions with an increasing burden of disease. The disease burden identified from this study, should enable health policy makers to decide on the practical implementation of a future vaccination strategy.

Key words: *dengue seroprevalence, dengue vaccine, Colombo district*

OP 8
Etiology and selected clinical characteristics of acute kidney injury among adult patients at Teaching Hospital Kandy, Sri Lanka

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Background: Acute kidney injury (AKI) is defined as reversible incapability of kidney to eliminate nitrogenous waste products and to maintain fluid and electrolytes homeostasis. AKI could occur within hours or days. It is associated with severe morbidity and mortality. Identification of etiological profile and clinical characteristics of AKI is important for preventive and therapeutic strategies.

Aims: To describe the etiology and selected clinical characteristics of acute kidney injury among adult patients in Kandy hospital in the central Sri Lanka.

Methods: In a retrospective descriptive study 112 patients admitted to nephrology unit and medical units at Teaching Hospital Kandy, from January 2019 to June 2019 were analyzed with regard to etiological profile of AKI. The diagnosis of AKI was based on Acute Kidney Injury Network definition and classification. The patients diagnosed with chronic kidney disease (CKD) stage 5 (estimated glomerular filtration rate <15 mL/min/1.73 m2) were excluded. Results were analyzed using SPSS version23.

Results: There were 61 (54.46%) males and 51 (45.54%) females. Mean age at presentation was 60.98 years (age range 14 – 87 years). Average hospital stay was 7 days (range 3 – 31 days). AKI stage 1, stage 2 and stage 3 were detected respectively in 60 (53.6 %), 29 (25.9 %) and 23 (20.5%) patients initially. AKI occurred in association with infections (71.4%), acute glomerulonephritis (12.5 %), envenomations (5.36 %), drugs (3.57%), hemolytic uremic syndrome (1.78 %) and other (contrast induced, hepato-renal syndrome, accelerated hypertension) (5.36%). Pneumonia constituted 32.5 % of the infections followed by urinary tract infection in 25%. Tropical febrile illnesses (dengue and leptospirosis) constituted 15% of patients with AKI. Renal replacement therapy was required in 27.7 % (hemodialysis in 25%, continuous renal replacement therapy in 2.7%) of patients. Plasma exchange therapy was required in 4.5% and intensive care unit admission was warranted in 5.3% of patients. Death occurred in 8 (7.14 %) patients (1 in stage 1, 2 in stage 2 and 5 in stage 3).

Conclusion and Recommendations: Commonest etiology of AKI was infections. Higher AKI severity is seemingly associated with increased mortality. Early identification of etiology of AKI and providing appropriate management strategies will likely to reduce the need of renal replacement therapy and improve the outcome.

Key Words: *acute kidney injury, etiology, Sri Lanka*

OP 9

Proportion and factors associated with Body Dysmorphic Disorder among patients attending a plastic surgery clinic at state sector

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Background: Patients with body dysmorphic disorder (BDD) are excessively preoccupied of an imagined appearance flaw which causes considerable impairment in their educational, social and professional lives. While living a very restricted life due to appearance concerns, they also suffer from several comorbid conditions such as depression, social phobia and avoidant personality. However, they commonly consult cosmetic dermatologists or surgeons rather than psychiatrists, due to poor awareness of the condition. Even worse, majority of them are dissatisfied postoperatively, despite having a favorable surgical outcome. No evidence is available to assess the magnitude of the problem in Sri Lanka.

Objectives: This study assessed the proportion of patients with BDD attending a state sector plastic surgery clinic and its associated factors.

Methods: A hospital based cross-sectional study was conducted using a questionnaire validated to the local setting, among 240 consecutively selected patients based on a priori sample size calculation, attending the plastic surgical clinic at the National Hospital of Sri Lanka. The proportion was estimated with its 95% confidence interval. Associated factors were assessed by multi-variate analysis, using the patients diagnosed to have BDD in the cross-sectional study as cases and others as controls. Statistically significant factors were determined with their adjusted odd's ratios and 95% confidence intervals. Analysis was done using SPSS 22.

Results: The mean age (SD) of the study sample was 35.7 (+/- 9.7) years. Using the validated questionnaire, 8.8% (95% CI=5.2-12.4) of study population were diagnosed with Body Dysmorphic Disorder. Past history of mental illness (adjusted OR=21.7, 95% CI=3.5-34.2) and an average gross monthly income less than LKR 10,000.00 (adjusted OR=4.41, 95% CI=3.5-7.6) were found to be significantly associated with BDD in multivariate analysis.

Conclusions & recommendations: Proportion of BDD patients attending the state sector plastic surgical clinic was low. However, it is recommended that plastic surgeons consider the differential diagnosis of BDD among their patients with a past history of mental illness or those from families with lower income. Future research should consider extending the study to populations attending other possible settings such as dermatology clinics and involving the private sector should be done to assess the burden of the illness.

Key words: *Body Dysmorphic Disorder, screening, plastic surgery*

OP 10

Impact of Xpert MTB/RIF (GeneXpert®) testing for the diagnosis of drug sensitive and resistant tuberculosis in Sri Lanka

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Background: Sri Lanka has committed to reach the End Tuberculosis (TB) strategy targets which aims to reduce the incidence of TB to 13/100000 population by the year 2025. However, currently an incidence of around 39/100000 TB cases is reported to the health system with a case gap of around 4000, compared to the estimated number of TB cases by the World Health Organization (WHO). This situation urges the country to adopt an accelerated pathway to strengthen case finding and to prevent emergence of new cases. Implementation of novel diagnostic methods is one of the key strategies in this regard. Xpert MTB/RIF (GeneXpert) is a WHO recommended rapid diagnostic (WRD) test with a higher sensitivity and a specificity compared to sputum microscopy and with an added advantage of detecting Rifampicin resistance.

Objectives: To improve detection of drug sensitive and resistant tuberculosis by utilizing GeneXpert, which is an advanced technological intervention for TB diagnosis.

Methods: GeneXpert facility was available only in National Tuberculosis Reference Laboratory (NTRL) in 2016. This service was expanded in a phased-out manner to eight and 21 more sites in 2017 and 2018 respectively. By the end of 2018, the service was provided through 31 machines covering entire country. Medical Laboratory Technicians (MLTs) were trained on the use of the machines. Specific indications for Xpert testing for presumptive TB and presumptive MDR TB were formulated and circulated to all responsible administrative authorities and colleges.

Results: Reported number of bacteriologically confirmed pulmonary TB patients showed an increase by 162 (4%; from 4019 to 4181) from 2017 to 2018. Comparison of the 1st quarters of the years 2018 and 2019 also showed an increase of 101 patients who are bacteriologically confirmed pulmonary TB (from 967 to 1068; 10%) with nearly a threefold rise of smear negative but WRD positive cases (from 26 to 72). Moreover, reported new cases of Drug Resistance TB (DRTB) has shown an upward trend since the year 2016.

Conclusions & recommendations: Utilization of Xpert test for diagnosis of TB has led to an increase in detection of both drug sensitive and resistance tuberculosis. Continuous promotion of Xpert testing among clinicians is therefore recommended.

Key words: *TB diagnosis, Xpert testing, Pulmonary TB*

OP 11

Physical and mental health and job satisfaction among male construction workers in selected urban construction sites

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Background: Nowadays construction sites are mushrooming everywhere in the urbanized areas of Sri Lanka, keeping pace with the rapid economic development. As this industry is inseparably associated with numerous risks endangering the workers, it is important to assess and identify any potential impairment in the overall health of construction workers.

Objectives: To assess the physical and mental wellbeing and job satisfaction among male construction workers in selected urban construction sites.

Methods: A cross sectional descriptive study was carried out in a simple random sample of 120 male workers at three urban construction sites using an interviewer administered questionnaire that was specially designed for the purpose. Socio-demographic factors, level of physical activity, nutrition and diet, alcohol and smoking, rest and sleep, energy and fatigue, pain and discomfort, level of mental wellbeing and level of job satisfaction of the workers were assessed. Rate of Perceived Exertion Scale (CR10), Fatigue Severity Scale, Warwick Edinburgh Mental Well-being Scale, Job Satisfaction Survey Questionnaire were the standard questionnaires used in developing the data collection tool and for other sections sets of questions were developed and validated through a content expert. In addition a calibrated stadiometer and a bathroom scale were used for data collection. Data were analysed using SPSS software.

Results: A majority (73.3%, n=88) of the workers monthly earned more than thirty thousand rupees. A majority (42.5%, n=51) were engaged in vigorous physical activities. Most (56.7%, n=68) had normal BMI while 21 (20.8%) were underweight. Prevalence of alcohol use and smoking were 66 (55.0%) and 54 (44.2%) respectively whereas 24 (36.9%) were consuming alcohol for more than 10 years and 5 (9.4%) were smoking more than 10 pack years. Majority had adequate sleep but most (58.3%, n=70) were not involved in any leisure activity. Majority (83.3%, n=100) was not fatigued whereas 80 (66.6%) had musculoskeletal pains, most common being the back pain. Most had good mental wellbeing (99.2%, n=119) and good job satisfaction (94.8%, n=115).

Conclusions and recommendations: The monthly income of majority of the workers was high and the overall nutritional status was satisfactory whereas alcohol use and smoking were highly prevalent. Many suffered from musculoskeletal pains but majority had good mental wellbeing and were satisfied about their job. Further studies of larger scale are recommended.

Key words: *construction workers, health, physical, mental, job satisfaction, well-being*

OP 12
Prevalence and associations for cardio-respiratory health problems related to household air pollution among female householders in a rural setting in Sri Lanka

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Background: Air pollution outdoors and at household level has been globally identified as a major contributing factor towards non-communicable diseases. Burning of biomass fuel, is one such major contributor in the South East Asian Region for household air pollution.

Objectives: To assess the prevalence and associated factors to household air pollution and its effect on cardio-respiratory health, among female householders in rural settings in Sri Lanka.

Methods: A descriptive cross-sectional study was conducted among main female householders from 15 rural public health midwife areas in Gampaha MOH, selected using probability proportionate to size cluster sampling. An interviewer administered questionnaire was used to collect data on the cardio-respiratory symptoms among the female householders and on other proxy markers of household air pollution. Prevalence of symptoms and associations of these symptoms with proxy markers were assessed using chi square testing. SPSS software was used for analysis and p<0.05 was considered as the level of significance.

Results: Response rate was 93.4% (n=394). One third of the participants (n=131) were aged 26 to 35 years with 77% (n=305) being housewives. Biomass fuel was used by 34% (n=132) as primary fuel and by 37% (n=144) as a secondary fuel with 22% (n=87) using unimproved biomass stoves. Out of all 87% (n=341) did indoor household cooking with only 47% (n=187) having access to chimney. Symptoms such as allergic rhinitis (29%; n=114), persistent cough (10%; n=41), persistent phlegm (14%; n=55) were prevalent among the study population. Associated factors such as monthly income, occupation, asbestos roofing, type of cooking fuel, place of cooking and availability of a chimney were significantly associated with the prior mentioned respiratory symptoms.

Conclusions & recommendations: Biomass usage and unimproved biomass stove use was high among the study population. Carrying out health education on minimizing biomass fuel use, putting up regulations and policies in indoor plastic burning, biomass usage and to ensure adequate ventilation at building houses is needed. Further longitudinal analytical studies will help generate stronger evidence related to cardiovascular symptoms related to household air pollution.

Key words: *household air pollution, cardio-respiratory symptoms, biomass*

OP 13
Management of the dead in disasters: knowledge, attitudes and self-reported practices among a group of army soldiers in Galle District, Sri Lanka

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Background: Improper management of the dead in disasters can hinder the identification, leads to loss of important forensic evidence and affects the dignity of the dead. Army soldiers play a vital role in dead body management in disasters.

Objectives: To describe the knowledge, attitudes and self-reported practices on management of the dead in disasters among army soldiers in Galle district, Sri Lanka.

Methods: This descriptive cross sectional study was conducted in 2017 using a pre-tested self-administered questionnaire in two selected army camps in Galle district. Based on the percentage of correct responses, army soldiers were classified into three groups denoting their overall knowledge using pre-determined cut-off values. Those who had a score of >70% and <50% were categorized as having a "good" and "poor" level of overall knowledge respectively while those with a score of 50-70% were considered as having a "moderate" level of knowledge.

Results: The entire study population of 188 army soldiers (N=188) was included in this study. A majority (61.2%, n=115) had a moderate level and 32.4% (n=61) had a good level of overall knowledge. In particular, knowledge on wearing face masks by dead body recovery teams (8%), spraying disinfectants to dead bodies (30.9%) and use of ambulances to transport the deceased (34%) was poor. Respectively 21.8% and 52.1% believed that funeral rites are not important and dead bodies of foreign nationals should be treated better than locals. Only 12.8% believed that there's no need to respect dead bodies as they are dead. A majority (69.1%) had reported that they had engaged in dead body management in disasters as army soldiers and 59% had reported that they had used gloves and boots in dead body recovery process.

Conclusions & recommendations: Even though a majority had either moderate or good level of overall knowledge, deficiencies of knowledge in certain aspects of management of the dead in disasters were evident. A majority had more favourable attitudes in many aspects of management of the dead in disasters. There is a space for improvement in certain practices of dead body management.

Key words: *dead body management, disasters, army soldiers, Sri Lanka*

OP 14

FINE PARTICULATE AND BLACK CARBON EXPOSURE OF COMMUTERS TRAVELLING IN THE PUBLIC BUSES OF CITY OF COLOMBO

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Background: The city of Colombo has expanded and traffic flow had changed in past few years. Number of vehicles on the roads has markedly increased. Thousands of people travel to their work destinations in city of Colombo. Fine particulate matter and black carbon are considered to be hazardous air pollutants in vehicle exhaust.

Objectives: To assess the exposure of fine particulate matter and black carbon for commuters in the buses in the city of Colombo

Methods: As indicators for the air pollutants exposure, particulate matter (PM2.5) and black carbon (BC) were monitored. A research assistant as similar to a public bus commuter; carried a real-time, battery-operated PM2.5 and BC monitors, and global positioning system (GPS) tracker in public buses commuted in the city of Colombo and suburb. Thirteen bus routes in city of Colombo were purposively selected based on the geographical distribution of routes. Research assistant got-on to the bus at the starting bus stand and got-down at the end bust stand. Continuously logged data (logged in every minute) were downloaded to a computer. Average PM2.5 and BC concentration exposure for bus commuters were calculated. Speed of the bus and distance were calculated from the coordinates obtained from the GPS tracker.

Results: Length of 144km and travelling time of 803 minutes (average speed = 10.6 km/hr, standard deviation (SD) 3.33km/hr; average distance = 11.1km, SD = 5.1km; average duration = 62.0 min., SD = 20.1min.) were monitored for personal exposure of BC and PM2.5 in the public buses travel in the city of Colombo and suburb. Average personal exposure of BC concentration was 16.87 μg/m3 (SD = 8.86 μg/m3). Average personal exposure of PM2.5 was 147.68 μg/m3 (SD = 51 μg/m3) which exceeded the threshold values of World Health Organization (WHO) for 24 hours. Speed of the bus is not associated with the total PM2.5 concentration (Spearman's rho = 0.444). Out of the monitored bus routes, highest PM2.5 concentration was reported in the bus routes of Colombo Fort to Wellampitiya (245.11 μg/m3) and the lowest was reported from Colombo Fort to Maharagama (74.42 μg/m 3).

Conclusions & recommendations: Median personal PM2.5 exposure concentration was higher than the WHO recommended threshold value for 24 hours in the bus routes. Remedial actions should be further implemented to improve the air quality levels to minimize the public health impact.
Key words: *air pollution, particulate matter, black carbon*

OP 15

Acute health and comfort related issues encountered in working environment by employees in a selected government institute in Battaramulla

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Background: The sick-building syndrome (SBS) is defined as occurrence of a high frequency of irritative symptoms of unclear aetiology which can be divided into mucous membrane symptoms, general symptoms and dry skin. The symptoms are experienced as work-related as they typically grow worse during the workday in the building and disappear after the person has left the building.

Objectives: To assess the prevalence of acute health and comfort related issues due to perceived building factors and psychosocial factors in employees in a selected government (non-industrial) building.

Methods: A cross sectional descriptive study was carried out among 120 office employees of Ministry of Lands, Battaramulla. A self-administered questionnaire that assessed symptoms and perception of the physical and psychosocial environment was used. Data were analysed using the SPSS (Statistical Packages for Social Sciences) software.

Results: Most of the office workers were found out to present with SBS symptoms, with a higher proportion in the study population complaining of general symptoms. The commonest symptom was fatigue (49.6%, n=57), closely followed by headache (40%, n=46), skin dryness (27.8%, n=32) and severe headache (20%, n=23). The least common symptom was rash/ irritated skin (2.6%, n=3). Majority of the perceived building factors i.e., temperature (p<0.001), humidity (p=0.001), lighting (p=0.021), noise (p=0.005) and odour (p=0.032) displayed statistically significant associations with prevalence of symptoms. Job satisfaction (p=0.01), job category (p=0.01), duration of stay in office (p=0.04) and number of people in the office compartment (p=0.002) also were associated with the SBS symptom prevalence. Socio demographic factors such as age, gender, etc. were not found to be predictors of SBS.

Conclusions & recommendations: This survey confirmed the presence of features suggestive of SBS in the selected institution. The perceived building factors were strongly associated with the prevalence of SBS related symptoms, and other conditions such as work conditions and psychosocial factors were accounted for symptom prevalence to some extent as well. Establishing good communication between workers and management, adequate training for routine inspection and maintenance of air conditioners in the office, taking measures to improve job satisfaction of workers and carrying out further studies regarding SBS with a larger study population using more focused questionnaires are recommended.

Key words: *Sick Building Syndrome, perceived building factors, psychosocial factors*

OP 16
Activity based food panel for nutrition promotion

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Background: Nutrition promotion is of prime importance to overcome unhealthy food habits. Activity based food panel is an innovative IEC (Information-Education-Communication) materiel designed for the Happy village initiative which is a health promotion setting developed for best practices in Sri Lanka.

Objective: Objective of the panel is to empower people to select healthy diet, based on food functions and categories. The process involves, participation of individuals and small groups, through one-to one and group communication
The Food Panel is expected to be utilized at Medical Officer of Health level, curative sector and also as a teaching tool for health care workers.

Methods: The food panel consists of a magnetic board; magnetic pieces to be stuck on the board. Outer wings of the board and backside explaining the activities of the panel, and the food item list; while interior display the activity areas. Activity areas includes the following:
Step 1. Identify food based on functions
Step 2. Identify food categories
Step 3. Discuss key messages
Step 4. Serve your food plate
Step 5. Categorize food within the group based on frequency of consumption
Panel addresses the risk factor ''unhealthy diet'' while giving space for the health care worker and the client/clients to actively participate and correct themselves, with solutions.
Training of trainers programs for Consultant Community Physicians, Health Education Officers, Health Education Nursing officers and divisional health staff had been conducted. This panel was distributed for district, divisional and for selected hospitals.

Results: Recourses were used as public health experts, district and divisional health care staff, postgraduate trainees. A total of 187 training of trainers programs were conducted in focal, district and divisional levels, where 52 (100%) Health Education Officers, 175 (47.5%) Medical Officers of Health and a total number of 359 compulsorily divisional health staff, were trained in the Happy village. Outcomes were set as % of increasing the favourable dietary practices (e.g.: salt, sugar, reduction in the setting). Demand exceeding the printing and resource scarcities on Tamil translation were the main obstacles.
Conclusions & recommendations: Health literacy on nutrition grounds is poor in the society. Individual and community empowerment need to establish via this type of IEC materials which enhance interactive participation of both the health care worker and clients.
Key words: *nutrition promotion, food panel, dietary patterns, Nutrition Health Literacy*

OP 17

Investigating the relationship between body mass index, hamstring flexibility and cardiovascular endurance of male undergraduate students of Faculty of Medicine University of Colombo.

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Background: Overweight and obesity in young adults, is a serious epidemic issue, which is arising in Sri Lanka, especially in the urban community. Excessive body mass is influenced in human anthropometry causing for the changes of cardiovascular endurance and muscular flexibility.

Objectives: To investigate the relationship between Body Mass Index, hamstring flexibility and cardiovascular endurance of male undergraduate students of Faculty of Medicine, University of Colombo.

Methods: A cross- sectional analytical study was conducted among a total numbe of 100 first and second year male medical undergraduates in Faculty of Medicine, University of Colombo. Convenience sampling method was followed and the duration of the study was one year. The height was measured by using a standard stadiometer to the closest 0.01m, the weight was measured by using a digital weighing scale to closest 0.01kg and the Body Mass Index was calculated separately for each individual. The Body Mass Index categories were defined according to the Body Mass Index references, proposed by the Asia-Pacific perspective. Queen's college 3 minutes step test and 90^0-90^0 active knee extension test were used to measure the cardiovascular endurance and hamstring flexibility respectively. Data were analysed by using descriptive statistics, Pearson correlation at the significance level of 0.01.

Results: Mean age (SD) of the study population was 22.36 years (1.54). The mean Body Mass Index, cardiovascular endurance and the popliteal angle (SD) of the study sample were 21.45 kg/m^2 (2.69), 65.38 ml/kg/min (4.58) and 48.12^0 (2.09) respectively. A negative significant correlation (r =-0.427, p<0.01) was identical between Body Mass Index and cardiovascular endurance and a positive significant correlation (r =0.306, p<0.01) was identical between Body Mass Index and popliteal angle of the study group. The hamstring flexibility (SD) of the right and left lower limbs were 48.67^0 (1.54) and 47.57^0 (1.72) respectively.

Conclusion & Recommendation: It was observed a significant relationship of Body Mass Index with the cardiovascular endurance and the hamstring muscle flexibility within the study group. So, the Body Mass Index can be used as a predictor of cardiovascular endurance and hamstring flexibility. Practice of bilateral hamstring stretching exercises can be recommended for the young adults who have higher Body Mass Index.

Key words: *Body Mass Index, Hamstring Flexibility, Cardiovascular Endurance*

OP 18
Grading of food handling establishments in Kalutura MOH area: Is it effective in ensuring the food hygiene?

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Background: Food hygiene is one of the key concerns in Public Health and there is an organized food handling establishment inspection system and a laboratory service established under the Food Act of Sri Lanka. Furthermore, grading of food handling establishments is categorized in to four grades (A, B, C, and D) using the Health – 800 format to ensure food hygiene in the country. However, the public satisfaction on these establishments is poor.

Objectives: This study aims to assess the effectiveness of grading of food handling establishments using Coliform and E-Coli counts in microbiological food sample analysis reports.

Methods: One hundred twenty eight (Grade A=15, B=70, C=39, D=4), out of 188 hotels graded with Health – 800 formats in Kalutara Medical Officer of Health area (MOH) were randomly selected for this study. Coliform and E-Coli counts in microbiological food sample analysis reports issued by the National Institute of Health Sciences Food lab (Test methods: Coliform = SLS516:3:1988, E-Coli = SLS516:3:1986) in these respective hotels were also obtained from reports received within last 6 months. The chi-squared test was performed in data analysis using Minitab 17. For Coliform count more than or equal to 110 per gram was considered as high while E-Coli count more than or equal to 15 per gram was considered as high.

Results: In 54 (42%) reports, Coliform count was higher (Grade A=3, B=31, C=17, D=3) and in 23 (18%) reports E-Coli count was higher than the upper limit (Grade A=1, B=15, C=6, D=1). The Chi-squared test result for Coliform count analysis is $\chi2 = 4.95$ and for E-Coli count it is $\chi2 = 2.18$. The proportions of hotels with high and low Coliform and E-Coli counts were not significantly different between the four grades ($p > 0.05$).

Conclusions and Recommendations: Present grading system does not reflect the accurate food hygiene condition of the particular food handling establishment; therefore, could not be effective for ensuring food hygiene. Hence, the study recommends an in-depth investigation in to the present grading system and revision if necessary in order to ensure food hygiene in the country as a significant proportion of the community depends on the hotels for their day today food requirement.

Key words: *community health, fast food, food safety, hygiene*

OP 19

Is peripheral ultrasound BMD measure, a useful tool to identify the Vitamin D deficiency: A study among a population of pregnant mothers in the Colombo district

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Background: National policies that include fortification and supplementation of vitamin D do not exist in Sri Lanka. However, epidemiological data from neighbouring countries, have consistently demonstrated a high prevalence of vitamin D deficiency among all age groups. Peripheral ultra sound bone mineral density (BMD) measures are a easy way to predict the bone health among the pregnant mothers. However, there is a dearth of evidence on vitamin D status/ BMD of vulnerable groups in Sri Lanka.

Objective: To determine the association between the BMD measures and vitamin D levels in a population based sample of pregnant mothers in Colombo district.

Methods: A descriptive analytical study was carried out among 346 pregnant mothers, who were followed at the field antenatal clinics conducted by the Ministry of Health. The sample size was calculated to represent the pregnant mothers in the Colombo District using a previous prevalence pattern of vitamin D deficiency [($n=z^2*p(1-p)/d^2$) z=95% confidence interval; p=prevalence pattern and d=margin of error]. Sample collection was carried out as a convenience sampling method among all the Medial Officers of Health (MOH) areas in the Colombo district. Ethical clearance was obtained from ethics review committee, University of Sri Jayewardenepura. An interviewer administrated questionnaire was used in the data collection and a venous blood sample was collected for the laboratory analysis. Serum was analysed for calcium (Ca), vitamin D, bone specific alkaline phosphatase (ALP) and parathyroid hormone (PTH). BMD of tibia bone was measured using Sunlight MiniOmni portable bone sonometer. Data were analysed using SPSS version 15.

Results: Mean age of the study population was 29±6 years. Mean ± SD of Ca, vitamin D, bone specific ALP and PTH were 2.4±0.2 mmol/L, 18.8±8.0 ng/mL, 80±28 IU/L and 25.8±12.0 pg/mL respectively. Vitamin D deficiency (<10ng/mL) and insufficiency (10-20ng/mL) were observed among 42 (10.4%) and 201 (51.2%) participants respectively. BMD assessment showed normal and osteopenia/osteoporosis in (56.9%) and (43.1%) participants respectively. However, BMD measures such as speed of sound and t-scores didn't show any statistically significant association with vitamin D levels (p>0.05).

Conclusions & recommendations: Vitamin D deficiency/insufficiency is high among pregnant mothers and BMD measures did not give a clear understanding on the vitamin D deficiency. Thus, larger scale studies are needed to investigate further on this area.

Key words: *Vitamin D, BMD, Osteoporosis, Osteopenia, pregnancy*

OP 20
A review on Sri Lankan legislation of flavor enhancers

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Background: Flavor receptors elsewhere in digestive tract sense different flavors. Enhancing flavors using naturally occurring chemical compounds got historically popular in East Asia. Modern food industry uses this principle to attract more customers towards their products and to maximize profit margins. To keep commercial additions of flavor enhancers into food under control, proper legislative regulations play a significant role. However, these legal systems are country specific. This paper closely reviewed both strengths and weaknesses of legal regulations on flavor enhancers in Sri Lankan context, when compared with international standards.

Objectives: This review is intended to identify strengths and weaknesses of Sri Lankan legislative framework on flavor enhancers under FOOD ACT No.26 of 1980 and its amendments.

Methods: A critical review of Sri Lankan legislation on flavor enhancers was conducted. Authors also compared Sri Lankan system with approved flavor enhancer types, maximum permitted limits of flavor enhancers and permitted food groups for flavor enhancer use of four different international legislative systems, namely, Food Standards Australia New Zealand, Singapore Food Agency, European Food Safety Authority and United States Food and Drug Administration.

Results: Following close examination of both local and international systems, authors identified the need to exhibit all flavor enhancers in a given food item on its label, banning use of flavor enhancers in food products for children under three years and providing a prohibited list of 25 dietary options for flavor enhancer use as strengths in current system, while accepting food items with flavor enhancers that approved outside the country, failing to provide a list of banned flavor enhancers and lack of technical facilities with no legal structure that periodically monitor flavor enhancers appear in the market, as specific weaknesses.

Conclusions and recommendations: Review team suggest four possible solutions to impose strict regulations, in order to rule out flavor enhancers that are not mentioned under current law, to gazette a banned list of flavor enhancers, to amend existing legal framework including regulations that limit the use of flavor enhancer effects of multi-purpose food additives and to establish a periodical monitoring system with sufficient laboratory facilities and human resources.

Key words: *flavor enhancers, legislation, Sri Lanka*

FREE PAPER SESSION 5: HEALTH SYSTEMS & PATIENT SAFETY

OP 21

Assessing patient safety culture in Teaching Hospital Mahamodara, Galle.

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Background: Healthcare institutions are considered as reliable organizations where mistakes should be prevented or minimized to ensure the patient safety. Creating a safety culture is a concern in healthcare industry. Characteristics of a proactive safety culture includes: committed leadership to learn from errors; identification of hazards; teamwork; reporting and analyzing adverse events; and, perceiving employees as key players in improving safety. The authors explored the norms and beliefs of the hospital staff of the Teaching Hospital Mahamodara on patient safety to provide an explanation for the factors unique to staff in creating no blame environment.

Objectives: To assess the perception of the staff regarding patient safety culture, the factors affecting the staff perception and to determine the ways to improve and maintain the patient safety culture at Teaching Hospital Mahamodara (THM).

Methods: A hospital based cross-sectional descriptive study was carried out, from August 2018 to May 2019, at THM using Hospital Survey on Patient Safety Culture (HSPPSC) questionnaire, which was culturally adapted and validated, to measure 12 patient safety culture dimensions of the patient safety culture. A pre-tested self-administered questionnaire which includes 42 items on 0 to 5 point Likert's scale was distributed among hospital staff. A total of 279 questionnaires were returned out of 416 (response rate 67%). Data were analyzed using HSOPSC data entry and analyzing tool.

Results: The average positive response rate for the 12 patient safety culture dimensions of the HSOPSC survey was 56%. The results showed that hospital staff at THM has positive perception towards patent safety culture in their organization. The dimension that received the highest positive response rate was "Teamwork within unit." The dimension with the lowest percentage of positive responses was "Staffing. Forty eight percent respondents graded overall patient safety culture as 'excellent' or 'very good'. Seventy eight percent of respondents had not reported any adverse event during last 12 months.

Conclusions & recommendations: The HSOPSC tool is a practical avenue to understand the health and safety culture in THM when initiating health and safety programs to understand the critical areas that should be focused. In general, hospital staff of THM feels positively towards patient safety culture within the hospital. In addition, THM should enhance the education and should move towards a blame-free culture to improve the adverse event reporting.

Key words: *patient safety, patient safety culture, Sri Lanka*

OP 22
Quality of the nursing documentation and challenges faced by the nurses at District General Hospital Kalutara, Sri Lanka

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Background: Nursing documentation is very important in effective patient care and the legal aspects. Nurses have major responsibility to maintain accurate and complete documentations.

Objectives: To asses quality of nursing documentation and to identify challenges regarding nursing documentation

Method: A Quantitative, descriptive, cross-sectional research study was conducted in 2018 by using 992 Bed Head Tickets to assess the quality of nursing documentation according to the documentation guide line which is issued by Ministry of Health. A total of 211 nurses participated in this study. Self-administered pre tested validated Questionnaire was distributed among nurses. Data were analysed using Statistical Package for the Social Science software 21. Results are shown in percentages.

Result: Results from the study showed that although the trained nurses had good theoretical knowledge of the documentation, accurate documentation rate was 15.6 % (n=155). Respond rate was 81 %(n=211). Majority of the nurses were females 93.8% (n=198), while 6.2% (n=13) were male nursing officers, and majority of nurses (94.8%, n=200) had received their tertiary and higher education. Furthermore, 38.4% (n=81) nurses have less than 10 years' experience in nursing practice while 61.6% (n=130) have more than 11year's experience. A total of 70.2% (n=198) nurses informed that there were insufficient nursing officers to complete the duties while 29.8% (n=62) nurses informed that, there are adequate nursing officers available in their units. A total of 89.4% (n=179) nurses stated that the nursing documentation is important.

Conclusion & Recommendations: Nurses working in General Hospital Kalutara experienced that the record keeping as a challenging activity owing to variety of challenges which include lack of time to complete records, shortage of staff, increased work load, lack of supervisor supervision and lack of stationaries. Improving quality of documentation is a complex and challenging process in our setting. Provisions of necessary infrastructures, supervisor supervisions can enhance quality of documentation and also by conducting awareness programs to develop attitudes of nursing officers.

Key words : *nursing documentation, quality*

OP 23

A developing country's experience towards a sustainable health care financing system

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Background: Sri Lanka's health care financing strategy is mainly a combination of two resource mobilization methods; (a) general taxation and (b) out-of-pocket payments by households. As an upper middle income category developing country, Sri Lanka has to look for alternative health financing mechanisms. In 1997, Government of Sri Lanka initiated a social health insurance scheme, named "Agrahara" as an alternative health financing method to provide financial protection against out of pocket spending. Prime objective of this Medical Insurance Scheme was uplifting the living standards of public servants and their close family members which cover nearly 20% of Sri Lankan citizens.

Objectives: To assess the experience of employees at the Head Office of Department of Motor Traffic, Sri Lanka with regard to "Agrahara" medical insurance.

Methods: A descriptive cross sectional study was conducted and a self-administered questionnaire was given to all the employees (356) at the Head Office of Department of Motor Traffic, which obtained a response rate of 89.04%. Qualitative data was collected using check lists and analyzed using deductive approach.

Results: Mean age of the public sector employees was 46.8 years, and 83.9% of them were totally dependent on "Agrahara" for their health expenses. Lack of understanding among the respondents and benefit recipients was also observed. Only 10% of benefit types were known to respondents. Benefit utilization was high as 74.8% but only 69.1% expected to utilize "Agrahara" in the future. Out of 10 benefit types 95.2% of the sample have utilized only four types including spectacles (47.9%), private hospitals (21.1%), government hospitals (13.6%), and child birth cover (12.6%). More than half of the employees have utilized "Agrahara" for spectacles. However, Agrahara was found to be not causing any catastrophic health expenses.

Conclusions & recommendations: Therefore "Agrahara" Medical Insurance Scheme is the only insurance option available for a large proportion of the public sector employees and also the effective alternative health financing model against tax based free health care system for considerable percentage of Sri Lankan citizens. Hence it is very important to expand and stabilize the scheme with more awareness strategies and user friendly interventions.

Key words: *Sri Lanka, Social Health Insurance, Health Financing*

OP 24

Cost estimation of the new HPV/DNA test screening procedure among 35-year-old, ever married women in Kalutara district

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Background: Cervical cancer is the 2nd leading cause of female cancer in Sri Lanka and annually thousand seven hundred and twenty one new cases of cervical cancers are diagnosed and 690 women are died from the disease, according to 2012 estimates. Even after 20 years of cervical cancer screening (with pap smears), there is no marked reduction in incidence, morbidity and mortality of cervical cancer in Sri Lanka. One major drawback of the present cervical cancer programme is suboptimal sensitivity (53%) of the pap smear to detect Cervical Intraepithelial Neoplasia. Papaniculaou smear screening procedure cost according to Gamage et al. (2009) was Rs.308.18. Cervical cancers are virtually associated with sexually transmitted human papillomavirus (HPV) infection. Persistent infection with carcinogenic HPV types is the cause of most cervical cancers. cobas 4800 HPV/DNA screening test has an optimum sensitivity (92.9%) to detect Cervical Intraepithelial Neoplasia.

Objective: Estimate the cost of new HPV/DNA screening procedure to assess the economic feasibility of the new test.

Methods: The cost estimation of the HPV/DNA specimen collection was done at a randomly selected community well woman clinic (WWC) by the PI, by using a lot method in the district of Kalutara. The selected WWC for the costing survey was at Neboda within the Dodangoda MOH area in Kalutara district. To estimate the cost incurred in screening of the HPV/DNA specimen by cobas 4800 screening machine, the reference laboratory at DGH Kalutara was utilized. Five women, who attended to WWC for HPV/DNA screening on the scheduled clinic day in each months of September, October and November 2018, were randomly selected for cost estimation. HPV/DNA cervical specimen collection was done by MOOH/PHNSS, using a special specimen collection instrument, which consist of broom like device and a container with thin prep cell collection media for liquid base cytology.

Results: The total estimated unit cost of HPV/DNA specimen collection procedure incurred by the government in the community WWC was Rs. 2,569.38. The total estimated unit cost incurred by the government in the laboratory procedure for HPV/DNA screening was Rs. 50.57. The total estimated unit cost of HPV/DNA specimen screening procedure incurred by the government in community and laboratory was 2619.95. The estimated unit cost of the HPV/DNA test procedure including administrative cost was Rs. 2881.95

Conclusions & recommendations: HPV/DNA screening test in thin prep cell collection media is economically feasible to implement among 35-year age cohort ever married women in Kalutara district. It is better to further assess alternative specimen collection method (i.e. dry swabs) of HPV/DNA screening test to determine more suitable method for resource limited setting.

Key words: *cervical cancer screening, pap screening, HPV/DNA screening*

OP 25

Utilization of employer sponsored health insurance by employees in selected private sector organizations in the Gampaha district

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Background: Rising out-of pocket (OOP) expenditure for health care necessitates explores alternative health financing mechanisms. Contribution of Employer Sponsored Health Insurance (ESHI) in financial risk protection has not been understood well in the Sri Lankan context due to paucity of data on benefits and utilization of ESHI.

Objectives: Assess the benefits and utilization pattern of ESHI by employees in selected private sector organizations in the Gampaha district

Methods: A descriptive cross-sectional study was conducted in three selected organizations providing ESHI. Benefits of ESHI were assessed using in-depth interviews with Human resource managers. A survey using a self-administered structured questionnaire was conducted among 409 employees selected through proportionate stratified sampling to determine utilization pattern of ESHI (assessed in terms of frequency of use of ESHI at different health encounters).

Results: A single company provided ESHI to all employees while manufacturing workers were excluded in others. Premium was entirely borne by the organizations. Employee, spouse and unmarried children were eligible for benefits. Children with congenital anomalies and parents were excluded. Outpatient and inpatient care from public/private hospitals, selected Ayurveda hospitals, registered allopathic/Ayurveda general practitioners and specialists were covered. Annual coverage limit (ACL) for outpatient care was Rs10000 per family member while managers and executives had unlimited coverage in one organization. ACL for inpatient care per family member was highest (Rs150000-350000) for managers and lowest (Rs75000-85000) for supervisor/Staff or manufacturing workers. ACL for spectacles for employee was Rs5000 while Rs17000 was given for managers and executives in one organization. Both direct payment and reimbursement methods were used. Disease screening packages were not covered. Deductibles, co-payment or coinsurance were not included in any insurance policy.
Consultation, investigations or medicines incurred cost in 90.5% (n=639) of Outpatient encounters. ESHI and ESHI of a family member were used to pay for 34.9% and 5.3% of encounters respectively while 59.8% were borne OOP. Around 49.2% (n=67) of admissions to private hospitals were paid by ESHI while 49.2% were borne OOP. Rate of utilization of ESHI was highest among managers (Outpatient -87.2%, Admissions – 80%) and lowest among manufacturing workers (Out-patient -30.6%, Admissions -29.6%). ESHI was used to pay for 20.6% (n=19) of spectacle purchases.

Conclusions and Recommendations: Utilization pattern suggests ESHI is a promising source of health financing despite lacking equitable provision in terms of coverage of staff categories and ACL.

Key words: *employer sponsored health insurance, utilization pattern, annual coverage limit, out-of-pocket expenditure, financial risk protection*

OP 26
Evidence based health planning by Geographic Information System: A case study for Healthy Life Style Centres

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Background: Geographic Information System (GIS) is a novel technique which could be used to visualize existing health facilities, extent of the services, geographic areas not providing the services. Publicly available data can be used for geo-refereed analysis in health planning.

Objective: To describe the least covered geographical areas of Healthy Life Style Centres (HLC) in Regional Directorate of Health Services Area (RDHS) of Kalutara

Methods: QGIS version 3.8 was used for geo-analysis. All HLCs (n = 24) within the RDHS area of Kalutara were geocoded. A colour gradient digital map of RDHS area with target population (40% of the total population) of Grama-Niladari (GN) areas were developed. Geocoded HLC layer overlaid with the population layer. Residents within 5km radius (i.e., buffer zone) of a HLC is assumed as accessible area of a HLC. Buffer zone of 5km radius was developed around each HLC. Assuming that the population of a GN area is equally distributed, target population within and outside the buffer zones were analyzed. Locations to establish the HLCs in future to achieve maximum coverage were identified.

Results: With the assumption of residents within 5km radius of a HLC, the present HLCs covers 472 GN divisions which are located within 5km radius. Seventy GN divisions (Over 36,000 target population) were completely outside 5km radius of a HLC. Among those, 12 divisions were having more than 800 population each. More than 50 % of the geographical area were outside the 5km HLC buffer zone in 64 GN divisions (Over 33,000 target population). Over 19% of population in 38% of geographic area of the RDHS – Kalutara was outside the buffer zones of HLCs. By establishing HLCs in two strategic locations, over 21000 target population within 30 GN divisions can be approached for health screening.

Conclusions & recommendations: Publicly available information can be geo-analysed for planning of health services in a scientific manner. Mobile clinics/outreach screening programs should be targeted to approach population outside the buffer zone. Establishment of HLCs should be at the identified strategic locations in future.

Key words: *Healthy Life Style Centres, Geographic Information System, Health Planning*

OP 27
A project to streamline research allowance process at Education, Training and Research Unit at Ministry of Health

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Background: This project was carried out to identify the gaps in the existing research facilitation mechanism with a view to improve the efficiency, effectiveness and user friendliness of the research allowance process. It aimed to improve the knowledge of the research applicants thereby reducing revisits to the unit, reducing the cycle time of the process and increasing their overall satisfaction with the process.

Objective: To streamline the research allowance process at the Education, Training and Research Unit of the Ministry of Health.

Methods: Both qualitative and quantitative techniques were used in the study. Three months after the intervention, a post intervention assessment was carried out using the same instruments.

Results: Undue delay in the process, the absence of all information, instructions and documentation as a bundle, inability to identify a liaison at the ET&R unit and non-availability of a feedback mechanism were identified as Ministry deficiencies while incomplete applications and illegible handwriting deficiencies of research applicants were also found. The average total time taken to complete the full research evaluation (cycle time -T1 to T5) was 141 days with SD±53.3 in pre-intervention. The package of interventions developed to streamline the process included a guideline that was published online, a process map, a document covering Frequently Asked Questions, online research allowance application and progress report forms in an editable format, a checklist, a SMS alert system. Increasing awareness of the research allowance process among medical and dental officers was done via trade unions. Staff training and the introduction of "Deadlines for completion at five stages/time intervals" in the research allowance process were carried out in order to increase knowledge and streamline the process. The project outcome demonstrated an increase in process knowledge, satisfaction and timeliness and a reduction in the resubmission rate. The intervention has improved the average total cycle time to 78 days with SD±31.9, which was statistically significant (p < 0.001).

Conclusions & recommendations: In conclusion the intervention addressed the issue of lack of knowledge regarding the research allowance process by providing information online in an easily accessible bundle; it included a checklist for document submission, an online FAQ, a process map, published guidelines, application and progress report forms in an editable word file format. It addressed the some of the process delays by reaching a consensus with the Secretory of Health and the Deputy Director General (ET & R) regarding deadlines for completion at five specified stages in the process. These measures have helped reduce the research allowance processing time from an average of 141 days pre-intervention to 77.9 days post intervention.

Key words: *research allowance, guideline, process map, ministry of health*

OP 28
Managerial experience in mitigating a probable outbreak of rabies in a low resource setting

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Background: Base Hospital, Thambuttegama is located in Anuradhapura District. Its catchment population is 350 000. A son of a Medical Officer was bitten by a suspicious dog within the hospital premises on 23.02.2018. The head of the dog was confirmed positive for Rabies by the reference laboratory. A migratory population of 40 dogs were scattered in the hospital land of 18 archers. There was a threat of a possible outbreak as most of the dogs were presumably not vaccinated for rabies. Mitigating the risk was difficult as hospital staff too was agitated. The hospital food waste generation was 100- 150 kg per day and consequently it was difficult to control the dog population.

Objective: The objective of the project was to arrest a possible outbreak and reassure both staff and patients.

Methods: Following strategies were implemented after analyzing the situation by applying SWOT analysis. Post exposure prophylaxis was provided for the child in consultation with the Medical Research Institute. Regional Vet frequently observed suspicious/ill dogs and who were isolated in a separate cage. All dogs of the premises were vaccinated. Dogs were temporally anesthetized using a low dose ketamine injection prior to vaccination. This improved the effectiveness of vaccination. Vaccinated dogs were tagged with a red belt for identification. These dogs were to be revaccinated every year. A dog sterilization programme was conducted by the Regional Vet involving the dogs in hospital and its vicinity (police, temple, filling station…etc). Posters were displayed in the hospital as to improve awareness of both staff and patients on the importance of food waste reduction. Two internal circulars were released, instructing staff to regularize food waste dumping as to make food waste inaccessible to dogs. Ward in charge was entrusted with the responsibility of supervising food waste dumping.

Results: Child who was bitten by the rabid dog did not contact rabies. No cases of dog bites were reported after in the incident on 23.02.2018. No suspicious dogs were observed in the premises after the intervention. Food waste generation was reduced by 30% in three months.

Conclusions & recommendations: Strategic intervention and sustained commitment of all concerned can arrest a possible outbreak of rabies in hospital setting. It is recommended to take action to reduce food waste generation and regularize food waste dumping to manage dog population in a hospital setting.
Key words: *outbreak, rabies*

OP 29

Managerial aspects and quality perceptions of outsourced janitorial services of District General Hospitals of Gampaha district

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Background: Cleaning precedes disinfection. It plays a lead role in hospital infection control. Presently, cleaning (i.e. janitorial service) has been outsourced in most hospitals. It has been a global trend.

Objective: The aim of this study was to describe the managerial aspects and quality perceptions of outsourced janitorial services in District general Hospitals of Gampaha district**.**

Methods: A descriptive cross-sectional study was carried out at two District General Hospitals of Gampaha District; District General Hospital, Gampaha and Negombo. There were three study components. In component one, the perceived quality and functional quality of outsourced janitorial were studied. The perceived quality was described by studying the quality perceptions of patients who got admitted to the medical wards. Proportionate stratified random sampling method was used to identify a sample of 384 patients. A pretested, validated and interviewer administered questionnaire was used. The functional quality was described by studying the quality perceptions of the sisters and nursing officers in charge (n=56). A pretested, validated and self-administered questionnaire was used. In component two, manpower deployment was studied. Data were collected both retrospectively and prospectively using a check list. In component three the administrative arrangements were studied by gathering data through Key Informant Interviews from top, middle and front line managers of the hospitals and respective company, using a semi structured interviewer schedule.

Results: Majority of the ward sisters claimed that the performance of the janitorial service is poor in cleaning both ward premises (87.5%, n=49) and patient washrooms (82. 1%, n=46). Majority of the patients (58.1%, n=223) agree that there was no unpleasant smell in the wash room. Whereas 57% (n=219) were satisfied on the cleanliness of washrooms which was statistically significant (P<0.05). As with manpower, the composition of male and female employees deployed by the company is inconsistent with the service agreement. Monitoring of disinfectants is defective as disinfectants escape neither being verified for quality nor quantity.

Conclusions & recommendations: Perceived quality of the janitorial services is consistent with the expectations of its end users (Patients). However, the functional quality is inconsistent with the expectations of the ward sisters and nursing officers. The deployed manpower is inconsistent with the service agreement. It is recommended to take an action to employ trained workers as depicted in the service agreement and maintain a balance book to scale up monitoring.

Key words: *janitorial service, outsource, perceived quality, functional quality, manpower*

OP 30 (Abstract Removed as not presented)
~~Reducing the delay of issuing laboratory test reports in Base Hospital, Tangalle~~

~~Dilka Saranasinghe[1]*~~

FREE PAPER SESSION 7: COMPLEMENTARY AND ALTERNATIVE MEDICINE

OP 31

Effectiveness of traditional purgative treatment in the management of Tamaka Shwasa W.S.R. Bronchial Asthma: A Case Study

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Background: Asthma is a heterogeneous disease, characterized by chronic airway inflammation. It is presented with a history of respiratory symptoms such as shortness of breath, chest tightness and cough varying over time and intensity, along with variable expiratory air flow limitation. A lady aged 51 years old presented to the OPD of National Ayurvedic Teaching Hospital, Borella with a history of difficulty in breathing and on and off dry cough for 20 years. The patient was diagnosed clinically as having Tamaka Shwasa, a simile to Bronchial Asthma.

Objectives: To assess effectiveness of Traditional Purgative Decoction in the management of Tamaka Shwasa (Bronchial Asthma) following 2 weeks after the treatment.

Methods: After obtaining consent, patient was given 2.5g of Tippili (Piper longum) churna with 2.5 ml of bee honey in the morning before meal for 3 days. Then Tila taila (Gingerly oil) to be taken empty stomach in the morning in an ascending order dose of 30ml, 60ml and 90ml during next 3 days. After that sher head and thoracic regions were anointed with 45 ml of Tila taila adding 5 g of sahindhava lavana, followed by Nadi sweda for 3 days. On the 10th day morning she was given to drink empty stomach, a 240 ml of Traditional Purgative decoction which included Haritaki (Terminalia chebula) fruit decoction added with 15g of Haritaki powder, 15 ml of Eranda oil and 5g of sugar. After purgation she was managed on diet according to the Sansarjana method.

Results: She showed relief of Breathlessness on Medical Research Council (MRC) Breathlessness Scale from grade 4 to grade 1 after follow up of 3 months. Severity of breathlessness had relieved from Moderate to No breathlessness. Further, her Serum Hemoglobin level increased from 10.4mg/dl up to 12.3mg/dl and the Body Mass Index (BMI) increased from 15.82 up to 16.94.

Conclusions & recommendations: This case study reveals that the traditional purgation treatment can significantly reduce the symptoms of Tamaka Shwasa*.*

Key words: *Bronchial Asthma, Tamaka Shwasa, Sweda Karma, purgation*

OP 32

Screening of eight herbal ingredients in a Sri Lankan traditional mouth freshener for their ability to neutralize oxidative stress and inhibit *Streptococcus mutans*

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Background: Oral health is an integral part of general health. Oral diseases such as dental caries, periodontitis are among the most prevalent chronic diseases in the world. In Sri Lankan folklore, the *Dahathwattiya* is a traditional polyherbal mouth freshener (PMF). It consists of betel leaves (*Piper betle*), areca nut (*Areca catechu*), flower buds of clove (*Syzygium aromaticum*), cardamom (*Elettaria cardamomum*), seeds and mace of nutmeg (*Myristica fragrans*), coriander seeds (*Coriandrum sativum*), and rhizomes of java galangal/ingurupiyali (*Kaempferia galanga*) ingredients claimed to prevent these oral diseases. However, the scientific basis behind this claim has not been studied in detail.

Objectives: To determine the ability of the individual ingredients in this PMF to neutralize oxidative stress and to inhibit the growth of the major cariogenic bacterium, *Streptococcus mutans*.

Methods: Ethyl acetate (EA) extracts of the individual ingredients in the PMF were analyzed using DPPH radical scavenging assay and agar well diffusion assay. Results were expressed as mean ± SD (n=3).

Results: According to the DPPH assay results, EA extracts of all the individual ingredients of this mouth freshener can reduce oxidative stress. The lowest IC_{50} value for DPPH radical scavenging assay which means the highest antioxidant concentration was shown in clove extract (27.7±1.2) μg/ml followed by betel (44.3±6.6) μg/ml, areca nut (95.4±4.4) μg/ml, mace of nutmeg (95.6±2.1) μg/ml, coriander (123.3±4.7) μg/ml, nutmeg seeds (129.7±2.8) μg/ml, java galangal (164.1±5.1) μg/ml and cardamom (202.5±8.4) μg/ml extracts. According to the results of agar well diffusion assay, EA extracts of all its ingredients have antibacterial activity against *Streptococcus mutans*. The highest zone of inhibition was given by cardamom (21±0) mm followed by betel (20.5±0.7) mm, clove (19.5±0.7) mm, nutmeg seed (19.3±1.1) mm, java galangal (18.8±0.4) mm, areca nut (18.5±0.7) mm, coriander (16.5±0.7) mm and mace of nutmeg (16±0) mm.

Conclusions and Recommendations: The individual ingredients of PMF can neutralize oxidative stress and have antibacterial effects against *S. mutans*. Further studies are recommended to test their contribution to prevent periodontitis, dental caries and oral cancer.

Key words: *oral health, traditional mouth freshener, oxidative stress, S. mutans*

OP 33

A review on Punarnawa Lashuna Kashaya as a Virechana Karma (purgative therapy) for management of Panduroga w.s.r. to prevent Iron Deficiency Anemia

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Background: Panduroga is one of the prevalent diseases in humans due to vitiated Pitta Dosha. Iron-deficiency anemia is a common nutritional disorder in the world which is correlated with Panduroga. It develops due to inadequate availability of iron for hemoglobin synthesis. Virechana Karma (purgation) is mentioned as one of the therapeutic measures in treatment of Panduroga (anemia), which helps to eliminate vitiated Dosha, especially vitiated Pitta Dosha. Punarnava Lashuna Kashaya is used as a Virechana Aushadha (purgative) in treatment of Panduroga.

Objectives: Aim of the present study is to understand the effect of Punarnava Lashuna Kashaya in Panduroga.

Methods: Punarnawa Lashuna Kashaya will be prepared according to Sri Lankan traditional method. 30g of entire plant of Boerhavia diffusa, 20g of pericarp fruit of Terminalia chebula and 10g of cloves of Allium sativa will be mixed with 1920 ml of water and boiled down to 240ml. Then 120 ml of Punarnava Lashuna Kashaya will be administered as Virechana Aushadha (purgative) early in the morning.

Results: Due to its Madhura, Tikta, and Kashaya Rasa along with Guru Guna, Punarnava Lashuna Kashaya pacifies vitiated Pitta Dosha in the body. Ingredients of this Kashaya possess Madhura Vipaka, which produce laxative effect in the body. According to Ayurveda text Charaka Samhita, Virechana Karma is the best therapy for Panduroga. Therefore, purgation using Punarnava Lashuna Kashaya is useful in treatment of Panduroga. Ingredients of Punarnava Lashuna Kashaya contain protein, amino acids, iron, copper, ascorbic acid and riboflavin. Iron is an essential mineral for the formation of hemoglobin and myoglobin. Copper is necessary for the absorption of iron from the gastrointestinal tract. Ascorbic acid and riboflavin are essential for the formation of hemoglobin in red blood cells.

Conclusions & recommendations: Therefore, Punarnava Lashuna Kashaya is beneficial in management of Panduroga (anemia).

Key words: *Punarnava Lashuna Kashaya, Virechana, Panduroga, Iron deficiency anemia*

OP 34

Ayurveda treatment modality for the management of 'Dushta Vrana' (chronic ulcers) associated with 'Shotha' (cellulitis): a case study

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Background: Chronic ulcers such as stasis ulcers and varicose ulcers are the most serious complications of chronic venous insufficiency in the lower limbs. When a venous valve becomes incompetent, it results in backflow of blood, causing venous stasis and increased venouspressure leading to develop ulcers. In Ayurveda, the wounds which fail to heal within a week, are considered as chronic ulcers: '*dushta vrana'.*

Objectives: The present case study aims to describe Ayurveda treatment modality which is practiced to manage '*dushta vrana'* (chronic ulcers) associated with *'shotha'* (cellulites) successfully.

Methods: A 92 year old male got admitted to the Bandaranayake Ayurveda Research hospital with severe pain, swelling and oozing in both legs below knee joints with associated mild fever and a non-healing wound on anterior aspect of the left leg below the knee joint. Symptoms continued for last fifty years. On examination there was discharge, slough and discoloration of the skin. Informed written consent was obtained prior to the treatment and research publication. According to Ayurveda, vitiated *'doshaes'* of *'pitta'* and *'kapha'* leads to '*shotha'* (cellulites) and *'Pradaha'* (inflammation)*.* Thus, to reverse vitiated *'doshaes'* to its homeostasis status, Ayurveda medications, '*Punarnawashtaka'* decoction*, 'Denibadi'* decoction*, 'Chandraprabha'* pills*, 'Sudarshana'* powder and *'Thripala'* powder with *'pitta'* and *'kapha' samaka'* properties were administered orally. 'L*awanodaka'* (sterile saline) was used locally to clean and dressing. Further, appropriate diet and advices were given as per Ayurveda, and maintained personal hygiene throughout the hospital stay. The signs and symptoms of the wound were assessed according to 'Clinical, Etiologic, Anatomic, Pathophysiologic Classification (CEAP) and Venous Clinical Severity Score (VCSS) to see the results at baseline and follow up.

Results: A significant reduction of signs and symptoms within a week, and treatment was continued up to 10 weeks until fully recovery. It noted that CEAP reduced from C6 to C2, and VCSS reduced from 19 to 6 after treatment.

Conclusions & recommendations: This case report concludes that *'dushta vrana'* associated with *'shotha'* can be managed successfully through Ayurveda treatment modality within a short period.

Key words: *dushta vrana, shotha, chronic ulcers, cellulitis*

OP 35
A case study of Ayurvedic management of Primary Open Angle Glaucoma (Vataja Adhimantha)

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Background: Glaucoma is a group of disorders characterized by progressive optic neuropathy resulting irreversible visual field defects with raised Intra Ocular Pressure (IOP). Primary Open Angle Glaucoma (POAG) is characterized by IOP >21 mmHg and open anterior chamber angle with visual field defects. Risk for POAG is increased with the age (5th-7th decades). Myopia, Diabetes, cigarette smoking, thyrotoxicosis and corticosteroids are the other risk factors. Usually POAG is asymptomatic until significant visual field defects occur. But severe headache, eye ache, scotoma, difficulty in near works, delayed dark adaptation and significant loss of vision can be noticed over a period. As per the symptoms POAG can be correlated with Vataja Adhimantha as it is characterized by severe eye ache and headache. The patient was a 73 year old lady diagnosed as having POAG and Myope. She suffered POAG in 2008 and undergone laser treatments. She came to eye OPD at Bandaranaike Memorial Ayurveda Research Institute in January 2019 with severe headache and eye ache. She was on modern IOP lowering eye drops. Her right eye IOP was 46 mmHg. Left eye was within the normal limits.

Objectives: To immediately lower IOP

Methods: For that leech application performed every alternate day for 12 days along with oral medicines and Nasya Karma. Within this period IOP decreased up to 29 mmHg and eye ache and headache disappeared gradually. Thereafter leech application done twice per week along with some oral medicines (Chandraprabha Vati, Punarnavashtaka decoction and Thriphala Powder) and Netra Pindi for 1 month. Then IOP decreased up to 19-21.9 mmHg. Thereafter patient was managed only by Ayurvedic treatments by discontinuing Allopathic medicines.

Results: After three months of treatments IOP was controlled as less than 19 mmHg. Visual acuity also improved.

Conclusions & recommendations: Therefore, this line of treatment can be considered as a successful remedy for the management of POAG without any adverse effects. Periodical follow up and continuation of IOP lowering oral medicines are recommended for longer period of time to evaluate the sustainability and safety of drugs.

Key words: *primary open angle glaucoma, adhimantha, intra ocular pressure*

FREE PAPER SESSION 8: HEALTH INNOVATIONS AND BEST PRACTICES

OP 36 **(Abstract Removed as not presented)**
~~Automated Pill Dispenser~~

~~Mahesh Buddhika Ranasinghe[1]*~~

OP 37

A Web-based Medical Equipment Monitoring and Management System for Biomedical Engineering Services in Sri Lanka

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Background: Medical equipment management is an important and urgent requirement to provide reliable and economical service to the health sector in Sri Lanka. The proposed system expect to convert the current, manual to a web based computerized system. This proposed system which is web-based will integrate the biomedical engineering units and hospitals. The new systematic, automated medical equipment monitoring system will thus incline the efficiency and reliability of the services which will thereby improve efficiency of the processes of Biomedical Engineering Services.

Objectives: To design a framework for implementation for medical equipment monitoring and management system for the Biomedical engineering department

Methods: We developed a web based medical equipment management system for biomedical unit and initially enrolled 50 staff (Biomedical Engineers, Biomedical technical staff and ICT Officers) during this year. Data collection was by using manual data collection forms.

Results: Majority of (80%) medical equipment data were collected from Line Ministry Hospitals. Of which 70% of collected data were stored in web-based system. Following features were also available from the proposed system: Total Medical Instrument Data base management system; Computerized service and maintenance monitoring system; Prepaid standard specification for basic medical equipment; Medical Instrument Spare Parts Management System; New Instrument requirement collection system for Hospitals; Instrument Breakdown management system. The proposed system will improve proper communication between Biomedical Engineering Services and line ministry hospitals. Further it will enable identification of outdated old machines, and location of the machines; and improve proper complaint system. In addition, the proposed system can be used to improve work quality, to reduce the maintenance cost, and to promote the reliability of medical device used in patients and end users.

Conclusions & recommendations: Through related Web-based Medical Equipment Monitoring and Management System, the proposed system efficiently improved monitoring of the service contract of medical devices. Through software we can monitor medical equipment easily and manage complaints in a proper manner. Hence the breakdowns can be responded efficiently.
Key words: *web-based monitoring, management*

OP 38
A hospital free of boundaries: Establishment of outreach clinics and participant satisfaction

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Background: Easy accessibility is essential in ensuring that patients benefit from health services. Outreach programs provide better healthcare access for populations like elderly who find reaching out to health services difficult. Horana Base Hospital services to more than 500,000 population of Kalutara and Ratnapura districts and large numbers of patients attend medical clinics every week. This has led to increased waiting time and patient dissatisfaction.

Objectives: To reduce medical clinic attendance at Base Hospital Horana by establishing outreach clinics and to assess patient satisfaction at the newly established clinics.

Methods: Eight outreach medical clinics were established in Rathmalgoda, Arunagama, Gurugoda, Kurana, Millewa, Tibbotugoda, Pokunuwita and Dikhenapura areas. All patients were referred from Base Hospital Horana, after being seen by a consultant physician. Clinics were conducted by a Medical Officer (Public Health), a Nursing Officer (Public Health & Health Education) and a Pharmacist once a month. Attendance at hospital clinics and outreach clinics were observed. A descriptive cross sectional study was conducted among all patients attending the clinics during six months (n= 164) using an interviewer administered questionnaire to assess patient satisfaction. Patient satisfaction was assessed on a five point Likert scale and a total score was calculated. Proportion of patients reporting satisfaction in each area was calculated.

Results: Total clinic attendance at medical clinics, base hospital Horana reduced by 28% (n= 943) after 10 months of establishing the outreach clinics while attendance at outreach clinics increased during this period of observation. Cross sectional study conducted among attendees of outreach clinics, showed that mean age was 69.9 years. A majority (54%, n=89) of participants lived less than 1km away from the outreach clinics while average distance from home to outreach clinic was 2.1km. Average time spent by the doctor for examination was 4 minutes and 98% (n=161) of the participants were satisfied about the time spent by the doctor. Among the participants, 98% (n=161) had their blood pressure checked at the clinic as well as the reports explained, while 97.5% (n=160) were explained about their disease status. Among participants, 86.7% (n=142) were educated regarding proper dietary habits, furthermore 88.6% (n=145) of the patients were able get all their drugs from the outreach clinics. More than 95% (n=156) of the participants expressed satisfaction with services provided by outreach clinics.

Conclusions & Recommendations: Outreach clinics reduce the burden of clinic attendance at overburdened hospital clinics and could be utilized to reduce overcrowding of healthcare institutions. Patients attending outreach clinics are satisfied by the services provided by these clinics. Despite not being able to measure pre-intervention levels of satisfaction, available data could be used to recommend the establishment of outreach clinics at healthcare institutions for provision of health services.

Key words: *non communicable diseases, intervention, accessibility*

OP 39
Shortening of postpartum stay of normally delivered mothers: Good practices at ward 15, De Soysa Hospital for Women

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Background: Prolonged postpartum stay is a significant problem in most maternity units including ward 15, De Soysa Hospital for Women. The commonest reason for prolonged stay was feeding failure of the babies. This leads to prolonging the hospital stay of both mother and the baby. Increased bed occupancy due to this imposes a significant logistic issue especially to Sri Lanka which has a government funded health system.

Objective: To reduce prolonged stay in post-natal ward due to feeding problems in normally delivered term babies from 30% to 20% within 3 months.

Methods: A team led by nursing sister in-charge was formed including all categories of staff under the supervision of Consultant Obstetrician and Gynaecologist and Consultant Neonatologist. A newborn care flow chart was drawn in order to identify the possible steps where the changes can be done to maximize establishment of breast feeding. Problem analysis and planning for correction were done using fish born chart and PDSA cycle. Based on the problem analysis and current literature a good practices intervention was developed. Intervention included, alteration of the temperature of baby warmer, use of 3 warm towels for drying, cleaning and dressing of neonates and skin to skin care for at least for 1 hour were adopted. The baseline statistics were obtained 3 months prior to the planned intervention. The percentage of babies discharged within 48 hours and after 48 hours was calculated. After the planned intervention for a period of 3 months the above calculations were repeated.

Results: Average percentage of prolonged stays of mothers due to feeding problems within the three months prior to implementation of the good practices was 31.01% (June, July and August 2017). Early establishment of breast feeding, reduced infections, reduced feeding problems, reduced occurrence of hypothermia and minimum weight loss of neonates were observed post intervention. The average stay due to feeding problems was reduced to 18.2% (September, October and November) with the good practices.

Conclusions & recommendations: Practice of skin to skin contact of the baby with the mother, use of warm neonatal towels and maintenance of proper warmer temperature are good practices that reduces feeding problems and thus the duration of hospital stay of normally delivered term babies. These practices can be implemented in other labour rooms where the same problems were reported and to improve the neonatal outcome.

Key words: *skin to skin care, breast feeding, feeding problems, weight loss*

OP 40
Happy village initiative: A healthy setting

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Background: Setting approach is a core principle in health promotion. Happy village project is a volunteer driven healthy setting with 50-100 households and its inclusions initiated towards mitigating Non Communicable Disease burden in Sri Lanka.

Objectives: To reduce main behavioral risk factors (unhealthy diet, smoking, alcoholism, physical inactivity) of non-communicable diseases by individual and community empowerment through senior volunteer groups.

Methods: A happy village consists of 50-100 households and other settings such as workplaces, hospitals, preschools and schools within the premises. It is to establish one Happy Village per Medical Officer of Health area. Due advocacy, training of trainers (TOT) and training for Consultant Community Physicians, Medical Officers of Health (MOOH), Health Education Officers (HEOO), grass root level health workers and senior volunteers are being co-ordinated at several levels by Health Promotion Bureau, the focal point. The IEC (Information-Education-Communication), volunteer uniforms, portable sound systems and funding for the training were given to each Medical Officer of Health by the focal point. Trained volunteers do one-to-one communication at household visits and collaborate for community actions to reduce main behavioural risk factors of the Happy village by empowerment.

Results: Currently there are 540 Happy Villages-initiated island wide. Public health experts, professional colleges, district and divisional level health staff, postgraduate trainees contributed as resource in designing and development of the projects. Two hundred and fifty (70.8%) TOT's were done in focal, district and divisional levels. Trained, all the HEOO (100%, n=52), 85% of MOOH (n=300) and 1200 divisional health staff compulsorily, in the Happy villages. Outcomes- set as % of increasing the favourable healthy practices (e.g.: salt reduction, engagement in physical activities in the setting). A logbook to be maintained by the volunteers. Main obstacles were demand exceeding the printed materials, uniforms and scarcity of Tamil translations of the resources.

Conclusions & recommendations: Behavioural risk factors of a community need to be addressed through individual and community empowerment. Unapproached resources such as senior volunteers ought to be used in health promotion setting development in Sri Lanka to mitigate non communicable disease burden as a sustainable solution.

Key words: *setting approach, happy village, senior volunteers*

OP 41
Detection of blood group A1 using *Dolichos biflorus* antigen A1-detection Lectin extraction, purified by Ammonium Sulfate precipitation method

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Background: ABO blood group is considered as one of the most immunogenic blood group in humans. ABO blood group is comprised of A, B, AB and O blood groups. From these blood groups, blood group A have two major sub groups; subgroup A1 and sub group A2. Accurate identification of A1 and A2 blood groups are important in blood transfusion. *Dolichos biflorus* seed extracts have the ability to specifically hemagglutinate A1 blood cells due to a special lectin.

Objectives: Isolation and purification of antigen A1 detecting lectin from *Dolichos biflorus* seed extract.

Methods: Coarsely grounded dry *Dolichos biflorus* seeds were used for the study. Acetone was used for the defatting of the seed powder. Crude extraction of antigen A1 detecting lectin was by using 0.15M NaCl diffusion method. . Crude extract was purified by Ammonium Sulphate precipitation. Protein (lectin) was precipitated at 0 to 100% Ammonium Sulphate saturations. The protein (lectin) precipitate was subjected to a two-fold serial dilution series and its hemagglutination activity was analyzed using A1 and A2 cells. Based on the collected data, optimum working reagent was prepared from the protein (lectin) precipitate.

Results: Results indicated a clear increase in protein (lectin) precipitation from 40%-50% to 60%-70% Ammonium Sulphate saturations. All the protein (lectin) precipitates showed both A1 and A2 hemagglutination activity at lower dilutions, however only A1 hemagglutination activity was observed at higher dilution levels. Furthermore, from 60%-70% ammonium sulphate saturation onwards, a clear increase in blood group A1 hemagglutination activity was visible.

Conclusions & recommendations: Study concludes the enhancement of extraction and purification *of Dolichos biflorus* antigen A1 detecting lectin by defatting and Ammonium Sulfate Precipitation method. Acetone defatting, 0.15M NaCl diffusion and Ammonium Sulphate precipitation methods were able to increase the total activity of the *Dolichos biflorus* antigen A1 detection lectin. Comparison studies with existing methods can be employed to assess further increasing the total activity of the *Dolichos biflorus* antigen.

Key words: *blood grouping, Dolichos biflorus*

OP 42

Comparison of entrance surface dose to the thyroid region between two-dimensional and three-dimensional panoramic radiography

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Background: As the thyroid gland has a high probability of radiation induce malignancies, it is exceptionally essential to maintain low radiation dose during the routine radiological procedures without any unnecessary exposures. However, thyroid shields are not routinely used in local setup with limited resources. By measuring the dose under different imaging methods helps in coming up with protective measures.

Objectives: To compare the entrance surface dose to the thyroid gland when using two dimensional (2D) conventional orthopantomography (OPG) and three dimensional (3D) OPG reconstructed through cone beam computed tomography (CBCT).

Methods: A cross sectional quantitative study was conducted at the radiology unit of the Dental Hospital, Peradeniya, Sri Lanka. 180 patients (120 for 2D, 36 for 3D) who underwent OPG examinations were included for the study. Thyroid dose pertaining to each exposure was measured using a personal dosimeter (PD-117) anchored at the level of the thyroid cartilage of the neck

Results: The obtained ESD mean values for 3D radiography (reconstructed OPG through CBCT) and 2D radiography techniques (conventional) are 28.65μSv and 7.47μSv, respectively. This demonstrates that dose to the thyroid gland was higher with CBCT than conventional OPG do. Moreover, according to the T-test, a significant difference ($p < 0.05$) was found between the doses of 3D and 2D techniques.

Conclusions & recommendations: It can be concluded that the use of 2D conventional OPG rather than 3D reconstructed OPG through CBCT has a potential benefit in relation to the patient's dose level. However, the dental doctors are the personals who responsiblefor prescribing the type of the OPG for a patient. Therefore, it is important to increase the awareness of pro and cons of OPG techniques among dental doctors.

Key words: *entrance surface dose, two-dimensional panoramic radiography, three-dimensional panoramic radiography*

OP 43
Outcome of trial of labour after Caesarean (TOLAC) in a Sri Lankan tertiary care centre and development of a risk-prediction model.

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Background: The rate of Caesarean sections (CS) is rapidly rising, causing maternal morbidity and burdening the health system. Hence previous CS is the commonest indication; Trial of Labour After Caesarean (TOLAC) becomes an alternative. TOLAC however can cause adverse outcomes. A scoring system to identify women who can achieve Vaginal Birth After Caesarean (VBAC) following TOLAC is a timely need.

Objective: This study aimed to determine the outcome of TOLAC in a tertiary level maternity hospital and to develop a model to predict VBAC.

Methods: A retrospective cohort study based on secondary data was conducted at De Soyza Maternity Hospital, following approval from Ethics Review Committee of Faculty of Medicine-Colombo. Data were extracted from health records of 328 mothers who had presented for delivery with previous one CS, and no contraindication for vaginal delivery (VD). Factors associated with VBAC were analyzed using Chi-square followed by binary logistic regression at significance of $P<0.05$. Variables significantly associated with VBAC were assigned points based on strength of association and a scoring system was developed.

Results: Mean age was 31.19 years and 9.1% had parity >3. While 17.4% had a history of VD, 9.8% had undergone VBAC. Majority of previous CS (63.1%) were emergency CS, commonest (43.9%) indication being fetal distress (FD). Majority had normal CTG (91.5%) and Modified Bishops Score (MBS) <7(70.9%) on admission. In the index pregnancy, 125 (38.1%) underwent TOLAC of which 81(24.7%) succeeded while 44 (13.4%) failed leading to emergency CS. Majority of 51.8% had undergone elective CS and 10.1% emergency CS for other reasons. Mothers who had undergone TOLAC (n=125) were selected for model development, of whom, 64.8% (n=81) had achieved VBAC. Previous VD (p=0.053), previous VBAC (p=0.025), FD not contributing for preceding CS (p=0.010), MBS on admission >7 (p=0.003), higher cervical effacement on admission (p=0.008), maternal age <30 years (p=0.066) showed significant associations with VBAC. Binary logistic regression revealed following as determinants of VBAC: history of VBAC (OR=11.4, p=0.05), FD not being an indication for previous CS (OR=5.5, p=0.003), MBS >7 on admission (OR=14.4, p=0.048) and maternal age <30 (OR=3.5, p=0.027). The scores assigned to each factor were 11, 5, 14 and 3 respectively with a total score of 33.

Conclusions & recommendations: This scoring system can be utilized to predict the success of TOLAC and thereby reduce the rate of unwarranted CS. The prediction model is recommended to be validated in a further study.

Key words: *Trial of Labour after Caesarean (TOLAC), Vaginal birth after Caesarean (VBAC), Risk prediction score*

OP 44

Knowledge and practices regarding neonatal pain among health care workers in selected neonatal intensive care units, Sri Lanka

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Background: Neonates are considered as a vulnerable population who are unable to express "the pain" they experience. But there are methods to recognize pain in patients who cannot express themselves verbally. Understanding of neonatal pain among health care personals acts as a major limiting factor in developing pain relief clinical practices towards neonates.

Objective: To describe the knowledge and practices regarding neonatal pain among health care workers in selected Neonatal Intensive Care Units, Sri Lanka

Methods: A descriptive cross-sectional study was conducted among 106 health care personals attached to Neonatal Intensive Care Units in three selected tertiary care centers. All eligible participants were included for the study. Data were collected by using self-administered structured questionnaire. Ethical clearance was obtained from Teaching Hospital Kandy**.**

Results: Majority of the participants had identified IV cannulation as the most painful procedure (63.2%; n=67). Giving IV analgesics was identified as the most painful procedure (74.6%; n=79). Majority (53.2%; n=56) of the participants thought that pain sensation varies with the age of the patient. Majority of 81.3% (n=86) were unaware of the neonatal pain measuring procedures. Majority (58.7%; n=62) of the participants believed that pain relief is done to avoid disturbances to the clinical procedure. Majority believed that neonatal pain does not affect early child care development of the child (71.2%; n=75). Satisfactory knowledge on neonatal pain was associated with age less than 35 year of the healthcare personals (OR=1.35) and service duration less than 10 years (OR=1.42).

Conclusions & recommendations: Less awareness and poor understanding regarding neonatal pain and its consequences were noted in the study sample. Therefore, it is a timely need to conduct awareness programmes on neonatal pain and its implications on neonatal handling. Young health care workers showed a satisfactory awareness regarding neonatal pain. Healthcare workers should be made aware of the neonatal pain during their duty allocation and placement.

Key words: *neonatal, pain, knowledge, practices*

OP 45
Utilization of primary healthcare services and associated factors among elderly people in the Kesbewa MOH area

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Background: Main role of primary health care (PHC) is to provide continuous and comprehensive healthcare to the public in an equitable manner. Utilization of primary care facilities is different among elderly population due to various reasons despite of free health care provision to public by the Sri Lankan government.

Objectives: To assess the knowledge, utilisation, perceived satisfaction and factors associated with utilization of primary-health care among elderly population in Kesbewa Medical Officer of Health area.

Methods: A descriptive study was conducted in Kesbewa MOH area with multi-stage sampling to recruit 510 elders aged 60 years and above, who utilized government PHC facilities within the past 6 months. Information was gathered using an interviewer administered questionnaire. Chi square test was used to assess the associations.

Results: Response rate was 99.6% (n= 508). Majority were females (54.3%, n=276) in the 66-70year age group. Nearly 65.7% (n=334,) lived with children and 86% (n=440) had a low income. More than half (58.7%, n=298) had utilized PHC 4-5 times during the past six months and 53.4% (n=274) had visited within the past one month. Commonest reason for usage was acute illness (47.9%, n=304,). Waiting time of above 2 hours was reported in clinics by more than half of the study participants (52.3%, n= 114). Out of pocket expenditures were high for medications and laboratory investigations (70%, n=364). Only 60 patients (11.8%) were transferred with hospital ambulance being the frequently used method (56.7%, n=34,). Of those transferred 80% (n=48) were for advance treatment. Respondents had good knowledge on diseases treated (55.3%, n=282), categories of health workers (46.4%, n=246,) and poor knowledge on opening hours (23%, n=117) of PHC facilities. Majority were satisfied with the accessibility (88.2%, n=448), cleanliness (87.0%, n=442), adequacy of space (70.9%, n=360), manageable crowd (69.3%, n=352) and minimally satisfied with information about the health issues (18.9%, n=96), referral to specialist (15.7%, n=80) and adequacy of laboratory facilities (, 7.1%, n=36). Age, religion, ethnicity and family income were positively associated with utilization (p<0.05). Knowledge on PHC location, working hours, extended services, available facilities were statistically positively associated with utilization (p<0.05). Satisfaction on accessibility, adequacy of space, respect given by staff, time given per patient consultation, diagnosis of illnesses, treatment outcome and referral to specialist care were statistically significantly associated with increased utilization (p<0.05).

Conclusions & recommendations: Improving basic facilities in the primary health care institutions and raising the public awareness on available services could increase the utilization of PHC by the elderly.

Key words: *primary health care, elderly population, utilization*

FREE PAPER SESSION 10: ORAL HEALTH

OP 46

A qualitative study: dynamic and optimized primary dental care codes for the Sri Lankan version of the International Classification of Primary Care (ICPC-2R-SL)

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Background: There is lack of reliable and current information regarding primary dental care morbidity in Sri Lanka. Hence there is a strong need to collect, analyze and use such information for decision making. Classification and Coding Systems (CCS) can improve the quality of clinical data recording through electronic Health Information systems (e-HIS). There are hardly any dedicated CCS for dental primary care. However, International Classification of Primary Care (ICPC-2) which was specifically designed for primary care, contains few dental care codes. The ICPC-2 has codes for Reason for Encounters (RfE), Problem Definitions (PD) and Processes of Care (POC). Hence it can be used for dental care without any discrepancy. However, available codes are not adequate for comprehensive dental care practice.

Objectives: To develop a comprehensive primary dental care codes for the ICPC-2-SL (Sri Lankan version).

Methods: It was conducted as a distinct and a parallel study in a broader research project to develop ICPC-2-SL. A two-step qualitative study was undertaken to develop dental primary care codes. Step 1was pooling of RfEs and PDs in primary dental care using a panel of dental surgeons using a modified Delphi method. In step 2 nominal panel to reviewed, approved and assigned codes to ICPC-2-SL based on ICPC-2 rubrics and practices.

Results: Step 1 resulted in mutually exclusive 19 primary dental care RfEs, 18 PDs and 17 POCs after two rounds of modified Delphi. Step 2 resulted in 54 new primary dental care codes (4th digit) to the Sri Lankan version of the ICPC-2.

Conclusions and recommendations: The dental codes of the ICPC-2-SL version 1.0 could be adopted and scaled-up after a proper demonstration project. It could improve the overall primary dental care information use, if used with an eHIS. The codes could be considered as one of the most comprehensive dental code set currently and could be a valuable extension to the ICPC-2 in global context. It shall be presented for a global peer review as a product from Sri Lanka with the aim of further improvements.

Keywords: *primary dental care codes, ICPC*

OP 47
Selected risk behaviours related to oral potentially malignant disorder among a group of high-risk youth in Sri Lanka

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Background: Oral Potentially Malignant Disorders (OPMD) is an increasing problem among younger age groups due to the increased usage of substance.

Objective: The aim of the study was to assess the prevalence of tobacco using behaviour among youth (15-24 years old) residing in the Colombo district urban slum areas in Sri Lanka.

Methods: A descriptive cross-sectional study was conducted among a sample of 1435 youths residing in urban slums in the district of Colombo Sri Lanka, using a cluster sampling technique combined with probability proportionate to size technique. Data were gathered using an interviewer-administered questionnaire. Subjects were categorized as the current user (who had the behaviours during the past 30 days), non-current users, never users and daily users.

Results: The response rate was 99.7%. The mean age of the study sample was 17.53 (95% CI: 17.40-17.65). The current smokers in the sample were found as 20% and non-current smokers and never smokers were 18% and 62% respectively. Among the current smokers, 49% were daily users. The most common type of product used for smoking was cigarettes (92%), followed by bidi. The current betel chewers in the sample were found as 21.6% (95% CI 19.5-23.8) and non-current chewers and never chewers were 40.7% (95% CI 38.1-43.2) and 37.7% (95% CI 35.2-40.2) respectively. Among the current betel chewers, 47.9% were daily users. The most common type of betel quid was the quid with betel leaves, tobacco, areca nut, and lime (63.6%), followed by betel quid without tobacco. Nearly half of the study sample (53.3%, 95% CI 50.8-56) had never chewed tobacco and areca nut packets and 32.9% (95% CI 30.5-35.3) were current users followed by 13.6% (95% CI 11.9-15.5) of non-current users. Among the current users, 40.3% were daily users. The most common type of tobacco and areca nut packet used by the chewers was mawa (71.9%) followed by babul and paanparag.

Conclusions & recommendations: Usage of tobacco among youth aged between 15 years to 24 years who were residing in urban slum areas in the district of Colombo was high. The youth residing in urban slums should be identified as a high-risk group and special programmes should be conducted to them targeting quitting and initiation of tobacco behaviours.

Key words: *youth, urban slums, smokeless tobacco*

OP 48

Prevalence of early childhood caries and its association with selected factors among one to two-year children attending immunization clinics of Colombo Municipal Council region

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Background: Dental caries constitute one of the two most common diseases of the oral cavity. Though dental caries is less prevalent in developed countries, still it is a significant burden in socially vulnerable community groups both in developed and developing countries. Children during 12–30 months show different pattern of caries that distinguishes them from older children. These are known as Early Childhood Caries (ECC).

Objectives: To assess the prevalence of ECC and its association with selected factors among 1 to 2 year children attending immunization clinics of Colombo Municipal Council region, in Sri Lanka.

Methods: A descriptive cross-sectional, study was performed among 1-2 year old, 420 children attending age-appropriate Immunization Clinics at 12 months and 18 months accompanied by their mothers. Probability proportional to size cluster sampling was used and study individuals were selected from the attendance-records of the Immunization Clinics. Mothers were interviewed with a pre-tested questionnaire, and dental examination was performed under visible light. Children older than 18 months were recruited when they visited the same clinic to receive Vitamin A mega dose or a previously missed age-appropriate vaccine.

Results: The study consisted of 445 participants and the response rate was 98.9%. Early Childhood Caries prevalence was 31.69%. The lowest prevalence was seen at the age of 12 months (15.31%, n=32). The highest prevalence was observed at the age of 24 months (60.53% n=76). It was 39.38% (n=63) among 18 month old children. Sinhalese child community showed the least ECC prevalence (26.62%, n=37), whereas the Muslim child community showed the highest prevalence of 32.35% (n= 55). ECC prevalence for Tamil child community was 36.30% (n=49). No child had previously attended any preventive dental visit. Gender difference could not be found in this study (p = 0 .68). Ethnic difference (p=0.22) also could not found in this study, though the Sinhalese community showed the least ECC prevalence than the other two ethnic groups. It was significantly associated with age (p<0.001).

Conclusions & recommendations: Present oral health care package should be reinforced aiming prenatal and postnatal period. Screening of infants should start at least 12months and continue on 18 and 24months.

Key words: *early childhood caries, brushing practice*

OP 49

Correlation of calcification events of lower permanent second molar with cervical vertebrae maturation staging of a sample of orthodontic patients in Sri Lanka.

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Background: Considerable variations of developmental stages among patients with same chronological age have led to establishment of different developmental indices such as maturation events of cervical vertebrae or teeth. Timing of Pubertal Growth Spurt (PGS) is important in orthodontic treatment planning. In Sri Lanka, timing of PGS is widely assessed by Cervical Vertebral Maturation (CVM) staging on cephalometric radiographs. But this radiographic facility is expensive and not readily available in peripheries. If a correlation could be established between CVM and tooth maturation, it can be used to identify the PGS. In this context, Intra Oral Periapical radiographs (IOPA) or Orthopantomograms (OPG) which visualize tooth maturation, can be used for identification of the PGS.

Objectives: To establish the correlation between the stages of tooth calcification and the CVM in a sample of orthodontic patients in Sri Lanka with the view of establishing a method to identify the beginning of PGS using IOPA/OPG.

Methods: Lateralcephalometric and panoramicradiographs of 73 patients (29-Male, 44-Female) were taken from the archives of the University Orthodontic Unit. Dental maturity stages were determined using calcification events of mandibular permanent 2nd molar according to Demirjian Index (DI). CVM stages were recorded using McNamara method. Correlation between DI and CVM staging and descriptive statistics of each parameter were calculated.

Results: A strong correlation was found between CVM stages and DI for both sexes (Spearman rho correlation: male; $r=0.73$ $p<0.001$, female; $r=0.72$ $p<0.001$). Non parametric Mood Median test revealed a significant difference between genders for CVM stages ($p<0.005$), while it was not statistically significant for DI. The mean ages of male and female patients at the CVM stage 4 were 14.37 (SD 3.0) and 12.92 (SD 3.2) years respectively.

Conclusions & recommendations: A statistically significant correlation between DI and CVM staging suggests that DI can be used for identification of developmental ages. Since DI can be identified using IOPA/OPG clinicians can use this less invasive cost effective index to determine the PGS, in referring children to specialist units, thereby reducing the financial burden of patients. This preliminary study should be extended to a representative sample of Sri Lanka. If this strong correlation proved, DI should be included in updating programme for general dental practitioners.

Key words: *cervical vertebrae, tooth calcification, radiography*

OP 50
Dental radiography users' knowledge of the risks and benefits of dental radiography: a study in National Dental Hospital (Teaching) Colombo

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Background: Radiographs play a prominent role in diagnostic purposes as an integral component in the field of modern dentistry. Radiographs are clinician's main diagnostic tool. Dental X-rays are with high energy electromagnetic radiations with the ability to penetrate human tissues. Different radiological techniques are available for dentists ranging from intraoral periapical radiography to cone beam computed tomography.

Objectives: To assess knowledge of risks and benefits of dental radiography among users in National Dental Hospital Sri Lanka (NHDSL).

Methodology: A hospital-based descriptive cross-sectional study design was adopted. The study population was the patients attending the radiology department NDHSL and the parents of the children below 18 years. The calculated sample size included 404 patients which was done by using a formula with parameters of; 95% confidence interval, a precision of 0.05 and an assumed non-response rate of 5%. Interviewer-administered questionnaire was used as the instrument to collect information. Participants' knowledge was assessed by the answers given to the questions in the questionnaire. Ethical clearance for the study was obtained from Ethical Review Committee of National Hospital Sri Lanka.

Results: Commonest type of radiograph was "peri apical" (65%), with "occlusal" being the second commonest. Ortho panthamogrammes (OPG) and lateral cephelogrammes were mostly ordered by the orthodontic unit (65%). Most of the patients had high knowledge on the benefits of the radiographs. However, they lack the knowledge on risks of radiographs other than the mere response that repeated radiographs are harmful.

Conclusion: Planned hospital-based, cross-sectional descriptive studies can assess the levels of knowledge towards dental radiography in Sri Lankan context. Based on the findings, corrective measures will be taken to improve the levels of knowledge of patients on dental radiography.

Key words*: dental radiography, radiographs*

OP 51

Adoption of contraceptives by mothers during extended postpartum period in medical officer of health area Mirigama

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Background: A period of one year following a delivery is identified as critical to ensure safe birth spacing in order to improve the survival and health status of the mother as well as the baby. Immediate postpartum period is defined as the first six weeks after the childbirth while the extended postpartum period refers to the one-year period following a child birth. But the researches in Sri Lanka has revealed that the induced abortion prevalence among married females in the age group of 15-49 years is close to the total fertility rate. Furthermore, the most common reasons for the induced abortions were: nursing for the last child and the decision of completing the family.

Objectives: To assess the adoption of contraceptives by mothers at immediate and extended postpartum period and its association with the resumption of menstruation and sexual behavior.

Methods: Descriptive cross-sectional study was conducted at field well baby clinics of medical officer of health area, Mirigama. Using an interviewer administered questionnaire, data were collected from 138 mothers who had delivered a child during previous 12-23 months. The association of the contraceptive use with the dependent variables was assessed using chi-square test.

Results: Response rate was 100%. Mean age of the sample was 29 years and 48% (n=67) of the mothers had only one child. The proportions of contraceptive-use during the immediate and extended postpartum periods were 34.8% (n=48) and 85.4% (n=118) respectively. Only 11.7% (n=16) of the mothers remained amenorrhoeic for more than 12 months while 35% (n=49) of the mothers resumed menstruation during immediate postpartum period. Sexual exposure without contraceptive-use during immediate and extended postpartum period were 8.7% (n=12) and 23.2% (n=32) respectively. Those who had previous unplanned pregnancy were more likely to adopt a family planning method during immediate postpartum than those who had planned pregnancies (p=0.05). Planning of pregnancy was not associated with using family planning method during extended postpartum period. Mothers less than 30 years of age (p=0.03), educated up to tertiary level (p=0.003) and who had 2 or more public health midwife's home visits before 6 weeks (p=0.019), were significantly more likely to use family planning method during extended postpartum period.

Conclusions & recommendations: Improving the home visits during first 6 weeks by public health midwives is recommended to reduce the unmet need of family planning during the extended postpartum period.

Key words: *contraceptives, extended postpartum period*

OP 52

Knowledge, attitude among the male spouses on contraception, their involvement in family planning decision making and its associated factors in the Medical Officer of Health area Deraniyagala.

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Background: Traditionally, the family planning programmes have focused mainly on women ignoring the crucial role played by men in the family's decision-making process. Excluding men can have an adverse impact on the overall contraceptive prevalence.

Objectives: To describe the knowledge, attitude on contraception among the male spouses, to assess their involvement in family planning decision making and its associated factors in the Medical Officer of Health area Deraniyagala.

Methods: A community-based descriptive cross-sectional study was conducted among the married males, whose female spouses were between 15- 49 years. Multi-stage cluster sampling method was applied to obtain the calculated sample size of 507 among 16 clusters, from each, the first household was selected using simple random method. A pre-tested interviewer-administered questionnaire was used to collect data.

Results: Response rate was 95.6% (n=485). Majority (99.2%, n=476) were aware of family planning. Male condom was the highest known method (92.4%, n=440), followed by oral contraceptive pills (65.3%, n=311) and hormonal implants (32.6%, n=155). Only 33.1% (n=159) of studied males had a satisfactory overall knowledge on family planning whereas 56.9% (n=273) showed a favourable attitude. A high percentage (53.6%, n=246) showed a good involvement in decision making related to family planning. Male spouse's residence (OR = 2.3, 95% CI: 1.4 – 3.9; p = 0.001), age (OR = 0.5, 95% CI: 0.3 – 0.7; p = 0.002), monthly income (OR = 0.6, 95% CI: 0.3 – 0.9; p = 0.016), age at marriage (OR = 0.6, 95% CI: 0.2 – 0.8; p = 0.002) , duration married (OR = 0.4, 95% CI = 0.3 – 0.7; p = 0.001) and the knowledge on family planning (OR = 2.2, 95% CI = 1.4 – 3.2; p < 0.001) showed statistically significant associations with their involvement in family planning decision making.

Conclusions and recommendations: Majority of the males had an unsatisfactory knowledge, but a favourable attitude towards family planning. A high percentage showed good involvement in decision making related to family planning. Family planning services, information, education and communication need to target men more specifically to increase their knowledge and participation.

Key words: *family planning, male spouse, decision making*

OP 53

Prevalence of contraceptive use and knowledge on family planning among reproductive age women working in Avissawella Export Processing Zone

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Background: Women working in export processing zones (EPZs) are reported to have risky sexual behaviors leading to unwanted pregnancies which are associated with high maternal morbidity, mortality and many psychosocial issues. Effective strategies addressing unprotected sexual behaviours and appropriate use of contraceptives among women working in EPZs remain limited.

Objectives: To describe the prevalence of contraceptive use and the level of knowledge on family planning among reproductive-age (15 to 49 years) women workers of Avissawella EPZ.

Methods: A descriptive cross-sectional study was conducted to assess knowledge on family planning (FP) and use of contraceptives among 515 unmarried and 515 married women selected by stratified random sampling from factories in Avissawella EPZ. Published data on prevalence of contraceptive use or knowledge on FP among working women in EPZs in Sri Lanka were not available. Therefore, the highest sample size was used for both variables for both married and unmarried women assuming the expected proportion as 50%. Pretested, self-administered questionnaire was used for data collection. The variables were described using counts, proportions and measures of central tendency and dispersion. Statistical associations were assessed by chi-square test.

Results: Contraceptive prevalence rate (CPR) for married women for any method and any modern method were 47.8% (CI 43.4% - 52.2%) and 40.9% (CI 36.6% - 45.2%) respectively. Oral contraceptive pill (11%), intrauterine device (8%) and injectable (6%) were the most commonly used methods by married women. Having "Satisfactory Overall Knowledge" on FP (OR= 2.6; CI= 1.7 - 3.9), age below 35 years (OR= 2.2; CI= 1.3 – 3.9) and having two or more children (OR= 2.7; CI= 1.6 - 4.5) were independently associated with higher CPR. Forty two percent (CI 37.7- 46.3) of married and 7% (CI 4.8 – 9.3) of unmarried women had "Satisfactory Overall Knowledge" on family planning. Knowledge of on condoms was reported by the highest proportions of married (64.2%) and unmarried (18%) women. A significantly higher knowledge was observed among married women (p<0.001), who were over 35years (p<0.001), having passed GCE (O/L) examination (p=0.004), residing with family members (p=0.008) and having a monthly income of more than Rs. 30,000 (p=0.007).

Conclusion and Recommendations: Use of contraceptives and knowledge on FP were low among women of Avissawella EPZ. Further studies to identify effective interventions to improve use of contraceptives and knowledge on FP among women of Avissawella EPZ are recommended.

Keywords: *contraceptives, family planning*

OP 54

Analysis of changes of the maternal haemoglobin level and selected maternal factors associated with intrapartum hemorrhage

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Background: Blood loss associated with the reproductive system creates a major impact on maternal health during labour. When there is a significant sudden blood loss in human body it directly affects the Haemoglobin stores of the body.

Objective: To describe the changes of maternal haemoglobin level and selected maternal factors associated with intrapartum haemorrhage.

Methods: A descriptive analytical study was conducted among 425 pregnant women presented to the maternity unit at Teaching Hospital, Ragama. Participants admitted before onset of first stage of labour were included and participants who underwent surgically assisted deliveries were excluded. Antepartum and postpartum haemoglobin levels were measured. Comparison of mean haemoglobin levels and determination of associated factors were done through Statistical Package for Social Sciences version 23.0.

Results: Mean age of the participants was 28.27 years (SD 5.52 years). Mean value of Body Mass Index was 26.82 kg/m2 (SD 4.14 kg/m^2). Haemoglobin difference between pre delivery state and post-partum state ranged from -3.5 mg/dl to 3.5 mg/dl (Mean=1.11,SD=0.72). Maximum haemoglobin difference was observed among study participants who underwent emergency caesarean sections (Mean difference=1.48 mg/dl). Mean haemoglobin differences between antepartum period and post-partum period were significant among modes of delivery (f=16.037:p<0.001). Most significant mean haemoglobin reduction was observed in the primigravida mothers (t=10.71: p<0.001). Among the multigravida participants second and third pregnancies showed a significant reduction of blood haemoglobin levels (t>1.96: p<0.001). Maximum haemoglobin difference was observed among participants who were between 31years to 35 years. A significant difference was observed in all age groups in intrapartum blood haemoglobin levels (t=1.96:p<0.001). Maximally significant haemoglobin difference was observed among participants when their Body Mass Index was between 25.0 to 29.99 kg/m2.

Conclusions & recommendations: Association of several factors which could affect the difference of blood haemoglobin concentration were confirmed during the present study. Difference of blood haemoglobin concentration which occurs during the child birth process should be further studied to acquire more evidences including risk factors of this. Predictability of pathophysiological conditions which associate with haemoglobin concentration differences should be evaluated. Depending on these predictability factors, clinical management strategies required for haemoglobin concentration differences should be planned.

Key words: *intrapartum haemorrhage, haemoglobin*

OP 55
An antenatal risk score to predict preterm birth

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Background: Prematurity of babies contributes substantially to neonatal and child mortality.   If a preterm birth could be predicted at the primary health care level, timely referral to facilities capable of managing such deliveries will improve the health outcomes in Sri Lanka.

Objectives: To develop an antenatal risk prediction score to predict preterm births and to assess its feasibility in the field healthcare level

Methods: Through an unmatched case-control study (cases=374 pre-term delivery; controls=374 term delivery) in Colombo District government hospitals, antenatal predictors for preterm birth were identified by multivariate logistic regression model. Based on pre-determined criteria, an expert panel selected predictors to be included in a risk prediction score. Multivariate logistic regression was re-run on the variables selected. A weighted score was decided for each retained in the model, by rounding off the adjusted odds ratio to the nearest integer. This score was then validated in another sample of 94 cases and 94 controls recruited from the same setting; along with its feasibility assessed in the field settings by applying it at the antenatal clinic. Acceptability was assessed by voluntary participation of mothers and midwives.

Results: The expert panel dropped 3 out of the 12 predictors identified in the initial regression model (recent stressful life event, unsatisfied over own health and no recent sexual intercourse) while including gestational diabetes. The final model classified 73.8% of the subjects correctly and showed satisfactory goodness of fit (Omnibus test (χ^2=191.1, df=15, p< 0.001) Hosmer and Lameshow test (χ^2=9.68, p=0.21), Negalkerke's R^2=0.33). As the sum, a score of 31 was computed from the retained predictors: Multiple pregnancy- 10 points; Bleeding/spotting during pregnancy- 4; Preterm history- 3; Gravida 4 or more- 2; PIH- 3; No antenatal dental assessment- 2; Unsatisfactory oral hygiene- 2; Standing more than 2.5 hours a day during 3rd trimester- 2; Use firewood as cooking fuel-1; and Gestational diabetes- 2. The tool had acceptable level of sensitivity (71%), specificity (68%), positive predictive validity (PPV) (69%), negative PV (70%) and good predictive ability (Area under the curve=0.746). Acceptability of the tool was 100% among mothers and 86% among the midwives and the feasibility was high.

Conclusions & recommendations: The preterm prediction score is an acceptable tool that needs further evaluation at field level among antenatal mothers.

Key words: *Preterm birth, risk prediction, risk score*

FREE PAPER SESSION 12: CLINICAL CARE II

OP 56
Effect of delays in breast cancer care on the quality of life among female breast cancer survivors in Sri Lanka

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Background: Evidence from developed countries prove the association of early management of breast cancer and better quality of life of survivors. However, evidence from less-developed countries are incoherent and this association has not been assessed in Sri Lanka.

Objectives: To describe the effect of overall delay in care on the quality adjusted life years among breast cancer survivors attending state cancer treatment centres in Sri Lanka.

Methods: This was a hospital-based cross-sectional analytical study among 800 consecutively sampled female breast cancer survivors attending four out of the nine state Provincial Cancer Treatment Centers. Overall delay in breast cancer care was defined to suit the local context by a panel of experts as having spent more than ten weeks since detecting the suspicious breast lesion by self and initiating the primary treatment for breast cancer or having spent more than eight weeks since detecting the suspicious breast lesion by a health care provider and initiating the primary treatment for breast cancer. An interviewer-administered questionnaire was used to capture the time intervals spent between essential care points along different care paths available in the local health system and the timings were verified using medical records. Locally validated EQ-5D-3L instrument was used to estimate quality of life and utility values required for quality adjusted life years calculations. Quality of life was described as a proportion of patients complaining of symptoms in each component of the EQ-5D-3L. Independent sample t-test was used to determine the effect of delay on the quality adjusted life years of survivors.

Results: Mean age of the study sample at the diagnosis of breast cancer was 55.5 years (SD 10.7). Overall delay in breast cancer care was as high as 57% (95%CI=53.6%-60.4%). Among the EQ-5D-3L domains, anxiety/depression (69.1%) and pin/discomfort (58.8%) were the mostly affected domains among the study sample. The loss of quality adjusted life years among breast cancer survivors who experienced overall delay was significantly higher compared to those who did not experience overall delay (p<0.001).

Conclusions & recommendations: Quality of life of all survivors were mainly affected in the domains of anxiety/depression and pain/ discomfort. Care providers and policy makers should pay attention to cater for these service needs. Having experienced overall delay in breast cancer care shows a significant reduction in the quality of life of survivors. Early detection and management of breast cancer should be key priority in improving quality of life of the breast cancer survivors in the country.

Key words: *breast cancer, quality of life, quality adjusted life years, delay in breast cancer care, EQ-5D-3L*

OP 57

The clinical profile and management outcome of patients with major pulmonary embolism: an experience from a tertiary care centre

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Background: Acute major pulmonary embolism is a devastating clinical entity which is defined as systemic hypotension (systolic arterial pressure less than 90 mm Hg) or cardiogenic shock without apparent noticeable causes other than pulmonary embolism.

Objectives: To describe the patient profile, management strategies and clinical outcomes in patients with major pulmonary embolism.

Methods: A retrospective study on patient profile and clinical outcomes of newly diagnosed patients with major pulmonary embolism was conducted in Cardiology unit, Teaching Hospital Kandy from January 2016 to January 2019 by analysis of clinical records.

Results: Total of 29 newly diagnosed patients with major pulmonary embolism were included the study having a mean age (SD) of 56.79 (14.02) years with a female preponderance of 69% (n=20).While dyspnoea (93.1%) and acute chest pain (38%) were the predominant symptoms, prolonged immobilization (20.7%) and malignancies (6.9%) were the commonest risk factors. All patients had undergone transthoracic echocardiogram of whom 26 (89.7%) had pulmonary hypertension with right ventricular dysfunction and detectable thrombus in major pulmonary artery in 6 (20.7%). Sinus tachycardia (89.7%, n=26) was the commonest electrocardiographic manifestation whereas right bundle branch block with right ventricular strain and characteristics $S_1Q_3T_3$ were observed in 51.7% and 31.0% of patients respectively. Twenty patients (69%) showed positive troponin values and 27.6% of patient had coexisting deep vein thrombosis in lower limb venous duplex. All patients had undergone CT pulmonary angiogram which revealed pulmonary embolism involving main and lobar arteries in 86.2% of patients and sub segmental vessels in 13.8% of patients. Thrombolysis with recombinant tissue plasminogen activator was done in 72.4% of patients. All patients were anti-coagulated with low molecular weight heparin and warfarin therapy and subsequent warfarin therapy up to three to six months. Two patients (6.9%) died during hospital stay and rest (93.1%) were discharged with cardiology clinic follow up.

Conclusions and Recommendations: Major pulmonary embolism is a life-threatening medical condition which warrants high degree of clinical suspicion and prompt diagnosis for optimum clinical outcome.

Key words: *major pulmonary embolism, thrombolysis, anticoagulation*

OP 58

Effect of serum selenium on thyroid function among adult population in Sri Lanka

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Background: Selenium is an essential trace element which is important in thyroid hormone synthesis. Selenium exists as selenoproteins in thyroid gland for the synthesis of Glutathione Peroxidase (GPXs), Thioredoxin Reductase (TRXs) and Deiodinase (IODI) enzymes. These enzymes are important for the synthesis of thyroid hormones. Therefore, Selenium level in human serum effects the thyroid functions. According to the existing literature, prevalence of 106mmune rate is 6.8%. Research problem for this study is why some of the provinces have showed high prevalence of thyroid abnormalities, where iodine levels are highly satisfied than other provinces

Objective: To describe the association between serum selenium concentration and thyroid function among Sri Lankan adult population and to comparethe absolute mean of all nine provinces

Methods: This study was designed as a cross-sectional descriptive study. Target population of this study was Sri Lankan adults who are clinically suspected to have thyroid abnormalities. Study population was limited to the patients who were referred to the Medical Research Institute (MRI) from the peripheral hospitals for the investigation of thyroid functions. Convenient sampling method was done and 346 adult patients and 180 healthy adults were recruited for the study from the nine provinces. Selenium concentrations was analyzed by the Inductively coupled Plasma Mass Spectrometry (ICP-MS) – 7900 × ICP-MS system). Measurement of serum TSH, T3, T4 were done with Architect i1000 chemiluminescence immunoassay analyzer (Abbotte Company made in USA).

Results: According to our study findings, serum selenium concentration of adult population in Sri Lanka was not low enough to affect the thyroid function. T3 and selenium regression p value for α =0.000/ β= 0.397, T4 and selenium regression α= 0.000/β = 0.694, TSH and selenium regression α=0.163/ β =0.3. Baseline mean of serum selenium 93.416µg/L and absolute mean for normal healthy person is 93.435µg/L. Though more female patients (80%) were referred to the medical clinics, gender and levels of serum selenium were independent ($p < 0.005$).

Conclusion and recommendation: According to these results both baseline and absolute mean of the serum selenium are very much similar in Sri Lanka. They are very much close to the European figures. This study suggests that serum selenium concentration of Sri Lankan population is adequate for thyroid function. This can be confirmed by selecting representative samples from patients and normal healthy person through the probability sampling.

Key words: *Selenium, Selenoproteins, Trace element, thyroid function, Inductively Cuppled plasma Mass spectrometry, Chemiluminescent 106mmune assay*

OP 59
Sternal wound infections after open cardiac surgery: Outcomes and health care burden among Sri Lankan adult patients

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Background: Sternal Wound Infection (SWI) after median sternotomy remains a dreaded complication of open cardiac surgery as it leads to increased patient morbidity, mortality and added burden to health care.

Objectives: To describe the incidence and severity of SWI among patients undergoing open cardiac surgeries in Sri Lanka and to describe the outcomes.

Methods: Data of all open-cardiac surgeries performed via median sternotomy by a single cardiothoracic unit at the National Hospital of Sri Lanka were collected prospectively from August 2018 to June 2019. Patient follow up completed for a minimum of a month and SWI was diagnosed according to CDC 2017 criteria.

Results: Total of 190 patients underwent surgeries and majority (97.9%, n=186) had their follow up completed. Patients' median age was 53 (IQR 16-74) years and about two third (67.2%, n=125) were males. Comorbidities included DM (45.7%), BMI>22.9kg/m^2 (52.2%), Smoking (30%), Anaemia (23.7%) and Heart Failure-defined as Left Ventricular Ejection Fraction <50% (16.7%). Coronary Artery Bypass Grafting (CABG) was the commonest surgery (n=137, 73.6%) followed by valvular heart surgeries (n=27, 14.5%) and adult congenital heart surgeries (17, 9.1%). SWI was clinically diagnosed in one fifth of patients (20.4%, n=38). Breakdown of incidence includes: superficial SWI=34, deep SWI=4, mediastinitis=0). Only five (2.6%) had an infecting organism isolated. Median duration for SWI development was 6 (IQR 2-15) days. Appearance of SWI resulted in antibiotic use (n= 32: Intravenous=27, oral=5), additional surgical interventions (debridement in the theatre=4, secondary suturing =4) and prolonged hospital stay compared to the rest (25 versus 15 days, P<0.001). Patients with SWI had higher WBC (17.28 versus 15.8*109/L, P=0.08) and CRP levels (186.7 vs. 160.1mg/L, P=0.017) in the serial analysis. All achieved wound closure before discharge, except for one infected with Methicillin Resistant *Staphylococcus Aureus* who needed multiple interventions. No deaths were reported during the follow-up.

Conclusions and Recommendations: The appearance of SWI result in additional antibiotic use, wound interventions and a longer hospital stay for the patient. It costs to health care sector due to need for auxiliary procedures, investigations, treatment, theatre utilization and bed occupancy. We recommend that practices which are proven to minimize SWI occurrence, such as strict glycaemic control during the perioperative period, should be adopted by all cardiac surgical units.

Key words: *sternal wound infection, adult cardiac surgery, sternotomy, health care burden, bed occupancy*

OP 60

Insights of fluid management at Centre for Clinical Management of Dengue and Dengue Haemorrhagic Fever Sri Lanka

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Background: Dengue is a major public health concern. Sri Lanka's biggest dengue epidemic in 2017 reported 186,101 cases during which District General Hospital Negombo and Centre for Clinical Management of Dengue and Dengue Haemorrhagic Fever (CCMDDHF) received many patients and it handled these patients successfully by judiciously applying principles of National Dengue Guidelines (NDG). Essential use of ultrasound scan (USS) to objectively diagnose dengue haemorrhagic fever (DHF), using minimum fluid to maintain pulse pressure (PP) above 30mmHg, urine output (UOP) 0.5-1ml/kg/hour, monitoring heart rate (HR), avoiding unexplained tachycardia all the time and timely interventions to maintain these parameters, not exceeding fluid quota in NDG, was crucial in achieving near zero mortality.

Objectives: To describe the fluid management in DHF, practiced at CCMDDHF

Methods: This was an observational study of 400 consecutive serologically confirmed DHF patients treated during leaking phase at CCMDDHF from January 2017. All patients with platelet count below 150,000 had routine serial 'leaking scan' (limited USS of chest and abdomen looking for fluid accumulation) to confirm DHF. Data from Bed Head Tickets (BHT) was entered to an Excel database and descriptive analysis was done using R software.

Results: 83.8%, n= 400 patients needed less than 85% of standard fluid quota (mean - 83.75%, 95% confidence interval 79.8-87) specified in NDG during the leaking phase. During leaking, all were started on 1.5ml/kg/hr fluid rate (0.5ml/kg intravenous-IV, 1ml/kg oral) of Normal Saline as per NDG, while monitoring PP, UOP and HR. 63.7% (n= 400) could complete the entire leaking phase without needing to increase fluid rate or needing intermittent crystalloid or colloid boluses. Further 12% needed only one additional crystalloid bolus; 3.3%- needed only single colloid bolus above this baseline fluid rate. 82.8%, n= 400 did not require any colloid. 10% (n= 400) needed boluses of crystalloids and colloids. Dextran40 was the only colloid used. Most dextran boluses (rate=10ml/kg/hour) were 'half boluses', 5ml/kg infused for 30 minutes. Only 1% needed a one hour 'full' dextran bolus (10ml/kg) mentioned in NDG. All 400 DHF patients survived giving 0% case fatality rate (CFR).

Conclusions & recommendations: When diagnosed objectively DHF could be managed with judicious application of fluid therapy giving near zero CFR.

Key words: *dengue fever, dengue haemorrhagic fever, fluid management, fluid therapy, ultrasound scan*

OP 61

Patients' perspective towards nurses' characteristics at the Colombo South Teaching Hospital, Kalubowila, Sri Lanka

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Background: Nurses play a vital role in providing health care, as they maintain a close relationship with the patient. The quality of patient care depends on patient satisfaction Patients perception regarding nursing care may directly affect the public image of the nursing profession.

Objectives: To assess the patients' perception regarding the characteristics of nurses at the Colombo South Teaching Hospital (CSTH), Kalubowila, Sri Lanka.

Methods: This descriptive cross-sectional study, was carried out on 365 patients from both surgical and medical wards of CSTH who were admitted for at least two days Prior to data collection, ethical approval was obtained from the Ethics Review Committee of the CSTH. A Self-administered questionnaire was used to assess the patients' perspective regarding nurses' characteristics each statement of which was measured on a five-point Likert Scale. Data were analyzed using descriptive statistics with SPSS (version 22).

Results: The response rate was 100%. Of the sample, majority was Sinhalese (91%), married (80%) and 42.5% were educated up to G.C.E. (O/L). Amongst the respondents, 63.8% had stayed >2 days in the hospital. According to the results, most of the patients stated that nurses were kind (93.2%) and polite (91.5%). Further, majority (99%) observed that nurse's uniforms were always clean and tidy while 87% agreed that nurses were pleasant and always with a smile. Furthermore, they were satisfied with nurses' communication skills (84%), identification of patient needs (85%), and the manner in which they spent time with patients (84%). Moreover, this study found that many patients (95%) believed that nurses are efficient and competent in their work. However, nearly 30% felt that nurses fail to respect the family members of patients and 59.5% felt that the family background of the patient affected the manner in which nurses treated their family members. However, only 52.9% of patients had a good perspective towards the overall characteristics of nurses.

Conclusions & recommendations: According to patients' perspective, nurses are kind, polite, pleasant and efficient in working while they often wear clean and tidy uniforms. They are also satisfied with nurses' communication skills, and with the manner in which they spend time with patients. They are also satisfied with their competency in working. However, they are not happy with the attitude nurses treat the member of their family. However, the overall perception among patients towards nurses' characteristics is moderate. Therefore, the study highlights that awareness programmes should be carried out to improve nurses' characteristics.

Key words: *patients, perspective, nurses, characteristics*

OP 62
Parental entries on hearing in the Child Health and Development Record: How reliable are they in detecting paediatric hearing loss?

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Background: Sensorineural Hearing Loss (SNHL) which affects 2-4 infants per 1000, is a major cause of childhood disability worldwide. Early diagnosis is critical to provide appropriate and early rehabilitation resulting in good speech and language development. The Child Health and Developmental Record (CHDR) issued by the Ministry of Health Sri Lanka, is used as an important tool in identifying auditory issues.

Objectives: To assess the effectiveness of parental entries regarding functional hearing in the CHDR, in patients with severe to profound hearing loss, to assess the detection of hearing issues by the public health midwife (PHM)

Methods: A descriptive cross-sectional study was carried out among parents/caregivers (n=53) of children with severe to profound hearing loss who underwent cochlear implantation before the age of 5 years from 01.01.2017 to 31.12. 2018 at Lady Ridgeway hospital for children, Sri Lanka. An interviewer administered questionnaire was used based on the hearing assessment in the CHDR, when they attended the Paediatric ENT clinic for follow up.

Results: The age of the mother at the birth of the index child spans from 17years to 50 years. About two thirds of parents (64.1%, n=34) had another child elder to the index child and about a quarter (38.2%, n=20) had more than one. The age at the first diagnosis of the child's hearing impairment ranged from newborn up to 2 years and 8 months. Majority were diagnosed between 18-24 months. The age of cochlear implantation spans from 9 months up to 5 years. Average waiting period was 2 years. Only less than a quarter of the parents marked the entries correctly (20.8%, n=11 at birth; 22.7%, n=12 at 1 month; 4 months; 7 months; 9 months and 12 months). Among those who have not marked or marked incorrectly, about half of them (45.9%, n=23) stated that they didn't recognise the hearing impairment. less than a quarter (23.4% n=12) stated they were reluctant to accept it while only 2 (4%) of children had been referred for further assessment by the PHM

Conclusions & recommendations: Parental and the PHM's assessment of a child's hearing is not a reliable indicator to detect early sensorineural deafness and CHDR cannot be used as an important tool in assessing it. We recommend universal newborn screening since 99% of live births take place in hospitals in Sri Lanka

Key words: *CHDR, parental entries on hearing, universal screening hearing, sensorineural hearing loss*

OP 63

Awareness, perception and practices on fever and febrile convulsions among mothers with children aged 6 months to five years in the Polpithigama Medical Officer of Health area

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Background: Fever is a common symptom in many childhood illnesses. It can be complicated with febrile convulsions in about 2-3%. The level of knowledge on detection and management of fever and febrile convulsions is varied in different communities.

Objectives: To describe the awareness, perception and practices on fever and febrile convulsions among mothers with children aged 6 months to 5 years in the Polpithigama Medical Officer of Health (MOH) area.

Methods: A descriptive study was conducted in all four well baby clinics of the Polpithigama MOH area in May 2019. All mothers of children aged between 6 months to 5 years attending clinics were recruited after obtaining informed written consent. Data were collected using an interviewer-administered pre-tested questionnaire. Ethics clearance was obtained from the Ethics Review Committee of the Sri Lanka College of Pediatricians.

Results: A total of 398 mothers (mean age=30.1, SD=5.5years) were recruited of which only 47% (n=187) used a thermometer to check body temperature when their children were suspected to have fever. Only 12% (n=48) knew the correct temperature that signified fever. Measures used to control fever were; antipyretics (41%, n=163), tepid sponging (42% ,n=167), removal of excess clothes (53%, n=210) and keeping under a fan (6%, n=23). Children of 16 (4%) mothers had had febrile convulsions while 31% (n=123) of mothers had witnessed a febrile convulsion. Only 20% (n=80) were knowledgeable about the correct positioning during a seizure and 55% (n=219) knew the correct positioning of carrying the child to the hospital. Significant proportions perceived that febrile convulsions had grievous outcomes; brain damage (33% n=131) mental retardation (15%, n=60) and epilepsy (8%, n=32). Better overall knowledge on fever and febrile convulsions were associated with a higher maternal education level (p<0.01) and family income (p<0.05).

Conclusions & recommendations: Knowledge on correct temperature to identify fever, measures used for fever control and first aid measures of febrile convulsions are poor in a majority of mothers with children aged 6 months to 5 years in the Polpithigama MOH area.

Key words: *fever, febrile convulsion, body temperature*

OP 64

Knowledge and practices regarding the use of antipyretics by the caregivers of febrile children aged 0-60 months attending the Base Hospital, Tangalle

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Background: Fever is one of the commonest symptoms with which children present in paediatric practice. Antipyretics are readily accessible from the pharmacies, groceries and supermarkets in Sri Lanka. It is important therefore to assess the awareness, and practices regarding the use of antipyretics by caregivers in-order to prevent misuse.

Objectives: To describe the Knowledge and practices regarding the use of antipyretic use by the caregivers of febrile children aged 0-60 months attending the Base Hospital, Tangalle.

Methods: An institutional based descriptive cross-sectional study was carried out at B.H. Tangalle from November 2014 to April 2015 among 416 consecutive caregivers of febrile children of aged 0-60 month attending OPD, using a pretested, interviewer-administered closed ended questionnaire.

Results: The mean age (SD) of children was 28 (18.3) with a median age of 22 months and of the caregivers it was 32.7 (6.8) years. A majority (96.4%, n=401) administered paracetamol while 7.5%, (n=31) administered Ibuprofen 3.8% (n=16) administered both. Only 48.3%, (n=201) of the caregivers used a thermometer to check fever. In the majority Paracetamol (54.1%, n=225) and ibuprofen (83.9%, n=26) were given only when there was fever while the rest administered the drugs irrespective of whether or not there was fever. Caregivers were unaware of the correct frequency of administration of paracetamol (39%, n=163) and ibuprofen (85%, n=354) , while 1.7%, (n=8) were administering paracetamol at a higher frequently. Approximately (65%, n=271) and 88.5% (n=368) of the caregivers did not know the correct dosage of Paracetamol and ibuprofen respectively. Caregivers of 62.1%, (n=258) were unaware that over dosage of paracetamol causes hepatotoxicity while 86% (n=35) and 74%, (n=312) were unaware that paracetamol and ibuprofen respectively may cause allergy. In children <24 months temperature was measured frequently before giving antipyretics and they were given Ibuprofen more frequently. Caregivers who were educated up to A/L and above (p=0.02) and employed (p=0.01) were significantly more aware about the correct dosage of paracetamol while those who were employed were found to be significantly more knowledgeable about the correct frequency (p=0.01) of administrating antipyretics.

Conclusions & recommendations: Though a considerable proportion of caregivers checked temperature before giving antipyretics, knowledge on correct dosage, frequency and overdosage was not satisfactory. Awareness should be imparted on judicial use of antipyretics with special attention to correct dosage and frequency, targeting mainly the unemployed and less educated caregivers.

Key words: *antipyretics, hepatotoxicity*

OP 65
Perception of the patients regarding available services at Psychiatric clinics at the National Hospital of Sri Lanka

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Background: Under the primary health care reformation mental health was given a higher priority in Sri Lanka as one out of ten in our population suffer from a mental illness. Most patients are treated and followed up at psychiatric clinics at government hospitals.

Objectives: To assess the availability of facilities, perception and expectations of clinic attendees, on quality of services, and factors affecting the service quality at psychiatric clinics of the National Hospital of Sri Lanka (NHSL).

Methods: Component I: Facility survey to identify the available facilities such as basic amenities, infra- structure, drugs and human resources at the psychiatric clinics to deliver the service. It was done using a checklist. Component II: Descriptive cross-sectional study, from March to May 2017, at psychiatric clinics of NHSL, among 292 clinic attendees who were in remission, followed up at the clinics for ≥1year, decided by the treating team as capable to realize the information and giving consent, recruited through systematic sampling. Their perception and expectations on five quality dimensions of SERVQUAL model (tangibles, reliability, responsiveness, assurance, and empathy) was assessed using an interviewer administered questionnaire with 30 items, where responses were marked against a 5-points Likert scale. Data were analyzed using SPSS-21.

Results: component 1: Most of the basic infrastructure facilities and staff were found to be inadequate but all essential drugs were available. Component II-Response rate was 93% (n=274). Patient Expectations related to tangibility scored highest and (mean=1.4816, SD=0.0014), assurance scored least (mean=1.1054, SD=0.0003). With regard to the perceptions: responsiveness scored highest (mean=2.9816, SD=0.1636), while tangibility scored the least (mean=2.1379, SD=0.0004). The overall perceptions (mean=2.548, SD=0.6621) regarding the quality of service was higher than their expectations (mean=1.218, SD=1.357), with a positive quality gap (1.2). Perception of tangibility was associated with the level of education (p=0.004), ethnicity (p=0.010); empathy with unemployment (p=0.03).

Conclusions & recommendations: Results showed a positive quality gap in relation to the patient's perspective, although facilities were found to be inadequate. Patients were more concerned on tangibles. Therefore, infrastructure facilities should be improved. In-service training for staff for quality service and creating a culture, where patients are treated with respect and dignity are recommended.

Key words: *quality, perception, expectation, patients*

OP 66

Knowledge of Public Health Midwives regarding the prevention of Mother to Child Transmission of HIV in the Kandy Regional Director of Health Service area

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Background: Transmission of HIV from mother to child (MTCT) is currently a major global public health and a social problem. The transmission of HIV from the infected mother to her child can occur during pregnancy, delivery and through lactation. Midwives are the key service providers in reproductive health services to the community in Sri Lanka. An identified component in community reproductive health is the prevention of mother to child transmission of HIV/AIDS (PMTCT) through the integrated Maternal and Child Health (MCH) services. Therefore, Public Health Midwives (PHMM) can intervene in order to reduce the transmission of the virus from HIV positive mothers to their babies. Hence it is essential that the PHMM are knowledgeable and possess positive attitudes in order to implement the national strategy of HIV prevention.

Objectives: To assess the knowledge of Public Health Midwives regarding the Prevention of Mother to Child transmission of HIV in the Kandy RDHS area

Methods: A cross sectional descriptive study was conducted to assess the knowledge of Public Health Midwives. A self – administered semi structured pre-tested questionnaire was used to collect data. Information was obtained on demographic factors and knowledge of Public Heath Midwives towards PMTCT of HIV. Sample size was 423. There were 7 questions to assess HIV knowledge and the total marks that could be obtained was 7. If the participant obtained 1-3 marks they were categorized as having poor knowledge, 4 marks as having moderate knowledge and 5-7 marks as having good knowledge on HIV. Knowledge on PMTCT was assessed by 9 questions and the total marks that could be obtained was 9. If the participants obtained 1-3 marks, they were categorized as having poor knowledge, 4-6 as having moderate knowledge and 7-9 marks as having good knowledge on PMTCT.

Results: Out of the 423 PHMs eligible for the study and only 335 participated. The mean age of PHMM was 41.8 years (SD=3 years). More than 50% (n=215) of midwives were G. C.E. (A/ L) qualified. Most of the PHMM (55.8%, n=187) had a service experience of more than 20 years and only 17.1% (n=59) had a working experience of less than 10 years. Most of the PHMM had a good knowledge on HIV (95.5%, n=320). The knowledge on PMTCT too was good (93.4%, n=312) and the majority (92.8%, n=311) of the PHMM were aware of the national PMTCT guidelines.

Conclusion and Recommendations: The study revealed that PHMM were significantly knowledgeable on HIV/AIDS and PMTCT in Kandy RDHS area. Education and training of PHMM on national guidelines of PMTCT is recommended.
Key words: *PMTCT, public health midwives*

OP 67

Musculoskeletal symptoms, factors associated and related health-seeking behaviour among health activity assistants attached to operating theatres of teaching hospitals in Colombo

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Background: Musculoskeletal disorders (MSDs) are gaining importance worldwide, causing high morbidity, disability and poor quality of life. In Sri Lanka most of the manual tasks in health care delivery are done by health activity assistants (HAAs). Therefore, it is important to focus on musculoskeletal symptoms (MSSs), factors associated and health seeking behaviour (HSB) of HAAs.

Objectives: To determine the prevalence of MSSs, and factors associated and to describe HSB among HAAs attached to operating theatres of teaching hospitals (OT-TH) in the Colombo district.

Methods: A workplace-based cross-sectional study was conducted among 378 health activity assistants attached to operating theatres of teaching hospitals in the Colombo district, selected by simple random sampling. MSSs were assessed using Cornell Musculoskeletal Discomfort Questionnaire. Prevalence of MSSs was calculated for the preceding three months and one week. Associations were analyzed using odds ratio (with 95% CI) and Chi-square test with p value at 5% significance level.

Results: The prevalence of MSSs at least in one anatomical region during the preceding three months and one week were 59.7% (n=226, 95%CI: 54.77-64.63) and 34.6% (n=131, 95% CI: 47.98-58.02) respectively. Lower back was the most affected body region (32.5% n=123) during the preceding three months followed by foot (28.6%, n=108) and knee (19%, n=72). The same pattern was observed during preceding work week. Transferring 15 patients or more a day (OR=4.47, 95%CI=2.80-7.16; p=0.0001), pushing and/or pulling 15 trollies or more a day with patients (OR=2.65, 95% CI: 1.40-5.01; p=0.002), cleaning surgical instruments one hour or more per day (OR=1.83, 95% CI: 1.20-2.78; p=0.004), excessive work load (OR=3.79,95% CI: 2.42-5.92; p=0.0001), fast pace of work (OR=2.77, 95%CI:1.47-5.22; p=0.0001) and too many different tasks (OR=5.58, 95% CI:3.22-9.67; p=0.0001) were significantly associated with developing MSSs during preceding three months. Over 60% (n=139) of subjects with MSSs had sought health care. Over half of the subjects (n=51) who did not seek health care believed any medication would not resolve the symptoms.

Conclusions & recommendations: Prevalence of MSSs among health activity assistants was high. Health seeking behaviour was satisfactory, but deficiencies in understanding the illness were observed. MSDs among HAAs should be considered as an occupational health priority and preventive measures should be implemented at institutional level addressing their physical and psychological demands.

Key words: *musculoskeletal symptoms, prevalence, health seeking behaviour, health activity assistants*

OP 68

Knowledge and attitudes of healthcare staff who get involved in clinical management of cardiac disease complicating pregnancy and their knowledge on conducting multidisciplinary clinics for reducing maternal deaths resulting from cardiac diseases in De Soysa Hospital for Women.

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Background: Although the maternal mortality rate has t reduced drastically in Sri Lanka compared to other Asian countries, this figure has been stagnant at one point for a considerable period of time. The multidisciplinary clinic at the De Soysa Hospital for Women was established after the increased suspicion that heart disease complicating pregnancies having a significant contribution to the maternal mortality in Sri Lanka.

Objective: To study the knowledge and attitudes of health staff regarding cardiac disease complicating pregnancy and the knowledge regarding conducting a multidisciplinary clinic at the De Soysa Hospital for Women.

Methods: A stratified random sample of 200 healthcare staff who get clinically involved in patient management was selected from the study area. The sample consisted of 50 medical officers ,100 nursing officers and 50 midwives involved in the clinical management of patients belonging to different age groups, different income groups, married and unmarried groups. The study setting was the   De Soysa Maternity Hospital which can be considered as one of the main leading maternal government hospitals in Sri Lanka catering to patients from all over the country. The pretested validated structured and interviewer administered questionnaire which was developed by the researcher was distributed among 200 above mentioned healthcare workers who work and get involved in managing these patients. First the study population was divided into three strata according to the service category. Then according to the probability proportionate sampling method, the number of participants to be selected from each category was determined. Thereafter simple random sampling method was applied to select the required number from the three categories.

Results: The knowledge and attitude levels related to the causes of maternal deaths, maternal complications, neonatal complications as well as the need for multidisciplinary clinics, service availability, and shared clinic effectiveness, despite some identified gaps, were at a satisfactory level. Nearly nine tenths (90.0%) of all three categories who were aware of the key cause for maternal deaths at present as heart disease believed that the time allocated for such mothers at ante natal clinics is not sufficient. Even the survey sample who was not aware of the key cause of maternal deaths at present as heart disease believed that there should be a separate combined clinic for such mothers and they should be given more attention than the other mothers.

Conclusions & Recommendations: All in all, the knowledge on maternal cardiac complications, warrants urgent improvement. Experience of the healthcare staff engaged in these maternity units, effective communication between the staff and the patients, and the available facilities/resources for the service delivery and capacity development programs can be identified as possible factors underlying   awareness and attitudes of the health staff.

Key words: *cardiac disease complicating pregnancy, maternal mortality, multidisciplinary clinic, staff involved in clinical management*

OP 69

Knowledge and preferred methods to improve knowledge in clinical transfusion medicine among Medical Officers of North Colombo Teaching Hospital

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Background: Appropriate knowledge in clinical transfusion therapy is essential for health care professionals. It reduces inappropriate blood usage and improves quality of good blood management practice. Adequate knowledge in clinical transfusion therapy can improve quality, safety and effectiveness of modern health care which will significantly improve patient outcome.

Objectives: To determine the knowledge and preferred methods to improve knowledge in clinical transfusion medicine among medical officers of North Colombo teaching hospital in Sri Lanka.

Methods: An institution-based descriptive cross-sectional survey was carried out at the Colombo North Teaching Hospital, over a period of 16 weeks among 269 medical officers excluding medical officers who had a special training on clinical blood transfusion service. Knowledge was assessed using a self-administered, pre-tested questionnaire. The knowledge on five main areas of clinical transfusion medicine was assessed including cold chain maintenance & bedside transfusion practices (Category A), transfusion related adverse effects & transfusion transmitted infections (Category B), immunological concepts related to transfusion therapy (Category C), clinical indications for special blood and blood components (Category D) and blood bank's special services (Category E). Good knowledge was considered as those having a score of more than 60% in a given category.

Results: Majority of the sample consisted of senior house officers (SHO) 61% (n=164), while 22% (n=58) were house officers (HO) and 15% (n=41) were post graduate trainees. Majority of the participants were in the age group of 25-35 years (58%, n=157) and 6% (n=15) were in the 46-55-year age group. The knowledge on immunological concepts was low among all the categories of medical officers. Knowledge on clinical indications for special blood and blood components (Category D) and blood bank's special services (Category E) were significantly low among SHOs compared to HO & PG Trainee categories (HO category p=0.002, 0.008 & PG Trainee category p= 0.031, p<0.000). The knowledge in Category E was low in the 46-55 years age group compared to other age groups (p=0.020). The majority of medical officers (30%, n=80) felt that the pre internship training programme was the best approach to improve knowledge on clinical transfusion medicine while 28% (n=75) of medical officers preferred workshops with practical sessions.

Conclusions & recommendations: Knowledge on immunological concepts, clinical indications for special blood and blood components and blood bank's special services need to be improved among medical officers. With increasing age, medical officers need to have continuous training programs to improve and update knowledge on clinical transfusion medicine.

Keywords: *clinical transfusion medicine, medical officers*

OP 70

Perception of team-based learning activities among Cardiography students at the School of Cardiography, National Hospital of Sri Lanka, Colombo.

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Background: At present we are moving towards a new era of education which is shifted towards students centered learning rather than teacher centered learning. Team Based Learning (TBL) is a well-defined, student centered, active learning instructional strategy that provide students with an opportunity to apply conceptual knowledge through sequences of activities that include individual work, team-work and immediate feedback. Even though this TBL strategy is widely used in other countries, health professional education centers under the Health Ministry of Sri Lanka are still not implementing this strategy in their curriculum. In the school of Cardiography we introduced TBL to our students.

Objectives: To determine the perception towards TBL among students in the school of Cardiography, National Hospital of Sri Lanka.

Method: This was a descriptive cross-sectional study. The Sample size was 88 students from the School of Cardiography, National Hospital Sri Lanka. Data collection was carried out after conducting TBL sessions on Drug Effects on Electro-Cardiogram. Data collection was done using a self-administered questionnaire. The questionnaire consisted of socio-demographic characteristics, s, questions related to the perception on team-based learning which was questioned against the team-based learning Subscale (TBLS) and questions related to student satisfaction which was questioned against the student satisfaction subscale (SSS).

Results: The results of both TBLS and SSS revealed positive response towards the TBL rather than traditional teacher centered learning. In TBLS, 88.6 % (n=88) of students responded above the neutral score of 48 indicating a positive response towards TBL. The highest score was 64 out of 80 and lowest was 43. In SSS, 95.5% (n=88) of students responded above the neutral score of 27. The highest score was 38 out of 45 and lowest was 25.

Conclusion and Recommendation: When summarizing the results obtained from this study, it is clear that, the students' perception towards team-based learning was positive. Therefore, TBL should be encouraged as a method to be used in the teaching activities carried out by the Ministry of Health Sri Lanka.

Key Words: *team-based learning, student centered, teacher centered*

FREE PAPER SESSION 15: HEALTH PROMOTION

OP 71

Prevalence of nomophobia and its effect on psychological well-being among smartphone using undergraduates of a selected medical faculty in Sri Lanka

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Background: Nomophobia is the fear or anxiety caused by being out of contact with a mobile phone or its services. Medical undergraduates are more prone to develop nomophobia because of the time constraining schedule and high dependency on smartphones. Nomophobia has direct effect on psychological wellbeing and academic performance of students.

Objectives: To assess the usage patterns of smartphones, prevalence of nomophobia and its effects on psychological well- being among smartphone using medical undergraduates.

Methods: A cross-sectional analytical study was carried out among 150 undergraduates of the Faculty of Medicine, Colombo selected through convenient sampling. Approval was obtained from the Ethics Review Committee of the Faculty of Medicine, Colombo. A self-administered questionnaire including the standard nomophobia-questionnaire was used. Factors of psychological wellbeing were identified through previous international studies.

Results: Age of the study population ranged from 18 to 26 years in completed years and a majority of the study population were males. The main reason for acquiring a smartphone was to use in case of an emergency (26.1%) and the main feature utilized was identified as voice calls (34.6%). Majority accessed internet for social media (38%) and checked internet during academic activities mainly to look up study material (13.4%). The prevalence of nomophobia in the study population was 100.0% with 28.2% having mild, 62.0% having moderate and the remaining 9.9% having severe nomophobia. People with a higher degree of nomophobia were more frequent internet users (p=0.018), checked smartphone during academic activities (p=0.028), kept their phones near the bed when sleeping (p=0.045), used it while charging (p=0.013), spent more time with the smartphone than with family and friends (p=0.001) and was depended on it to maintain their social identity (p=0.020). A higher degree of nomophobia was associated with decreased sleep quality (p=0.035), waking up due to phantom vibrations (p =0.983), difficulty concentrating on studies (p =0.801) and difficulty in socializing directly with people(p=0.373). Majority of the students identified smartphones as a hindrance to their studies (80.3%) and have attempted to reduce usage (65.5%) but have failed in doing so (65.6%).

Conclusions & recommendations: The study population had a high prevalence of nomophobia, with many socio-demographic and smartphone usage related factors leading to its development. Nomophobia had affected the psychological well-being and academic prowess of students.

Key words: *nomophobia, psychological wellbeing, medical education*

OP 72

Knowledge, attitudes and practices on dengue vector control among responsible officials in Local Government Authorities in Kalutara district

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Background: Dengue fever is a rapidly spreading mosquito-borne infection, with extensive burden to the state health sector. Adequate collaboration with Local Government Authorities (LGA) is crucial in control and prevention of dengue in Sri Lanka.

Objective: To assess the knowledge, attitudes and practices on dengue vector control among responsible officials in Local Government Authorities in the Kalutara district.

Methods: A descriptive cross-sectional study was carried out in all sixteen LGAs in the Kalutara district. A self-administered questionnaire and a check list were used as the study instruments to assess the knowledge, attitude and practices. A total of 151 relevant officials participated with a response rate of 96%. The self-administered questionnaire consisted of socio-demographic information, knowledge, five-point Likert scale of attitude questionnaire and self-assessed practices on dengue and dengue vector control. The check list consisted of major practices expected to be done by Local Government Authorities. Relevant to dengue vector control. Data analysis was done using SPSS version-23.

Results: Seventy percent of the respondents were females. Mean work experience was 12 years. Mean knowledge score was (71.3%, n=145). Statistically significant associations were seen between service experience and knowledge and between level of education and knowledge. Of the respondents, (84.1%, n=145) possessed a satisfactory or good level of knowledge on legal provisions on dengue control. Most of the respondents demonstrated positive attitudes on dengue vector control. All 16 LGAs practiced at least the key basic waste management practices. Majority of the respondents (93%, n=145) stated that the LGA s collect waste from their administrative areas. Most of them did not know that there is an allocated budget to prevent mosquito borne diseases in the area. There was a wide gap between expected practices and the actual practices in certain LGAs.

Conclusions and recommendations: The respondents demonstrated a satisfactory level of knowledge on dengue, and control and prevention of dengue. Favorable attitudes towards dengue control were seen among the respondents. Further research involving political authorities of local government bodies and assessing actual practices at field level are recommended.

Keywords: *dengue fever, vector control, legislations, local government authorities, Kalutara*

OP 73

Cultural competence and its relationship with sex, education level and working area of student nurses in Sri Lanka

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Background: Nursing is a female dominant profession with few males. Student nurses are recruited from advance level results by the Ministry of Health and are posted to different working areas. As Sri Lanka is a multicultural society cultural competence is essential for nurses for the provision of culturally competent care because nurses should work in different areas.

Objectives: To determine the level of cultural competence and its relationship with sex, educational level and working area among third year student nurses of the Ministry of Health in Sri Lanka.

Methods: A descriptive cross-sectional study was conducted in randomly selected schools of nursing in Jaffna and Kurunegala. Random sampling technique was used to select the 171 participants according to the Rao soft online sample calculator. A self-administered questionnaire developed by the researcher and which was validated by experts was used Components of the cultural competence considered were cultural awareness, cultural knowledge, cultural skill, cultural encounter and cultural desire. The data were analysed using the Statistical Packages for Social Sciences version 22. Ethical clearance was taken from the Ethical Review Committee of the International Institute of Health Sciences Sri Lanka.

Results: Response rate was 100%. All the participants (n=171) were in the 20-30 year age group. Most of the participants were female (n=156, 91%), Sinhala (n=154, 90.1%) and Buddhist (n=151, 88.3%). Of them 82% were educated up to advanced level. The mean score of Cultural Competence among the participants was 3.7 (SD± 0.4). There was no relationship among cultural competence and sex (p=0.44), educational level (p=0.12) and working area (p=0.79).

Conclusion and Recommendations: Participants had a moderate level cultural competence and there was no relationship with either their sex, education level or working area. Curriculum revisions may be required to upgrade the cultural competence of student nurses to a higher level.

Key words: *cultural competence, student nurse*

OP 74

Awareness and practices on Rabies prevention among school children and the effectiveness of a school-based education program on rabies control in Udugama, Sri Lanka

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Background: Rabies is an encephalomyelitis caused by infection with Rabies virus or other Lyssa viruses. More than 99% of human deaths due to rabies occur in Asian countries. The rabies control program conducts animal vaccination, animal sterilization and health education programs throughout the country in order to eliminate rabies from Sri Lanka. The Ministry of Health, Sri Lanka spends a substantial amount of its health budget on anti-rabies treatment for humans due to poor vaccination of domestic animals.

Objectives: To assess the awareness, practices and effectiveness of a rabies education program on rabies control among the school children in Udugama, Sri Lanka.

Methods: A descriptive study was conducted among year 9 and Year 10 students in Udugama Maha Vidyalaya with an interventional component to increase the awareness on rabies control. The pre- and post-intervention samples included 195 and 198 students, respectively. Students were educated using a booklet, posters, leaflets and a two-way communication lecture. Their awareness and practices related to rabies control were evaluated before and after the intervention using a pretested, self-administered questionnaire. Level of knowledge was determined by assigning marks for correct responses.

Result: Before the intervention, only 37.6 % of the students had a satisfactory level of awareness on rabies preventive activities (mean score=34.7; SD=10.6), which was significantly increased (mean score=83.9; SD=11.5) following the intervention (p=<0.001). Poor awareness was significantly associated with unavailability of proper health education and promotion activities.

Conclusion & recommendations: Awareness on rabies preventive activities among school children is very poor and it can be improved by conducting regular health education and promotion programs.

Key words: *students, educational, rabies, education*

OP 75 (Abstract Removed as not presented)

Dietary management, knowledge and the association between selected lifestyle characteristics with glycemic control among patients with non-insulin dependent diabetes mellitus in a primary care setting

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OP 76
Students' perceptions on the educational environment in the School of Cardiography, National Hospital, Colombo, Sri Lanka

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Background: Educational environment has a profound influence on the education. Therefore, each and every training institute should assess one's educational environment and make steps to improve it. Although many studies have been carried out on educational environment of medical faculties and nursing faculties, there were no studies found on the educational environment of cardiography schools including cardiography school of Sri Lanka.

Objectives: To assess student's perception of the learning environment in the School of Cardiography, Colombo

Methods: This descriptive, cross-sectional study was performed on 88 students during the academic year 2017/2018 at the School of Cardiography. Dundee Ready Education Environment Measure (DREEM) instrument, a validated global tool to assess the educational environment, was used. DREEM has 50 items, self-administered, closed-ended inventory based on students' perceptions of five areas directly related to their educational environment. These areas are: learning, teaching, academic self-perception, atmosphere, and social self-perception (SSP). Data were entered and analyzed by using the SPSS (version 22.0) software.

Results: A total number of 88 Cardiography students participated in this study. A total of 86 participants returned the completed questionnaire, giving an overall response rate of 97.72%. The total score of DREEM was 148.05 (more positive than negative). The total score of 'Students' Perception of Learning (SPL)' domain was (74.01%) The total score of 'Students' Perception of Teachers (SPT)' domain was (57.05%), while that of 'Students' Academic Self-Perception (SASP)' was (83.09%) The total score of 'Students' Perception of An atmosphere (SPA)' domain was (67.84%) and that of (SSP) was (59.4%). For SPL, SPT, SASP, and SPA domains the score was ≥ 55%. The students' perception toward educational environment was positive for all five DREEM subscales. Furthermore, it was evident that the students' support system needs improvement.

Conclusions & recommendations: Students' perception toward educational environment was positive for all five DREEM subscales. It also helped to identify certain issues which require further exploration such as support system for students. Remedial action should be taken to improve identified individual factors.

Key words: *educational environment*

OP 77 (Abstract Removed as not presented)

~~Identification of the patients admitted to the National Hospital of Sri Lanka in the year 2013 with common household agents and pharmaceutical poisoning~~

~~Waruna Gunathilaka[1], Samantha Liyanage[1*], Prasanna Karunanayake[1], Achala Vithanage[1]~~

OP 78

Association of hamstring tightness with trunk and lumbar range of motion during forward bending among sewing machine operators

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Background: Forward bending is a more common movement during the activities of daily living and commonly seen among sewing machine operators during their work. Clinical observations have suggested that hamstring tightness influences the lumbar pelvic rhythm and shortened hamstring may increase the risk of injury to the spine from mechanical stresses.

Objectives: To find the association of trunk flexion and lumbar flexion with hamstring tightness during forward bending among the sewing machine operators in a garment factory in Colombo district.

Methods: A descriptive cross-sectional study was carried out among 169 sewing machine operators from a large scale garment factory in Colombo district. Sewing machine operators aged between 18 to 60 years and having minimum of 6month work experience were included in the study. Passive knee extension test was used to measure the hamstring tightness. Trunk flexion was measured using finger to floor test while lumbar flexion was measured using modified schober test.

Results: Results were analysed using Statistical Package for Social Sciences (SPSS) version 22. A weak negative correlation was revealed between hamstring tightness and Lumbar range of motion during forward bending ($p<0.05$, $r=-0.28$). Trunk flexion also has a significant positive association with hamstring tightness ($p<0.05$, $r=0.47$).

Conclusions & recommendations: Hamstring tightness affect the lumbar flexion and trunk flexion during forward bending. Sewing machine operators and the relevant authorities should be advocate to reduce the forward bending during sewing and practice daily routines to prevent hamstring tightness. Physiotherapists are suggested to examine hamstring tightness during the rehabilitation of mechanical low back pain. Furthermore, sample size of the current study is limited and studies should be carried out with more sample size and different community groups.

Key words: *hamstring tightness, lumbar flexion, trunk flexion, sewing machine operators*

OP 79

Mobile ventilator

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Background: Patients with respiratory paralysis due to various causes need to be transferred urgently from primary healthcare settings to secondary or tertiary health care settings. During which, the most common method of ventilation is ambue ventilation; where a bag is compressed to ventilate manually. This is a crude and labor-intensive method with many consequences. Most primary healthcare centres lack transport ventilator facilities due its high cost. Also, most commercially available ones cannot function for long durations owing to short battery power time which has caused many drawbacks in transportation of such patients from far away peripheral primary health units to the center. Therefore, the need for a mobile transport ventilator can be considered a high priority.

Objective: To invent a mobile transport ventilator to be used when transporting respiratory failure patients from peripheral primary health centers to the higher health centers, at a low cost and to alleviate the drawbacks of ambue ventilation.

Methods: The invented ventilator was connected to a highly advanced human like manikin and tested. All parameters of respiratory functions and settings of commercial mobile ventilators were demonstrated.

Results: The function and settings gave a good functional capability within the parameters.

Conclusions & recommendations: The invented mobile ventilator will be beneficial for distant peripheral primary healthcare centres when transporting respiratory failure patients to higher centres. Approval and partnership of the Ministry of Health is required for further testing on live subjects and further use of the equipment.

Key words: *primary healthcare, mobile ventilator, transport*

OP 80

Evaluation of Antigenicity of Antibody screening cells at storage of 49 days with donor serum of known antibody specificities.

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Background: ABO blood group is considered as one of the most immunogenic blood groups in humans. ABO blood group is comprised of A, B, AB and O blood groups. Other than ABO blood groups, rhesus is the second most immunogenic antibody. The naturally occurring and transfusion associated clinically significant antibodies are developed in human body due to pregnancy or previous transfusion. Though ABO and Rhesus is compatible, blood transfusion may develop an allo antibodies against foreign antigens present on donated blood. Also due to minor blood groups such as duffy, kell, KIDD, Lewis, P, Lutheran, MNSS have the ability to develop immunogenic antibodies. Red cell allo antibodies are detectable up to 3% of the general population. It is important to detect these clinically important antibodies to treat transfusion associated complications.

Objectives: Evaluation of Antibody screening cells, Antigenicity at the storage of 49 days with donor serum of known antibody specificities

Methods: A sample of 56 blood samples were tested for the antigenicity from known positive donor serum pool from 10 patients who is 5 positive patients for KELL and is 5 positive patients for Duffy. These 56 samples belong to a same reagent donor and 56 aliquots were prepared. screening cells are treated with Alserver's solution which can be stored at 4^oc up to 42 days. These cells can be tested for Kell and Duffy antigens with known positive donor serum on day01, day42, day49 by Indirect Antiglobulin Test (Indirect Antiglobulin Test- Add 2 drops of serum, 1 drop of screening cells and 1 drop of low ionic strength solution, then incubate at 37^oc for 10 minutes. Wash 3 times using phosphate buffered saline and add 1 drop of coombs reagent, finally centrifuge at low spin for 30 seconds and observed for grade of red cell agglutination)

Results: Kell showed +4 grading agglutination on day 01, day 42, and day 49. Duffy showed +2 grading agglutination on day 01, day 42, and day 49.

Conclusions and recommendations: The entire set of result shows equal grading of agglutination against the donor serum. Since there were no observed changes in grade of agglutination these screening cells can be used to identify patient samples for Duffy and Kidd.

Keywords: *antibody screening cells, antigenicity*

OP 81
Prevalence of and association of selected factors with work- related musculoskeletal disorders among Dental surgeons in health institutions of Western Province, Sri Lanka

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Background: Work-related musculoskeletal disorders are injuries or disorders of the muscles, nerves, tendons, joints, cartilage and spinal discs, where the work environment and performance of work contributes significantly to and/or where a pre-existing condition is worsened or persists longer due to work conditions.

Objectives: To determine the prevalence and factors associated with work-related musculoskeletal disorders among dental surgeons employed in government health institutions of Western Province, Sri Lanka

Methods: A descriptive cross-sectional study done among 332 dental surgeons working in government health institutions of Western Province, using a self-administered questionnaire. Association of socio-demographic and work-related factors with work-related musculoskeletal disorders was assessed using chi-square test.

Results: The mean age of the study population was 41 years; among them 71.4% (n=237) were females. The median years of service experience were 11years. The median number of clinical work hours per week was 40 hours. The median number of patients treated per dental surgeon was 100 patients a week. Prevalence of work-related musculoskeletal disorders was 64.2% (n=332), the commonest disorder being (39.8%, n=132) neck disorders. The difference in the prevalence of work-related musculoskeletal disorders among age up to 40 years and more than 40 years, service experience up to 11 years and more than 11 years, among dental surgeons with postgraduate qualifications and grade dental surgeons were statistically significA significant difference in work-related musculoskeletal disorders were observed among dental surgeons who have worked 40 years, who work more than 40 hours per week and those with post graduate qualifications (p<0.05) while work-related musculoskeletal disorders was also significantly associated with "daily work affected" and sleeping disturbances (p<0.05). shortened working time, absence from work, use of analgesics and seeking medical care was not significantly associated with work-related musculoskeletal disorders (p>0.05).

Conclusions and Recommendations: The prevalence of work-related musculoskeletal disorders was high and was significantly associated with age, work experience and status of post graduate qualification. Further research is needed to evaluate risk factors to minimize the occurrence of musculoskeletal disorders among dental surgeons in western province.

Key words: *work-related musculoskeletal disorders, dental surgeons, associated factors*

OP 82

Analytical overview of domestic injuries among surgical admissions in a selected base hospital Sri Lanka

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Background: An injury is a bodily lesion resulting from an acute exposure to a physical agent. Injuries are the leading cause of death, hospitalization and disability throughout the world. Many such injuries occur within the household premises and could be due to accidents, domestic violence or self-inflicted incidents.

Objectives: To conduct an analytical overview of the domestic injuries among surgical admissions in a selected base hospital, Sri Lanka.

Methods: A descriptive cross-sectional study was conducted among 208 patients presented to Base Hospital Wathupitiwala with an injury which had happened within the premises of the house. Interviewer administered questionnaire was used for data collection. Frequency, percentage, mean and standard deviation which were calculated by SPSS version 25.0 were applied to describe data.

Results: Mean calculated age of the study participants was 35.21 years (SD=22.47). The most vulnerable time period identified for domestic injuries (40.1%, n=85:) was between 7 pm to 10pm. Almost one third of the accidental injuries (31.8 %, n=42) had occurred under the influence of alcohol. Majority were recorded as accidental injuries (62.8%, n=132). Among the intentional injuries, 76.9% (n=60) had occurred due to physical attack by a drunken individual. There were 26.7% (n=56) grievous injuries and 3.8% (n=8) were reported as endangering life. Recorded number of spontaneous falls were 37.1% (n=78). Majority of the intentional injuries (65.4%, n=38) had occurred due to blunt weapons and majority of the accidental injuries were accidental falls (59.1%, n=78). 31.2% (n=65) of the individuals who had grievous and endangering life injuries were under the influence of alcohol at the time of injury.

Conclusions & recommendations: Night time is the most vulnerable time period for domestic injuries and alcohol intake is seen in many injuries. Health and other social interventions should be implemented to minimize domestic violence and alcohol intake. More attention should be paid on domestic environmental safety and special attention of the domiciliary level health care officers should be focused on these areas.

Key words: *domestic injuries, surgical admissions*

OP 83 (Abstract Removed as not presented)

~~The adaptation and validation of stroke and aphasia quality of life scale for the Sinhala language in the Sri Lankan context~~

~~Shihari Karunathilake[1*], Saumya Rathnayake[2], Udaya Ranawaka[3]~~

OP 84

Descriptive analysis of paediatric Pelvi-Ureteric Junction (PUJ) obstruction presenting to a tertiary care facility in Sri Lanka.

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Background: Congenital PUJ obstruction is the commonest cause of hydronephrosis among children. This could be either intrinsic, due to incomplete recanalization of ureteric bud during embryogenesis, or extrinsic due to fibrous bands or aberrant vessels. Diagnosis is made antenatally, during childhood or rarely in adulthood.

Objectives: To describe the demographic data and presenting complaints of patients who underwent pyeloplasty for congenital PUJ obstruction in a tertiary care facility in Sri Lanka.

Methods: The records of 192 patients who underwent open pyeloplasty during a period of 4 years (from 2014 to 2018) were analyzed retrospectively. Demographic factors such as age at presentation, gender and mode of initial presentation and intraoperative findings were analyzed.

Results: Of the total number of patients, 73.4% (n=141) were males and 26.6% (n=51) were females. The mean age of presentation was 47.16 months. The left kidney was involved more than the right (61.5% vs. 38.5%). The commonest mode of presentation was by antenatal imaging diagnosis (28.1%) followed by UTI (27%), abdominal pain (17.4%), incidental finding (11.2%), abdominal distension (5.6%), during investigation for hypertension (2.2%), pyonephrosis (1.7%) and investigation for hematuria (1.7%). Other less common modes of presentation were, intracranial hemorrhage due to secondary hypertension, pyelonephritis, urinary frequency, prolonged jaundice, acute urinary retention, nephrotic syndrome, and during VACTREL screening (5.2%). Interestingly 7 of the 20 incidental findings were during investigation for dengue fever.

Conclusions and recommendations: Congenital PUJ obstruction leads to complications such as recurrent UTI and chronic renal failure if undiagnosed in a timely fashion. Improving antenatal screening facilities would result in early detection and referral to specialized care centers. Knowledge of the various modes of presentation will guide physicians to have a high degree of suspicion regarding the diagnosis.

Key words: *pelvi-ureteric junction, obstruction, pyeloplasty*

OP 85

Patient experience on the delivery of healthcare among admitted patients at the National Institute of Mental Health, Sri Lanka

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Background: Patient experience is defined as "the sum of all interactions, shaped by an organization's culture, that influence the patient's perceptions across the continuum of care". Patient experience is considered to be a measure of the quality of services provided. The National Institute of Mental Health, Sri Lanka (NIMHSL) is a specialised hospital catering only for patients with mental illnesses and has a unique system developed internally to provide services for such patients.

Objectives: To describe the patient experience on the delivery of healthcare at NIMHSL

Methods: A descriptive cross-sectional study among 419 inward patients of NIMHSL, using an interviewer administered questionnaire as an exit interview at discharge covering all clinical services and environmental factors while their OPD waiting times obtained through secondary data extraction.

Results: A majority of participants were from western province (64.9%), among them 80.4% were Sinhalese, 75.9% were Buddhists and 61.6% were males. More than one third of participants were unemployed (44.4%) and had low income levels (34.4%). The median OPD waiting time 10 minutes (range 0 – 115 minutes) was within set guidelines of the institution. Weighted percentage scores showing positive experiences in inward care for the services of senior doctor (85.05%), ward doctor (84.72%), nursing (84.97%), health assistant (81.33%), pharmacy (90.22%), occupational therapist (81.84%), psychiatric social worker (84.12%). Number of patients linked to various services were pharmacy (42.24%), occupational therapy (32.46%) and social worker services (19.09%) were low. Experiences regarding environmental factors were positive among (82.61%) while (25.05%) reported negative experiences regarding palatability of food, place for recreation (14.31%) and ability to contact family members (19.09%). Environmental factors showed highest correlation to overall experience. Significant variance in experience was seen between different strata of income levels.

Conclusions & recommendations: Overall experience of admitted patients remained mainly positive with variation between different income levels. Environmental factors showed a high correlation with overall experience which needs to be studied further.

Key words: *patient experience, mental health*

OP 86
Application of sequential organ failure assessment score on admission to general intensive care unit of a low-income country to predict mortality

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Background: Sequential Organ Failure Assessment (SOFA) Score is a clinical scoring system numerically quantifying severity of organ dysfunction. It is well recognized and validated in high income countries to predict prognosis. Initial SOFA score >12 predicts 95.2% mortality, while a scores of 10–11, 8–9, 6–7, 4-5 and 2-3 predicts 50%, 33%, 21%, 20% and 6.4% mortality, respectively. In Sri Lanka such clinical scoring systems are not used in the routine practice.

Objectives: To study the demographic variation of a general Intensive Care unit (ICU) admissions in Sri Lanka and; To evaluate the use of SOFA score on admission to ICU to predict mortality in a peripheral hospital in Sri Lanka

Methods: A prospective observational study was carried out from June 2017 to February 2019 at a general ICU of a secondary care Hospital in Sri Lanka. All consecutive adult patients admitted to the ICU were included. Demographic, clinical and physiological data were extracted from bed head tickets (BHT) on admission to ICU, SOFA score was calculated on admission. In-hospital death was considered as the primary outcome and compared with admission SOFA score to evaluate its prognostic value. There were no contact with the patient for data collection other than use of routinely collected data.

Results: Out of 401 total ICU admissions, majority was males (55%, n=221) and the average age was 53.4 years. Out of total admissions, 300(75%) medical, 13(3%) poisoning, 46(11%) general surgical, 16(4%) trauma, 16(4%) obstetric, 6 (2%) gynaecological and 4(1%) paediatric patients were seen. SOFA score was >12 in 52(13%), 6-11 in 134(33%) and <6 was 215(54%). Average SOFA score was 5.9 which can be stratified as medical 6.3, poisoning 5.7, general surgical 4.9, trauma 7.3, gynaecology 0.7 and obstetrics 2.0. Out of 87 total ICU deaths, 41(47%) had SOFA score >12, 42(48%) were in 6-11 category and 4 (5%) in the score <5 group. A higher SOFA score was significantly associated with mortality among ICU patients with p <0.05 (corrected X^2= 28.657, p<0.05).

Conclusions & recommendations: SOFA score is predictive for survival in intensive care units of Sri Lanka as well. Further studies with validation of this scoring system are recommended to incorporate this tool to predict mortality on ICU admissions in Sri Lanka.

Key words: *Sequential Organ Failure Assessment, intensive care unit, admission, predicted mortality*

OP 87

Geographical Information System based methodology to prioritize specialist locations to ensure Universal Health Coverage

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Background: Ministry of Health through its recent policy direction for Universal Health Coverage is taking a rational approach towards strengthening primary health care and ensuring access to specialized services. Access and coverage are the main domains of concern of any healthcare system. New specialties are incorporated into the health system while upgrading of hospitals is continuing with the expansion of health services in Sri Lanka. Human resources in healthcare are limited and therefore should be managed properly. The Geographical-information-system (GIS) supported decision making plays a key role in identifying the distribution of specialists and thereby assisting service delivery to match population needs.

Objectives: To identify the geographical distribution of healthcare specialists using GIS to identify and prioritize areas needing attention to ensure universal health converge

Methodology: Consultative meetings with professional colleges were held to identify hospitals where each specialty should be placed with justifications. The proposals were analyzed using ArcGIS software considering the population density, catchment population and distance between referral level hospitals to identify the locations where specialties to be placed. The actual distribution of specialists in December 2018 was obtained from the Medical Services Unit. Attributable table of the shapefile was downloaded into an Excel sheet. A location column was added and imported into the Fusion table in the Google drive. Multiple filters were applied with colour code to prioritize each specialty to visualize with maps within seconds.

Results: Teaching Hospital Colombo South and Base Hospital Mulankavil represented the highest and lowest catchment population (714029 & 19971) respectively. Mullaitivu District reported the lowest number of Specialists with the catchment population of 51060. None of the referral hospitals in Mullaitivu District had Board Certified specialists in any category.

Conclusion and recommendation: Adhering to a simple measure such as this would improve the efficiency of distribution of healthcare cadre and thereby promote universal converge to match the population needs by rational resource allocation and deployment of specialists to match the population needs. According to Google, the Fusion Tables will be turned down in December 2019. Thereafter, GIS mapping of specialist locations can be done through Google spreadsheets with real-time information.

Keywords: *Geographical Information Systems, specialists, universal health coverage*

OP 88

Satisfaction with immunization services among mothers of children under 5 years of age in the Pitakotte MOH area

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Background: Immunization is considered as the most cost-effective public health intervention of all times. Parental satisfaction with pediatric care is an indicator of provider quality that has been relatively unexplored in relation to childhood immunization.

Objectives: To describe the service satisfaction regarding immunization among mothers of children under five-years in the Pitakotte Medical Officer of Health (MOH) area.

Method: A community based descriptive cross-sectional study conducted among 114 mothers of children under 5-years of age in the Pitakotte MOH area using multi stage cluster sampling method and an interviewer administered questionnaire. Service satisfaction was assessed on accessibility, healthcare workers' behavior, facilities at vaccination centre, waiting time, information given by healthcare worker and availability of vaccines. First three components were assessed by a five-point Likert scale and the latter two components were assessed by a dichotomous scale. Descriptive statistics, frequencies and percentages were used to summarize data.

Results: Mean age of mothers was 30.82(SD=6.07) years. Majority of participants, 88.6% have obtained vaccines from the government sector, common reasons being reliability and free service provision. Majority were satisfied about the number of immunization centres, (84.3%, n=97); distance to the centre from home (96.6%, n=111) and transport facilities, (94.8%, n=109). More than 90% (n=112) were satisfied about the knowledge and skills of the healthcare workers while 59.6% (n=67) were dissatisfied regarding adequacy of seating facilities. Majority 94.7% (n=108) were satisfied regarding cleanliness of the centre and clinical waste disposal (73.7% (n=84). A majority (91.2%) were satisfied with "overall service". Although >90% were informed about the importance of vaccination, BCG scar & adverse effects of vaccination only 62.3% (n=71) were informed regarding number of vaccine doses. Majority 89.5% (n=102) were satisfied about the availability of vaccines. Majority (>50%) stated that the average waiting time at the vaccination centre was one hour.

Conclusion and recommendations: The overall service satisfaction for immunization services in MOH Pitakotte area was good. Seating facilities and waiting time needs to be improved. Information given on vaccine should be improved.

Key words: *immunization, service satisfaction, vaccine, clinic*

OP 89

Prevalence of frailty and its association with nutritional states in diabetic patients on hemodialysis at National Institute of Nephrology, Dialysis and Transplantation

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Background: Frailty is highly prevalent among end stage renal disease patients as shown by many studies. Diabetes mellitus is a known risk factor for frailty. Prevalence of frailty is 5 folds higher in dialysis patients than older adults in community setting and is an independent predictor of mortality and hospitalization regardless of age.

Objective: To assess the prevalence of frailty and its association with the nutritional status in diabetic patients on maintenance hemodialysis.

Methods: An institution-based descriptive cross-sectional survey was carried out at NINDT, from February 2019 to August 2019 among a random sample of 155 diabetic patients undergoing maintenance hemodialysis, who are on hemodialysis for more than one month at NINDT, using an interviewer administered pre-tested, validated questionnaire. Patients who are below 18 years, patients who refused to participate, critically ill patients, patients who do not have sufficient cognitive function to answer the questionnaire were excluded from the study. Frailty was defined according to Fried's phenotype and assessed in five main domains including weight loss, weakness, slowness, poor endurance and low physical activity. Individuals present with ≥3 criteria were classified as frail and 1 to 2 criteria were classified as pre frail. Nutritional status was assessed by subjective global assessment (SGA) tool and Body Mass Index (BMI) separately.

Results: Mean age was 54.4±9.7 years and 65.2% (n=101) were males. Mean BMI was 23.3±4.3 kg/m2 and mid upper arm circumference (MUAC) was 24.4±4.1 cm. Mean number of dialysis per month is 7 (±2.2). 50.3% (n=78) of subjects were frail and 31.6% (n=49) were pre frail. 67.8% of sample were malnourished while 18.1% of them were severely malnourished. Among Frail/pre-frail subjects 19.7% (n=25) were well nourished and 80.3% (n=102) were malnourished. Among non-frail subjects 89.2% (n=25) were well nourished while 10.7% (n=3) were malnourished. Frailty has a statistically significantly association with nutritional status classified according to SGA tool (p<0.001). When classified by BMI, all subjects in underweight category were either frail or pre-frail. There is a significant difference in mean BMI between frail, pre-frail and non-frail subjects (p<0.01). There is a significant correlation between BMI and grip strength (p<0.001, r =0.33). Post hoc analysis shows a significant difference in MUAC between frail and non-frails (p< 0.001).Frailty shows an association with, age, gender, serum albumin and serum potassium level (p<0.001). There was no association between frailty and education, employment, ethnicity, income, serum phosphate or hemoglobin level at an α level of 0.05.

Conclusions & Recommendations: Frailty is present in one in two diabetic patients undergoing maintenance hemodialysis. It shows a significant association with nutritional status. Early screening and nutrition interventions may be helpful to reduce the burden. Future studies should focus on targeted interventions and need to see impact of them on clinical outcome.

Key words: *frailty, diabetes, hemodialysis, endurance*

OP 90

Preliminary investigations on molecular patterns of Salmonella enteritidis using Pulse Field Gel Electrophoresis (PFGE)

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Background: PFGE is a molecular fingerprinting technique used to classify bacteria based on restriction sites within the bacterial genome beyond the species level. Molecular typing of Salmonella spp. is used as part of trace back investigation of food borne outbreaks. Serotyping according to the Kauffmann White classification is used as the method of identification of Salmonella at present, but discriminatory power of Salmonella serotyping as part of food borne outbreak investigation is less. However molecular typing is a powerful tool to obtain information on the genome size and enables the creation of strain progression maps of bacterial isolates. Data generated from molecular typing of food borne bacteria enables to apply targeted control measures to curtail the food borne outbreaks. Preliminary research was carried out to establish PFGE as an epidemiological tool for molecular typing of Salmonella.

Objectives: To establish Pulse Field Gel Electrophoresis (PFGE) as an epidemiological tool of molecular typing of Salmonella.

Methods: Ten Salmonella enterica serovar Enteritidis strains isolated in year 2013/ 2014 were subjected to PFGE using standardized laboratory protocol for molecular subtyping of Salmonella which is being followed by the PulseNet participants. Salmonella Braenderup (H9812) was used as the reference strain. PFGE performed with Xbal as the primary restriction digestion enzyme and BlnI as the secondary digestion enzyme. All gel images captured were analyzed using the GelJ software.

Results: No significant difference in PFGE patterns of ten isolates were observed after the primary digestion. PFGE patterns of secondary digestion showed differences. Dendrogram was constructed based on Dice similarity coefficient for the UPGMA linkage. The tolerance value used for matching the bands in this band-based method is 1.0. The BlnI profiles were grouped into three clusters. Out of ten samples of Salmonella isolates, four isolates clustered together and rest of the six isolates were clustered in to two groups of three each.

Conclusions & recommendations: The isolates associated with two sets of clusters in PFGE patterns with genetic similarity (F value) of 0.88. Other cluster is with F value of 0.63. These ten Salmonella Enteritidis isolates of clinical origin are likely to be originating from three different places. Molecular analysis of Salmonella Enteritidis isolates of clinical, environmental and food samples will facilitate to trace the exact source and thereby implement better control measures.

Key words: *salmonella, food borne outbreak, PFGE, molecular finger printing*

OP 91

Modes and sources of preconception health care services in selected Medical Officer of Health areas of Kandy District

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Background: Further reduction of maternal and neonatal mortality rate requires pre-conceptional interventions with adequate evidence. A detailed assessment of pre-conceptional services is required to understand the existing sources or the providers and the modes of service delivery in all sectors to give suggestions to streamline the National preconception health care package.

Objectives: To describe the modes and the sources of the delivered pre preconception health care services to women in Yatinuwara, Warallagama and Udunuwara Medical Officer of Health areas of Kandy district before their first live pregnancy.

Methods: A descriptive cross-sectional study was conducted in community antenatal clinics from May to November 2015. Primiparous women below 32 weeks of gestation living in selected Medical officer of Health areas for more than 6 months were included. 218 participants were recruited from randomly selected antenatal clinics. Number of clinic centers was proportionated to the population. Consensually validated pretested interviewer administered structured questionnaire was used as the study tool. Univariate analysis and a bivariate analysis for identified variables were performed.

Results: 217 participants responded. Percentage of 3.7 (95%CI:1.2%-6.2%) had received all the components of preconception care according to the study protocol. Public sector had delivered pre pregnancy consultation for 7.8% (95%CI: 4.3%-11.4%) participants and 6.0% (95% CI: 2.8%-9.1%) were offered by preconception health care clinic. Private sector had contributed for 22.6% (95%CI: 17.0%-28.1%) of pre pregnancy consultations and the specialists in the private sector had delivered it for 15.2% (95% CI 10.4%-20.0%) of participants. Major source of information on preconceptional folic acid supplementation was by family members (20.3%, 95%CI: 14.9%-25.6%). About 7.4% (95%CI: 3.9%-10.8%) had received health education from preconceptional health care clinic and 16.2% (95%CI 11.2%-21.0%) received it from other organizations. There was no statistically significant difference (p<0.05 level) among receivers and non-receivers of care when categorized according to sociodemographic factors.

Conclusions & recommendations: Main modes and sources of preconceptional health care services were from private sector therefore further studies are required to examine the quality of care and how to increase the effective participation of private sector. Additional studies are required to find the ways to improve the utilization of services offered by National Preconception Health care package.
Key words: *preconception care, pre pregnancy care, pre-pregnancy preparedness*

OP 92

Workplace based intervention to improve knowledge on family planning and use of contraceptives among reproductive-age women workers of Avissawella Export Processing Zone

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Background: Women working in export processing zones (EPZs) contribute significantly to the economy. They are reported to have risky sexual behaviors which may end up in unwanted pregnancies. Proper contraceptive use by a working woman would be a profitable investment for her productivity. However, this productive population has not been specifically targeted by family planning (FP) programmes.

Objectives: To develop and assess the effectiveness of a workplace-based intervention to improve knowledge on FP and prevalence of contraceptive use among reproductive-age (15 to 49 years) women workers of Avissawella EPZ.

Methods: Quasi-experimental study was conducted to assess the effectiveness of a workplace-based intervention to improve knowledge on FP and use of contraceptives. Two factories, each for the intervention and control groups were selected purposively. Samples of 100 married and 100 unmarried women were randomly selected from each factory; the total sample size was 800. The intervention was developed based on the results of the first two components of this study. It included lectures, video presentations, distribution of leaflets, and the establishment of peer groups for the promotion of FP and provision of modern FP methods. Baseline and follow-up evaluations were done using pretested self-administered questionnaire. Chi-square test and Mann Whitney U test were used to assess statistical significance and P < 0.05 was considered significant.

Results: Married women in the intervention arm (IA) had a higher mean (SD) percentage overall knowledge (85.9%; 7.1%) compared to women in the control arm (CA) (49.5%; 18.4%) at follow up (P<0.001). Unmarried women in the intervention arm (IA) had a higher mean (SD) percentage overall knowledge (83.5%; 12.9%) compared to women in the control arm (CA) (53.5%; 23.1%) at follow up (P<0.001). The contraceptive prevalence rate of married women in IA (79%) was higher than the CPR of women in CA (42.5%) at follow up (P<0.001).

Conclusion and Recommendations: The workplace-based intervention was effective in improving knowledge on FP and use of contraceptives. Implementation of outreach FP services to meet the needs of women of Avissawella EPZ is recommended.

Keywords: *family planning, contraception, workplace*

OP 93

Efficacy of the iron folate supplementation for school children in Agalawatta Medical Officer of Health area: coverage, timeliness, completeness, compliance.

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Background: Weekly Iron Folate Supplementation program (WIFS) of Sri Lanka is a national program aimed to prevent anaemia of school children and adolescents. In this program all school going children between 5 to 19 years are given weekly dose of ferrous sulphate, folic acid and vitamin C for 24 weeks a year with yearly doses of anthelmintic through respective class teachers. Satisfactory distribution to children was questioned in several incidences but there was only one study carried out to find out the efficacy of distribution by Family Health Bureau. In that study the data were collected from school principals but not from children.

Objectives: To evaluate the extent of WIFS distribution to children with respect to coverage, timeliness, completeness, and compliance in Agalawatta area in 2017.

Methods: Cross sectional descriptive study was conducted in 21 schools out of 23 schools in Agalawatta Medical Officer of Health area in Kalutara district with administrative permission and Ethical clearance. 135 female and 142 male students were selected from 138 classes representing 1 male and female child using stratified cluster sampling method to represent 5187 student population. All class unit above grade 4 were sampled. Judgmentally validated self-administered pretested questionnaire was given. Pooled data were analysed using SPSS 19.

Results: 97.5% (n=269) sampled students have received WIFS at least once. Only 20.7% (n =53) completed six months while 20.3% (n =52) received less than one month. 57.5% (n =154) received WIFS during school vacation. 72.2% (n =187) consumed tablets at school while others taken them home. 35.3% (n =84) used school water supply to drink WIFS. 61.9% (n =166) have consumed all what they received and 2.2% (n =6) have never consumed. Consumption was higher up to grade 8 and was not associated with gender.

Conclusion and Recommendations: 64.2% (n =174) of students have no clear idea about the program. There are marked deficiencies in school levels supply of WIFS in relation to coverage, completeness and compliance. More attention is needed to strengthen the distribution, coverage, completeness and compliance of WIFS program from both health and education sectors.

Key words: *Iron folate supplementation, efficacy, school*

OP 94

Assessing pattern of transfer of antenatal mothers from primary and secondary care hospitals to tertiary care hospital in Batticaloa District.

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Background: There is worldwide debate on safety and appropriateness of different birthplaces for women having uncomplicated pregnancies. Birthplace decision-making has considerable complexity and can have far-reaching implications for women, their families and communities, as well as for healthcare providers. All high risk pregnancies need tertiary care services for delivery. For tertiary care services, pregnant mothers should be transferred from primary and secondary care hospitals to tertiary care hospitals at the correct time without any delay.

Objectives: To assess the pattern of transfer of pregnant mothers from primary and secondary care hospitals to tertiary care hospital in Batticaloa district.

Methods: Hospital based descriptive cross-sectional study was carried out in May 2019. All the mothers with a period of amenorrhea of more than 36 weeks, who were transferred from peripheral hospitals to the Teaching Hospital Batticaloa during fourth quarter of 2018 (n=525), were included in the study. Data were collected by a secondary extraction form from bed head tickets.

Results: Majority were from 20 – 34 years age group (73.7%) and there were 48.8% (n=256) primigravida and 47.6% (n=250) multigravida mothers. Among the reasons for transfers, being a primi (15.2%, n=80) was the commonest, followed by premature rupture of membrane (13.9%, n=73) and past dates (7.8%, n=41). Among those transferred, 81.7% (n=429) were delivered (primigravida 40.9%, n=215), multigravida 37.7%, n=198) within an average time duration of 8 hours and 55 minutes (SD=7h 16min). Among delivered babies, only 5.6% (n=24) were admitted to special care baby unit. Moreover, outcome of all mothers was uneventful. Among the deliveries, 74.4% (n=319) were normal vaginal deliveries (NVD) and rest of them were lower segment caesarean section (23.5%, n=101) and instrumental (2.1%, n=9) deliveries. 73.5% (n=158) of primi mothers and 75.6% (n=150) of multigravida mothers had NVD.

Conclusions and Recommendations: Majority of the transferred mothers had a NVD and an uncomplicated postpartum period. Furthermore, babies who needed SCBU care were limited. Therefore, most of the mothers and babies did not need specialist care at a tertiary care hospital and could have been managed at peripheral hospitals. Therefore, conducting special training to staff involved in labour care in primary and secondary care hospitals is needed to enhance intrapartum care and detect complications which require specialized care in view of minimizing unnecessary transfers. Furthermore, the system of communication has to be improved between peripheral hospital staff and specialists in tertiary care hospitals prior to transfer.

Key words: *transfer, antenatal mothers*

OP 95

Epidemiology of unintentional school injuries among middle school students in an education division in Kandy, Sri lanka

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Background: School injuries are recognized as a preventable public health problem; Unintentional injuries that occur in school has an impact on the child, family and school staff and the smooth functioning of the school.

Objectives: To describe the epidemiology of unintentional school injuries in Gangawatakorale education division in Kandy.

Methods: A sample of 820 students was recruited using a multi stage cluster sampling method, a pre-tested, interviewer administered questionnaire was used to gather information on unintentional school injuries that took place during the preceding 1 month. Injury severity was assessed using the Abbreviated Injury Score (AIS). Injury incidence rate was calculated and injury characteristics were analyzed using percentages. Cross tabulations were generated between sustaining a school injury and relevant independent variables and the statistical significance of the association was tested using chi-square test.

Results: The event- based injury incidence rate (IR) was 25.37 per 100 students per month (95% CI: 22.04-29.06). Majority (31.8%) of the injurious events occurred during a sports event. Some contributory factors identified were overexertion (32.2%), starvation (19.7%), foreign body/ object (18.8%) and lack of maintenance of the premises (15.4%). Common injury types were abrasions (33.5%) and lacerations (14.7%). Lower extremities (50.7%) were affected in most. Majority (94.7%) fell to the minor injury category (AIS 1), whilst 5.3% fell to the moderate injury category (AIS 2). Being a male ($\chi 2$=22.6, p<0.001), a member of ≥1 school sports teams, ($\chi 2$=11.6, p=0.001), and involvement in a physical fight during last 30 days ($\chi 2$=5.7, p=0.01) were some of the statistically significant risk factors for sustaining an injury. Of all the students who sustained an injury, only 42.3% had received first aid at school.

Conclusions & recommendations: The event-based school injury incidence is very high in the study area. Students involved in sports are at higher risk of injuries and only a small fraction of students receive proper first aid care at school. Safety measures shoud be taken, especially during sports events, proper maintenance of the school premises should be undertaken and improvement of first aid facilities in the government schools of the Gangawatakorale education division, Kandy should be established.

Key words: *school injuries, students, schools, unintentional injuries*

OP 96
Assessment of sources and practices related to indoor air pollution in residential houses

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Background: Numerous sources and human practices related to indoor built environments could generate either short-term or long-term exposure level of pollutants for the occupants. Furthermore, there is a requirement to investigate about the indoor air pollution and related potential health hazards from the consumer products which are available in the present competitive industry as the complexity of emitted chemicals from them. However, the public awareness of the origins of the IAP and its consequences on human health is not up to the standard, especially in low and middle income countries including Sri Lanka. Moreover, there is an inadequacy of data and information associated with exposure and concentration of pollutants generated from the sources and practices of IAP. Thus, the development and implementation of policies for risk assessment remain incomplete.
Objectives: To identify the types of air pollutant which are emitted from the selected sources and practices on IAP and determine their toxicity level and occupant exposure period to the generated adverse environment. Further to that, the authors would intend to improve public awareness about the IAP from the household products used and human practices in everyday life.

Methods: The emission from the wall paint, air freshener, mosquito coil, incense sticks and open waste burning were tested under controlled environmental conditions as most of these materials have become everyday products of occupants which sometimes have an intense usage in the daily household. Indoor Air Quality Monitor (IQM60 Environmental Monitor V5.0) and Haz-Dust Particulate Air Monitor were used to measure the concentration of Carbon Monoxide (CO), Carbon Dioxide (CO_2), Nitrogen Dioxide (NO_2), Total Volatile Organic Compounds (TVOCs), Particulate Matter ($PM_{2.5}$), temperature and relative humidity during the experiments. The test chamber was created with no sink or source materials of air pollutants except the selected source for the investigation. The Indoor Air Quality (IAQ) measurements carried out in the chamber prior to the experiments were considered as the base case scenario. The obtained results were analysed with available IAQ guidelines and the literature associated to the pollutants and their health aspects.

Results: Indoor air TVOCs and $PM_{2.5}$ levels are significantly increased beyond the permissible indoor limits (PILs), mainly due the following sources and practices; The Toxicity Index (TI) which is used to measure the impact of a pollutant with respect to the PILs is also mentioned below. Wall paint [TI_{TVOC} = 60], Air freshener [TI_{TVOC} = 5], Incense sticks [TI_{TVOC} = 5, $TI_{PM2.5}$ = 200], Mosquito coil [$TI_{PM2.5}$ = 150], Open waste burning [$TI_{PM2.5}$ = 200].

Conclusions & Recommendations: There is a severe impact on IAQ from the household products and human practices used in the modern buildings. Thus, it is essential to educate about the possible causes of IAP with the health effects, through the best practices such as using the mass media, press conferences and through the professionals related to the medical sector where they could reach the people and emphasize the gravity of the present situation as they are frequently encountered with the general public.
Key words: *indoor air pollution, household products, human practices*

OP 97

Microbiological evaluation of water quality of water sources for domestic water supply in Ampara district

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Background: There are different pathways by which the bacterial pathogens can enter drinking water. From them, agricultural and urban runoffs are the major sources of pollution of water bodies and they directly affect the quality of drinking water. However, unfortunately this has received a little attention to date; that is, because soil is often considered to be near perfect filters for bacterial pathogens through the subsoil to groundwater.

Objectives: To determine the antimicrobial resistance pattern of pathogenic Escherichia coli (E.coli) isolates from reservoir water before water is discharged for drinking water.

Methods: Water samples (35) were collected from 19 locations (water sources) in Ampara district during a 6 months period and 4 samples after running tertiary treated water through two filtration tanks. The overall bacteriological quality of those water was measured by Heterotrophic plate counts and E. coli were recognised. Antibiotic sensitivity testing was done for all the isolated E. coli according to Clinical Laboratory Standard Institute method (2015).

Results: Eighty percent (28) of the isolates from reservoir water sources exhibited resistant only to Ampicillin, 5.7% (2) isolates resistant to cefotaxime, cefuroxime and ampicillin and 14.2% (5) isolates shows no resistance. Subsequent filtration experiment after water has gone through filtration tanks showed that the water was free of E. coli.

Conclusions and Recommendations: Our data showed three types of resistance patterns in isolated E. coli according to antibiogram, with different resistant phenotypes. Therefore, the occurrence of E. coli with resistances in the rural environment is a matter of great concern due to possible transfer of resistant genes from non-pathogenic to pathogenic strains that may result in spreading resistance genes in the environment.

Keywords: *water quality, domestic water*

OP 98

Development of filter material to remove total suspended solids and total dissolved solid in hospital wastewater using Alluvial clay

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Background: Hospital Wastewater is a greater concern because of the hazardous nature. Study showed that the effluent released by hospital wastewater in Sri Lanka exceeded the wastewater standards used for industrial effluents.

Objective: To determine the most suitable filter material from five different alluvial clay deposits in Sri Lanka to remove Total Suspended Solids and Total Dissolved Solid in Hospital Wastewater.

Methods: The samples were collected from Hospital Wastewater outlets (n = 5). Total Suspended Solids and Total Dissolved Solid in Hospital Wastewater were measured following the standard procedures. Filter materials were prepared upon purification of clay minerals collected from five alluvial clay deposits. Laboratory scale filter beds were prepared using purified clay (10 g) for each of the clay type. Hospital waste water (100 ml) was added into each filter beds and Total Suspended Solids and Total Dissolved Solid were measured after 2, 4, and 6 weeks' duration separately. X ray Diffraction, Fourier Transform Infrared Spectroscopy and Scanning Electron Microscopic analysis were carried characterize the clay samples before and after the treatment process.

Results: Total Suspended Solids and Total Dissolved Solid in hospital wastewater were 1534 mg/L and 580 mg/L respectively. Total Suspended Solids and Total Dissolved Solid value was reduced by 96.02% and 43.27% respectively after two weeks of treatment period. X- ray Diffraction analysis shows that the alluvial clay consists of kaolinite and illite. Further, filter beds with higher percentage of illite shows higher efficiency in removing Total Suspended Solids and Total Dissolved Solid in hospital wastewater. X ray Diffraction, Fourier Transform Infrared Spectroscopy and Scanning Electron Microscopic analysis further revealed the absorption of organic and inorganic compounds such as Neodymium Titanium Oxide and Benzidine dihydrochloride into clay.

Conclusions and Recommendations: Study showed that the alluvial clay with higher percentage of illite effectively reduced the Total Suspended Solids and Total Dissolved Solid in hospital wastewater. Thus, treatment of hospital wastewater can be optimized by deriving a method using illite rich alluvial clay within the treatment process.

Key words: *hospital wastewater, Alluvial clay, filter material*

OP 99

Assessment of the biosafety precautions (BSP) at laboratories and knowledge, attitude and practices among Medical Laboratory Technologists (MLT) on BSP in selected government healthcare institutions in Colombo district.

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Background: Sri Lanka signed the Cartagena Protocol on Biosafety in May 24, in year 2000. Laboratory services are an essential part of the entire health system and biosafety prevents unintentional exposure to pathogens and toxin.

Objectives: To assess the biosafety precautions (BSP) at laboratories and knowledge, attitudes practices among medical laboratory technologists (MLT) on BSP in selected government healthcare institutions (SGHI) in Colombo district Sri Lanka.

Methods: A descriptive cross-sectional study was performed in SGHI in Colombo district, Sri Lanka. BSP level was assessed through a checklist based on direct observation by using adapted WHO laboratory assessment tool. The level of availability of BSP given values; 100% for fully availability, 50% for partial availability and 0% for non-availability. Knowledge, attitudes and practices among MLTs (n=315) on BSP was assessed using a pretested self-administered questionnaire. Knowledge was assessed on basics about BSP, category of BSP of working laboratory, aerosol formation, cleaning up spills, disease transmission, international colour code of waste management and basic essentials requirements in laboratories. Nine attitudinal questions and clinical vignettes were used to asses attitudes and practices on BSP respectively.

Results: Medical Research Institute had the highest BSP standard (89.26%). BSP were poor in De Soysa Maternity Hospital (43.16%), Infectious Disease hospital (43.76%), Sri Jayewardenepura General Hospital (46.29%), Homagama Base Hospital (49.42%) and Lady Ridgeway Hospital (49.52%), respectively. Lowest score was in Colombo South Teaching Hospital (35.57%). The overall BSP level in Colombo district was 52.8%. Majority of MLTs had excellent knowledge (97.3% n=257), favourable attitude (90%, n=210) and satisfactory level of practices (90.3%, n=250) on BSP. Satisfactory knowledge on BSP is significantly high in MLTs with less than 20 years' experience (p=0.02). Unfavourable attitude were significant in age over 40 years(p=0.01). Unsatisfactory level of practices were significant in age more than 40 years (p=0.04) and the staff with no post graduate qualifications (p=0.04).

Conclusions & recommendations: Six out of 14 institutions showed very poor level of BSP. The knowledge level on BSP reduced with increased the service period. Attitudes among workers depreciated with aging. The level of practices becomes poor on aging and absence of higher education. Establishment of biosafety committee, preparing standard operational practices (SOPs), and introduction of continuous professional development and surveillance system have been identified as a major recommendation for proper establishment of BSP.

Key words: *biosafety precautions, knowledge, attitudes, practices, medical laboratory technologists*

OP 100

Assessment of work-related health hazards among private sector mortuary workers in the Colombo district

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Background: Mortuary workers are faced with countless hazards as they carry out their work. However, limited comprehensive research on occupational health hazards among mortuary workers have been conducted in the past. This study explores the major health hazards affecting mortuary workers.

Objectives: To calculate the prevalence of pre-determined health hazards and physical symptoms due to exposure and assess practice of safety precautions among mortuary workers in the Colombo District.

Methodology: The study was conducted between 01st April and 18th June 2016 in 37 privately owned mortuary facilities within the Colombo district. The research was a descriptive cross-sectional study design. Information was collected from 53 mortuary workers who gave informed consent, using a pre-tested interviewer/self-administered questionnaire. Participants were conveniently sampled due to small workforce in the private sector and selected based on strict inclusion/exclusion criteria. Data were entered and analyzed using descriptive statistics by SPSS Statistics software. Demographic data, frequency of exposure to pre-determined hazards, toxicity based on the frequency of physical symptoms due to exposure and the use of Personal Protective Equipment were assessed.

Results: 90.57% (n=48) reported formalin inhalation and/or skin contact. However, 64% (n=34) specified low-formalin toxicity and 71.7% (n=38) had irritation of the eye as the commonest symptom. 81.1% (n=43) experienced frequent ergonomic-stress-symptoms. Only 69.2% (n=36) had either Hepatitis-B or Tetanus vaccination and 98% (n=52) use gloves. There was a significant relationship between the level of education and the knowledge regarding the importance of vaccination ($p<0.01$). Regardless of the potential risk of experiencing health effects more than half did not want a career change.

Conclusion and recommendations: Health hazards are common among mortuary workers and frequently associated with inadequate use of PPE. The unsatisfactory vaccination coverage was quite concerning. Suggestions provided will enable mortuary directors/managers to improve the working conditions in order to enhance quality of the services and improve safety standards. Mortuaries should institute routine vaccinations programs, provide PPE of appropriate quality/quantity and enhance training of mortuary workers on their safety.

Key words: *health hazards, mortuary workers*

OP 101

Second month sputum conversion as a predictor for tuberculosis treatment outcomes in Sri Lanka

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Background: Despite many efforts to improve treatment success, tuberculosis (TB) remains the leading cause of death due to infectious causes in Sri Lanka. The role of sputum conversion at two months as a predictor of successful treatment is controversial and is an unexplored area in Sri Lanka.

Objective: To assess the second month sputum conversion as a predictor of treatment success in Sri Lanka.

Methods: A retrospective cohort study based on data recorded in the national surveillance system of bacteriologically confirmed, new pulmonary TB patients of all ages was carried out. Treatment outcome of cure, defined as two negative sputum smears at the end of treatment, and treatment completed, defined as no clinical or radiological evidence of active TB were considered as successful. Treatment outcomes of failure, defined as having a positive sputum towards the end of treatment completion; death, defined as death during the treatment period due to any cause; and loss to follow up, defined as interrupted treatment for more than 2 months, were considered as unfavourable. The correlation between positive second-month smear (non-conversion) for unfavourable outcomes was calculated.

Results: A total of 98,301 TB cases was notified since 2006 to 2016, of which 48,902 were included in the study. Sputum conversion at the end of two months was seen among most of the included patients (n=42,170; 86.2%). Majority (n=39,980; 81.7%) were cured at the end of the treatment course. The death rate and the failure rate among bacteriologically confirmed new TB cases were 5.4% (n=2636) and 1.5% (n=714) respectively. Only a minor percentage of 5.2% (n=2568) was lost to follow up. Overall successful treatment rate was 85.8% (n=41,939). Of the 48,902 whose sputum was positive at the diagnosis during the period of 2006-2016, second-month smear was positive among 1352 (2.8%). The correlation co-efficient between second-month smear positivity and unsuccessful treatment outcome at the end of six months was 0.67, which was significant at 0.048.

Conclusions & recommendations: Second-month sputum conversion could be used as a predictor of unfavourable treatment outcomes in the local setting. Future studies with same objectives, but with culture results for positive second-month smears for more valid results is recommended.

Key words: *second-month sputum conversion, tuberculosis, treatment success, predictors, Sri Lanka*

OP 102

Place of oral antibiotics, especially Fosfomycin when treating extended-spectrum of beta lactamase producing *Escherichia coli* in urinary tract infections in Sri Lanka

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Background: The increasing number of Extended-Spectrum of Beta Lactamase **(**ESBL)-producing Escherichia coli (*E.coli*) in urinary tract infections (UTI) is an important public health concern as these organisms are resistant to multiple antimicrobial agents and there are limited oral antibiotic options for treatment. However, fosfomycin is an oral antibiotic that has activity against ESBL producing *E.coli.*

Objectives: To determine the susceptibility of oral antibiotics including Fosfomycin for ESBL producing *E.coli*, in UTIs in two different hospitals in Sri Lanka.

Methods: This study was carried out at District General Hospital Ampara and Base Hospital Nikaweratiya from 1st of January 2018 to 31st of June 2018. Confirmation of the ESBL production in the isolates and antibiotic sensitivity testing were done according to Clinical Laboratory Standard Institute method (2015). The ESBL isolation rates and the susceptibility of oral antibiotics for ESBL producing *E.coli*, in UTIs in the different units of both hospitals were analyzed.

Results: From the total numbers of isolates (181) ESBL isolation rate at GH Ampara and BH Nikaweratiya were 27% and 29% respectively. ESBL isolation rates in medical wards at BH. Nikaweratiya was 49%, O.P.D. 29% while, at G.H. Ampara it was 48% and 30%. When considering the antibiotic susceptibility percentages, fosfomycin sensitivity was 100% in both hospitals. Nitrofurantoin sensitivity was 87%at B.H. Nikaweratiya and 80% at GH Ampara. However, frequently prescribed empirical antibiotics, ciprofloxacin and norfloxacin sensitivities were 26% and 18% in both hospitals. The sensitivies of trimethoprim and cotrimoxazole were 44.9% & 47.1% at BH Nikaweratiya and 41.3% & 40.2% at the G.H. Ampara.

Conclusions and Recommendations: According to our findings, the most susceptible oral agents against ESBL producing coliforms in UTIs in Sri Lanka are Fosfomycin (100%) and Nitrofurantoin (80%) while, commonly used empirical antibiotics, such as ciprofloxacin (26%) and norfloxacin (18%) susceptibilities were very low. So, we would like to recommend fosfomycin as a new oral antibiotic against ESBL producing Escherichia coli in UTIs in Sri Lanka.

Keywords: *oral antibiotics, Fosfomycin, Escherichia coli, urinary tract infections*

OP 103

Developing a novel wound dressing based on human amniotic membrane: a pilot study

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Background: The amniotic membrane is composed of principally 3 types of material: Structural collagen and Extracellular matrix, biologically active cells and a large number of important regenerative molecules. Among the various methods of wound care, human amniotic membrane has been embraced as a natural wound dressing in ophthalmology, burn wounds and chronic non healing wounds, as it is known to have potential to help the wound closure.

Objectives: The main aim of the study was to develop a method to increase the rate of wound healing using Amniotic membrane collected from consenting mothers; while studying the outcomes based on the variation of the wound surface area mainly.

Methods: This was an observational pilot study and a replication study. The fresh Amniotic membranes were obtained from consenting mothers (HIV and Hepatitis B negative) undergoing cesarean section. These were stored at 4oc in glass bottles containing saline until application on wounds within 48 hours. Individuals with lower limb wounds as a complication of Diabetes Mellitus, ischemia, venous insufficiency attending the surgical clinic or inwards patients of wards 28 and 30 were included in the study if the wound has the characteristic features as; Wagner grade I or II, chronicity of at least one month, no signs of infections and osteomyelitis, area between $1cm^2$ to 25 cm^2. Amnion was applied in 3 different ways; In twelve instances the Amnion was applied without attention to the surface -epithelial or stromal, In three, the epithelial surface was applied without separating it from the Chorion, In four, the Chorion was removed and the stromal surface of the Amnion was directly applied on the wound. Digital photographs were taken before and after application of the membrane and images were analyzed using Image J 1.52n

Results: Nineteen ulcers were studied. Mean age (SD) of the patients was 63 years (9.6). In group 1, mean percentage decrease (SD) in the wound area was 63.25 (46.78), but in two patients wound area was increased. In group 2, mean percentage decrease (SD) of 16.85 (19.58) and in group 3, mean percentage decrease (SD) of 57.66 (82.90) was observed. Each wound took different time durations to heal whereas mean time duration taken to heal (SD) was 38.5 days (24.133). When a wound closed with Amnion, it was with the formation of a dry scab.

Conclusions & Recommendations: This study confirms the fact that Human Amnion provides better outcomes when applied in chronic wounds and also it suggests that application of the Stromal surface provides better results than the application of the epithelial surface.

Key words: amniotic membrane, chronic wound, wound healing

OP 104

Knowledge on epilepsy and its associated factors among parents of children attending epilepsy clinics at the premier pediatric hospital in Sri Lanka

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Background: Parents play a major role in the management of a child with epilepsy. Their knowledge on essential elements of epilepsy would influence the compliance to the management strategies as well as the satisfaction of care of the child's management.

Objective: To describe the knowledge on epilepsy and its associated factors among parents of children attending epilepsy clinics at the Lady Ridgeway Hospital (LRH) for children.

Methods: A descriptive cross-sectional study was done at the epilepsy clinic of LRH. Data were collected from 631 parents (male: female ratio of 1:9) from March 2018 to January 2019. A judgmentally-validated interviewer-administered questionnaire was utilized by two trained data collectors. Ten equally weighted questions were used in getting a total knowledge score out of 100. The associations of knowledge were evaluated with Spearman correlation-coefficient and Mann-Whitney-U test.

Results: The median (IQR) age of the parents was 37 (31 to 42) years. The highest education level of the majority 324 (51.3%) was up to the GCE ordinary level whereas 201 (31,9%) had studied up to the GCE Advanced level and 15 (2.4%) had had tertiary education. The monthly income of the majority (52.1%) was between Rs 20000-40000. The most poorly-answered three questions were based on the domains of; IQ of epilepsy children (only 26.9% were correct), side of turning a child with an epileptic convulsion (16.6% got correct) and on the non-essential usage of anti-pyretic drugs in the prevention of epileptic seizure (23.5% were correct). The median (IQR) total knowledge score was 60 (50 to 70). The knowledge score was found to be higher among mothers compared to fathers (p=0.004) and was higher with the increasing education level (p<0.001) of each parent. It was not significantly associated with age (p=0.462) or salary (p=0.524) of the parent.

Conclusion & Recommendations: The knowledge on epilepsy of parents with children with epilepsy must be improved While targeting all parents irrespective of their age, fathers and parents with a lower education level must essentially be included in the interventions of raising awareness on epilepsy.

Key words: *Knowledge, children, epilepsy, parents, factors associated*

OP 105

Assessment of the completeness of Magnetic Resonance Imaging request forms in National Hospital of Sri Lanka

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Background: Magnetic Resonance Imaging (MRI) is a major imaging modality used in the Department of Radiology of the National Hospital of Sri Lanka (NHSL). There are standard request forms to be filled by clinician in order to request an MRI scan. The technical quality and interpretation of these studies increase when the request forms are correctly filled out.

Objectives: In this audit we assessed the completeness of the MRI request forms received to the Department of Radiology, National Hospital of Sri Lanka.

Methods: This retrospective study was done by randomly selecting 500 request forms received at Neuro Surgical MRI unit, which were filled from months January to June 2019.

Results: Out of these 500 forms, 79% (n=397) were direct requests and 21% (n=103) were via the quota allocated to various specialities. 89% (n=446) requests were for routine dates, 5% (n=27) were for early dates and 5% (n=27) were for urgent dates.
Overall completeness of these evaluated request forms was 86%. Only 2% (n=12) of the forms showed 100% completeness. The overall least completed part of the form was 'other relevant investigations', which were filled in only 34% (n=170) of forms. The most completed part of the form was the 'Name of the patient' which was left out only in 0.4% (n=2) of forms. The completeness of the request forms from the NHSL were slightly better (86.2%) than the request forms from other hospitals (84.7%).

Conclusions and Recommendations: The completeness of the forms for MRI scans received at Department of Radiology of NHSL was below the required standards. These missing information makes it harder to perform and interpret the studies. It is important to educate the clinical teams about the importance of proper filling the MRI request forms.

Key words: *MRI request forms, proper filling, completeness*

FREE PAPER SESSION 22: CURRENT HEALTH ISSUES

OP 106

Study to assess the knowledge, attitudes and practices of Rabies control activities among patients attending hospitals in the Galle district with regard to post exposure treatments and successfulness of dog vaccination

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Background: Rabies is a vaccine preventable and fatal, zoonotic viral disease. Annually, thousands of human deaths are reported worldwide due to rabies infection with a loss of 3.7 million disability adjusted life years and 8.6 billion dollars. It is reported that more than 1500 patient are attending to Sri Lankan hospitals daily to obtain post exposure prophylaxis and 15 patient died in 2018 due to rabies infection. Vaccinating the dogs and educating the public regarding rabies prevention are the most cost effective strategies for preventing human rabies deaths and reducing the need for Post Exposure Prophylaxis (PEP) as a part of bite patient care.

Objectives: The aim of this study was to strengthen the animal vaccination program in Galle district which would improve the effectiveness of current rabies control program in Sri Lanka.

Methods: The study was a cross-sectional survey to identify the knowledge and practices related to rabies control activities among the patient seeking PEP at Teaching Hospital, Karapitiya, Base Hospitals Udugama, Elpitiya and Balapitiya. A sample of 419 patients was assessed using a pre-tested self-administered questionnaire by using convenient sample technique. All data were analyzed using Microsoft Excel and SPSS statistical software.

Results: Result shows that 97.2% (n= 419) patient attend to hospital to obtain vaccine within 3 days. The knowledge of patients seeking PEP on rabies and rabies control activities were very poor (25.4%, n=303). Majority of the patents (72%, n= 303) had presented to the hospitals following unvaccinated, domestic animal bites. The main reasons for unvaccinated domestic animals were due to unavailability of regular vaccinating centre. Following establishment of a regular animal vaccination clinic at Udugama MOH office the number of animals presented to the vaccinated clinic gradually increased.

Conclusions and Recommendation: Awareness on rabies and rabies control programmes is poor among the public in Galle. Most of the domestic animals are not vaccinated. Animal vaccination coverage can be improved By conducting fixed regular vaccination programmes. Regular monthly vaccination clinics must be established in every MOH office using the existing system to improve dog vaccination coverage.

Key words: *Rabies, vaccination, prophylaxis*

OP 107

Quality improvement of field investigation data reporting on notifiable diseases at MOH level in Kalutara District

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Background: Effective decision making on communicable diseases depends on receipt of quality data through surveillance system. Data quality is defined as the completeness and validity of the data recorded in a public health surveillance system.

Objectives: To improve the quality of field investigation data reporting at selected medical officer of health areas in Kalutara district

Methods: Prior to this intervention project, desk review was done using a check list to analyze the documented information on the field investigation reports (H411). Public health inspectors' knowledge, attitude and practices related to reporting field investigations were studied using a self-administered questionnaire. Collected data was analyzed to identify the areas need to be improved. Results were presented to the relevant stakeholders and a guideline was prepared with their participation to facilitate documenting the relevant information in the investigation report and the received reports were evaluated regularly. Post intervention findings were analyzed to assess the effectiveness of the interventions.

Results: Majority of the PHIs were below 40 years (80%) and their knowledge on importance of field investigation was good (96.2%). They had positive attitudes on filling H411s, but it was not reflected in their practice. Significant improvements noted in mentioning the source (p=0.004), spread of disease (p<0.001) and relevant health education being provided to control the spread (p=0.012) after the interventions. Also, searching for local source improved, when the source is identified as outside the PHI area (p=0.007) and more precise details were provided to facilitate the identification of exact place by the relevant PHI in that area (p=0.002) for such cases. Timeliness of reporting and the number of cages filled in the first page of H411 also improved but no improvement was noted in documentation on follow up plans and contact tracing. Significant differences were noted among the studied MOH areas (p<0.001) on supervision. However, some interventions were accepted only at the end of project evaluation time.

Conclusions and Recommendations: Providing proper guidance on reporting investigation findings coupled with regular supervision improved the quality of data reporting in studied MOH areas. The initiative is recommended to be adopted for other MOH areas.

Key words: *Communicable diseases, epidemiological investigation, surveillance data quality, quality of data*

OP 108

Measuring hand grip strength of Sri Lankan adults to establish normative data for use in rehabilitation of hand injuries

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Background: The Hand plays a vital role in human functions and appearance. Hand grip strength (GS) is a good indicator of hand function. No studies were found in Sri Lankan adults to determine the mean hand GS which is an important indicator in setting goals in hand rehabilitation.

Objective: To determine the mean hand GS of healthy adults in Sri Lanka, the factors associated with the hand GS and the difference in GS between the dominant and non-dominant hand.

Methods: Descriptive cross sectional study was conducted during October 2012 and January 2013. Sample was all healthy staff members at the National Hospital of Sri Lanka. Based on age and gender, 350 participants were stratified in to 6 strata (males and females of 20-29, 30-39 and 40-49 years). Hand dynamometer, weighing scale and measuring tape were used to measure grip strength and anthropometric variables respectively. Interviewer administrative questionnaire collected the demographic and functional data.

Results: Mean right and left hand GS (SD) of males is 86.7(13.3) and 82.1(13.8) and in females 58.7(09.7) and 54.9(10.3) lbs respectively. GS of males was stronger than females in all age groups. The highest mean GS of right, left, dominant and non-dominant hand was found in those aged 30-39 years in both genders. Considering total sample mean GS in the dominant hand is 8.41% greater than in the non-dominant hand. In males GS in the dominant hand is 7.73% and in females 9.4% greater than the non-dominant hand. The length ($p<0.001$), width ($p=0.037$) and maximum span ($p=0.044$) of the hand, forearm length ($p<0.001$), circumference of mid forearm ($p<0.001$), length between tip of the middle finger and distal palmar crease ($p=0.019$) and total activity duration per week ($p=0.006$) were significantly correlated with dominant hand GS.

Conclusions & recommendations: The hand length, forearm length and circumference of mid forearm had the highest positive association with the dominant hand GS. GS difference between dominant and non-dominant hands was greater in females. Percentage GS difference between dominant and non-dominant hands can be used by healthcare professionals in setting goals for hand rehabilitation.

Key words: *hand grip strength, Jamar dynamometer, normative data, hand rehabilitation*

OP 109

Assessment of learning styles preferences among Government Medical Laboratory Technology Trainees at Medical Laboratory Technology Training Schools in Sri Lanka

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Background: Learning styles are unique and individual approach by each person or students which is used in gaining knowledge, skills and attitudes. According to the Visual, Auditory, Read-write, Kinestic (VARK) learning styles developed by Flemming and Mills, there are four main learning styles. Being aware the learning styles of students is definitely helpful to the teachers for preparing better teaching learning processes for them.

Objectives: To assess the preferences of learning styles of Government Medical Laboratory Technology Trainees in Sri Lanka.

Methods: Descriptive cross sectional study was carried among 128 Medical laboratory Technology trainees studying in the three training schools. Self-administered questionnaire with two parts was used as study instrument. Demographic variables and information on learning environment were collected in the part A of the questionnaire. Part B (VARK version 7.8) of the questionnaire was used to collect details of the learning styles of the students. Preferred learning style pattern was expressed using the standard scoring system given by the VARK method. Data were analyzed by SPSS 23.0 software.

Results: The total of 128 students out of 134 completed the questionnaire. Sample consists with both males (35.2%) and females (64.1%). According to the results, students prefer single mode (uni modal, 23.4%), two modes (bi modal, 54.7%). and three modes (tri modal, 21.9%). No one prefers quadrimodal. The most preferred mode was bimodal. Auditory learners (43.5%) were prominent among unimodal learners whereas among bimodal, combination of Visual/Auditory and Kinestic/Auditory learners (each with 21.3%) were prominent. Among trimodal learners combination of Visual/Auditory/Kinestic (53.4%) was prominent. According to the results of Chi-Square analysis, there was no statistically significant association between sex on learning style preferences as well as age on learning style preferences. Learning styles were also independent from the training school and the learning environment that they were in.

Conclusions & Recommendations: The bimodal learning style (visual/auditory and kinestic/auditory were prominent) was the preferred leaning method chosen by the Government Medical Laboratory Technology trainees. Both gender and age were not found to influence learning style preferences of them. Learning style preferences were also independent on learning environment and those shows the unique selection of learning style of the students. As most were preferred multimodal learning styles, it is suitable to use blended teaching tools in both theory and practical sessions to enhance their learning in effective and efficient way.

Key words: *Medical laboratory technology, learning Styles, learning*

OP 110

Job satisfaction of medical laboratory technologists in government hospitals in Kandy district, Sri Lanka

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Background: Job satisfaction is a complex, multifaceted and a dynamic concept of human resource management. Satisfied health workforce is an integral component of delivering quality healthcare. Studies on job satisfaction of Medical Laboratory Technologists were limited though; they play a key role in providing effective patient care.

Objectives: to determine the level of job satisfaction and the factors associated with job satisfaction of Medical Laboratory Technologists.

Methods: A descriptive cross- sectional study was conducted from December 2017 to October 2018 by using a self-administered, pre-tested, validated, questionnaire developed based on the short version of Minnesota Satisfaction Questionnaire as the data collection instrument. The study population consisted of all the Medical Laboratory Technologists (N=125) attached to all secondary and tertiary care government hospitals in Kandy district

Results: Out of 113 eligible Medical Laboratory Technologists, 91 (80.5%) responded. Data analysis was performed on 88 (77.9%) valid responses. A standard scale method used to assess level of job satisfaction. Results revealed a "Slightly High" level (Mean 3.5<>4.33) of job satisfaction with a mean value of 3.95 and SD of 0.77. Associations of age (p=0.01), service experience (p=0.03), duration of service in current institute (p=0.04) and job satisfaction were statistically significant (p<0.05) with a positive correlation. Male were having higher job satisfaction than females (p=0.05). Educational qualification (p=0.44), number of children (p=0.27), distance to work place (p=0.42), private practice (p=0.12) were not significantly associated with job satisfaction. Remuneration, recognition, autonomy, achievement and career development showed statistically significant (p<0.05) association and positive correlation with job satisfaction. Remuneration ranked highest in correlation (r=0.395) followed by recognition (r=0.364). Multiple linear regression revealed that remuneration (p=0.000) and recognition (p=0.009) were the most influencing organizational factor of job satisfaction of medical laboratory technologists.

Conclusion and Recommendations: Medical Laboratory Technologists of the study population were having a "Slightly High" level of job satisfaction. Concerns on enhancing both individual and organizational factors will improve the level of job satisfaction.

Key Words: *medical laboratory technologist, job satisfaction, organizational factors*

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~~**Neuroblastomas in Sri Lanka: An institutional based retrospective study**~~

PP 02

Whole body integral dose and radiotherapy induced Lymphocytopaenia

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Background: Anti-tumour immune suppression is now recognized as a hallmark of cancer, which is associated with tumour metastases and failure of treatment. Lymphocytopaenia is associated with adverse outcomes in patients with both localized and metastatic cancer and may represent a state of tumour induced immune incompetence.

Objectives: To assess the correlation between integral whole body dose and post-radiotherapy lymphocytopaenia.

Methods: Patients treated with computed tomography (CT) planned radiotherapy with both curative and palliative intent at two radiation oncology centres were included in the study. Full blood count performed before and immediately after radiotherapy were collected together with dosimetric, demographic and clinicopathological data. Whole body integral dose was defined as the product of mean body dose and total body volume. Patients with incomplete data were excluded from the study. Multiple linear regression analysis incorporating the following variables were performed using the statistical software R version 3.4.1, to develop a model to predict post-treatment lymphocyte count: pre-treatment lymphocyte count, use of concurrent chemotherapy, whole body integral dose, anatomic site, prescribed dose, number of fractions, treatment technique (Intensity modulated Radiotherapy or three dimensional conformal radiotherapy) and treatment unit (Cobalt-60 teletherapy unit or linear accelerator). A total of 178 patients were included in the study.

Results: In the study sample 130 patients received their treatment in linear accelerators and 48 patients in Cobalt 60 teletherapy units. Most patients (90.4%, n = 161,) were treated with radical intent, and 64 patients (35.9%) received IMRT. Absolute lymphocyte counts (ALC), platelet counts and haemoglobin levels showed a significant post-treatment decline but there was no difference in neutrophil counts. Median Pre-treatment ALC was 2.1 x 109/L (range = 0.36-6) which declined to 0.79 x 109/L (range= 0.1- 3.46). Median Integral body dose was 122.6 L.Gy (range, 15.6 – 1087.1). On multivariate analysis Integral dose, use of concurrent chemotherapy and thoracic tumours negatively correlated with post-treatment count, while pre-treatment count and brain tumours had a positive correlation.

Conclusions and Recommendations: A higher integral body dose correlates negatively with post-treatment lymphocyte counts, the effect of which is more pronounced in thoracic tumours. The impact of whole body integral dose merits further investigation and consideration during treatment along with strategies to reduce its magnitude.

Keywords: *integral dose, radiotherapy, lymphocytopaenia*

PP 03 **(Abstract Removed as not presented)**

Hepatoblastomas in Sri Lanka: A retrospective analysis

PP 04 (Abstract Removed as not presented)

~~Wilm's tumour in Sri Lankan children: a single center experience~~

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PP 05

Client perceptions of new HPV/DNA screening test implementation for cervical cancer screening among 35 year age cohort ever married women in Kalutara district

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Background: Cervical cancer is the 2nd leading cause of female cancer in Sri Lanka. Hence, in 1998, Sri Lanka took the initiative to include screening for cervical cancer with conventional papaniculaou (pap) smear in the Well Woman Clinics. However, even after 20 years of cervical cancer screening (with pap smears), there is no marked reduction in incidence, morbidity and mortality of cervical cancer in Sri Lanka. One major drawback of the present programme is the suboptimal sensitivity (47%-62%) of the pap smear to detect Cervical Intraepithelial Neoplasia. Persistent HPV infection with high risk oncogenic HPV genotypes cause cervical cancer in 10-15 years time, with a progression rate of 10%. Sensitivity of the cobas 4800 HPV/DNA test is 92.9%, therefore the cervical cancer detection rate is high.

Objectives: To assess the client perceptions on new cobas 4800 HPV/DNA screening test.

Methods: A descriptive cross-sectional study was conducted in the MOH areas of Kalutara district (sample size=822). Cluster sampling techniques was used. A public health midwife area was taken as a cluster (number of clusters=413). cobas HPV/DNA test was first used in Sri Lanka for this study. HPV/DNA cervical specimen collection was carried out by MOOH/PHNSs at community well woman clinics. Following the specimen collection at clinic setting, information on client perceptions on new HPV/DNA screening implementation and it's screen positive follow-up was gathered by research assistants using an interviewer administered questionnaire. There was no scaling of questions.

Results: Clients' perception was 99.9% (n=821) positive for the HPV/DNA screening procedure and 99.6% (n=819) clients believed that this screening test is worthwhile to be incorporated into the National Cervical Cancer Screening programme in Sri Lanka. Clients were 99.5% (n=818) were aware about the positive follow-up algorithm of the HPV/DNA screening and 100% (n=822) were highly positive for repeated pap test, even within 6 weeks, if the HPV/DNA test result is positive.

Conclusions & recommendations: HPV/DNA screening as a primary cervical cancer screening method should be considered in Sri Lanka, following the assessment of it's suitability.

Key words: *cervical cancer screening, HPV/DNA screening, pap screening*

POSTER SESSION 2: LABORATORY SCIENCES I

PP 06

In-vitro cytotoxicity of hump-nosed pit viper (genus: *Hypnale*) venoms in mouse fibroblast cell line L 929

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Background: Hump-nosed pit vipers of the genus *Hypnale* are the commonest cause of venomous snakebites in Sri Lanka. The genus includes three species: *H.hypnale*, *H.zara* and *H.nepa.* Cytotoxicity is the ability of certain chemicals or mediator cells to destroy living cells. Cytotoxic effects of snake venom are measured using half maximal inhibitory concentration (IC_{50}), which indicates how much of a particular substance is needed to inhibit a given biological process by half.

Objectives: To evaluate and compare the cytotoxic effects of *Hypnale* venoms using IC_{50}.

Methods: Venom was collected from 11 healthy snakes comprising *H.hypnale* (5), *H.zara* (4) and *H.nepa* (2) by the manual milking process. From each species pooled venom was dried and stored at -4^{0}C. A volume of 10μL crude venom from each *Hypnale* species was diluted with phosphate buffered saline to get 7 different dilutions. Mouse fibroblast cell line L929 were cultured in RPMI medium with the addition of fetal bovine serum and penicillin-streptomycin solution. The cells were seeded in four replicates in 96-well plates and 10μL of each venom dilution was added to each well with incubation at 37^{0}C and humidified 5% CO_2 for 24 hours. MTT assay for the cultured cells was done using dimethyl sulfoxide. Absorbance of each well was read at 570 nm using an ELISA reader. A four parameter logistic model was used to calculate IC_{50}. Morphological changes of L929 cells at each venom concentration were qualitatively assessed using an inverted microscope.

Results: Morphological changes of L929 were the loss of common triangular shape of cells, getting appearance of rounded shaped cells and broken cell boundaries in higher venom concentration. The IC_{50} of venom of *H. hypnale*, *H. zara* and *H. nepa* following 24 hours of incubation were 8.81, 11 and 15.35 μg/mL respectively.

Conclusions and Recommendations: All *Hypnale* venoms are cytotoxic and the respective potency of them descends in order of *H.hypnale* > *H.zara* > *H.nepa*.

Key words: *hump-nosed viper, Hypnale, in-vitro cytotoxicity, fibroblast cells, IC_{50}*

PP 07

Effect of AmpC beta-lactamase in detection of   extended spectrum beta- lactamase by double disc synergy test and modified double disc synergy test

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Background: Emerging antibiotic resistance due to extended spectrum beta- lactamase (ESBL) and AmpC beta-lactamases among urinary isolates is a major problem in treatment. Some organisms produce both extended spectrum beta-lactamase and AmpC beta-lactamase**.** The Double Disc Synergy Test (DDST) which uses cefotaxime, ceftazidime and co-amoxyclav is a reliable and commonly used method to detect ESBL. However, it may give false negative results when detecting ESBL in organisms producing both ESBL and AmpC beta- lactamases. In such cases, ESBL detection may be improved by including cefepime in DDST. This is known as Modified Double disc Synergy Test (MDST).

Objectives: To determine the effect of AmpC beta lactamase in detection of ESBL by double disc synergy test and modified double disc synergy test in *Escherichia coli, Klebsiella and Proteus* species isolated from urine cultures in selected hospitals in Western Province

Methods: A cross sectional study was carried out on 150 urinary isolates of *E.coli*, *Klebsiella* and *Proteu*s which showed resistant to cephalexin in routine antibiotic sensitivity tests of urine cultures during November 2017 to January 2018. ESBL detection was done by combined disc confirmatory test (gold standard), DDST and MDST. All samples were tested for AmpC beta- lactamase production by Tris- EDTA disc test.

Results: Combined disc confirmatory test detected ESBL in 100 isolates. Among 100 ESBL producers, pure ESBL production was seen in 91 isolates and both ESBL and AmpC betalactamase were seen in 9 isolates. Ninety eight isolates (65.3%) detected as ESBL producers by MDST. It could detect ESBL in all 9 isolates which were coexistence with AmpC beta lactamase. Only 88 isolates (58.7%) were detected as ESBL producers by DDST. It could not detect ESBL in any isolate producing both ESBL and AmpC beta lactamase.

Conclusion and recommendations: AmpC beta-lactamase interfere with the ESBL detection in double disc synergy test giving false negative results but AmpC production may not affect the ESBL detection in modified double disc test. Therefore, we recommend to include cefepime in double disc synergy test to improve the detection of ESBL.

Key words: *AmpC Beta-lactamase, ESBL, double disc synergy test, modified double disc synergy test*

PP 08

Maternal colonization rate and antibiotic susceptibility for group B Streptococcus by culture and real-time PCR

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Background: Early onset neonatal sepsis develops less than 72 hours after birth, and the most frequent causative organism is Group B streptococcus (GBS). The main source of neonatal infection is maternal genital tract colonization and intrapartum antibiotic prophylaxis can significantly decrease neonatal GBS diseases.

Objectives: To identify maternal colonization rate of GBS using real-time PCR and culture methods, trends in antibiotic resistance, and associated factors for GBS colonization in pregnant women in selected hospitals in Western Province of Sri Lanka

Methods: A descriptive cross- sectional study was carried out from January to April 2019. Vaginal and rectal swabs were collected from 100 pregnant women at 35-37 weeks of gestation. Specimens were subjected to GBS detection using real-time PCR assay and standard culture. Antibiotic susceptibility (ABST) and minimum inhibitory concentration (MIC) were carried out for penicillin, clindamycin and erythromycin according to the Clinical and Laboratory Standard Institute (CLSI) guidelines. Associated factors to colonized GBS were assessed using a self-administered questionnaire. Data were analyzed by Statistical Package for Social Science (SPSS) version 20. Pregnant women of less than 35 weeks of gestation and pregnant women who have taken antibiotics within two weeks were excluded.

Results: GBS recto-vaginal colonization rate in the study population was 18% (n=18) by culture and 49% (n=49) by RT-PCR. This shows a 2.7times (31%) higher detection rate by RT-PCR than by culture. All isolates were susceptible to penicillin and other tested antibiotics; however, 27.7% (n=5) isolates were non susceptible to erythromycin and 22.2% (n=4) for clindamycin by both disk diffusion and MIC detection. Inducible clindamycin resistance was not reported. Mean age of participants was 29 years with a range of 17 – 42 years. GBS was predominantly found in age group of 21-35 years (n=42/49). Out of 14 obese pregnant females, 50% (n=7) and 14 out of 31 overweight females (45.1%) were colonized by GBS. Of the 15 underweight pregnant females 46.6% (n=7) were colonized by GBS. However, 52.5% (n=21) normal weight mothers had GBS colonization. Considering the obstetric history of the current pregnancy, 50 mothers were treated with an antifungal for the complaint of abnormal vaginal discharge and 61.2% (n=30) of them were colonizers for GBS (p<0.028).

Conclusions & recommendations: According to the findings, there is a relatively high GBS carriage rate and history of vaginal discharge has a significant correlation with GBS colonization. A larger sample including island wide survey is needed to recommend routine antepartum screening for GBS. However, penicillin can remain the antibiotic of choice.

Key words: *GBS colonization, real time PCR, pregnant women, antibiotic resistance*

PP 09

Investigation of mineral content of coconut water after fermenting with *Lactobacillus acidophilus* DSM 20079 and *Lactobacillus plantarum* DMBUK 113080

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Background: Coconut water contains different minerals. The increase of minerals in fermented coconut water is a benefit for the health because they are required to maintain good health. *Lactobacillus* sp. produce most of minerals in the fermentation process according to studies.

Objectives: To evaluate the mineral content in coconut water at different time periods after fermenting by *L. acidophilus* DSM 20079 and *L. plantarum* DMBUK 113080

Methods: The concentration of Sodium, Potassium, Calcium, Zinc and Copper were determined in coconut water before and after fermentation using Atomic Absorption Spectrometer (GBC 2000, SavantAA) by following the instruction manual of the manufacturers.

Results: There is an increase of Potassium and Sodium levels in coconut water when fermented with *L.acidophilus* DSM 20079 for 24 hours. The highest level of Sodium was obtained when fermented for 72 hours with *L. acidophilus* DSM 20079, that is 737.8±19.7μg/ml. It was a significant increase ($p < 0.05$) compared to fresh unfermented coconut water. Both Zinc and Copper levels have increased during the fermentation by *L. acidophilus* DSM 20079. The highest level of Zinc was obtained at 72 hour incubation period in coconut water, which is 0.591±0.2091μg/ml and the highest level of Copper is obtained within 48 hours that is 0.2053±0.0512μg/ml. They were significantly higher ($p < 0.05$) than fresh unfermented coconut water. When fermented with *L. plantarum* DMBUK 113080, Potassium level has increased when incubated for 24 hours, that the amount was 2376±211μg/ml. The highest level of Sodium was obtained at 72 hours which the amount was 832.5±56μg/ml which was significantly higher than fresh unfermented coconut water ($p < 0.05$). When fermented with *L. plantarum* DMBUK 113080, the highest levels of Zinc and Copper were obtained within 48 hours, which were 0.6183±0.001155μg/ml and 0.28667±0.00252μg/ml respectively, both of which were significantly higher than fresh unfermented coconut water ($p < 0.05$). The Calcium content has reduced after the fermentation by both *L. acidophilus* DSM 20079 and *L. plantarum* DMBUK 113080.

Conclusions & recommendations: Potassium, Sodium, Zinc and Copper content have increased in coconut water during fermentation by both organisms.

Key words: *coconut water, minerals, L.acidophilus DSM 20079, L.plantarum DMBUK 113080*

PP 10

Molecular diversity among *Burkholderia pseudomallei* isolates from a case cluster of melioidosis reported following an extreme weather event in the Batticaloa District in 2015.

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Background: Melioidosis is a potentially life-threatening infectious disease caused by Gram-negative environmental bacterium *Burkholderia pseudomallei.* Epidemiology and pathogenesis of this infection is yet to be fully understood. Our previous work and surveillance of this disease shows a high mortality rate of 23% in Sri Lanka. Further, variably present virulence factors are largely contributing to the different clinical outcomes and it may explain the high mortality rate. Cases are mostly sporadic, related to the monsoons, rice farming and other cultivation.

Objectives: To describe a molecular diversity of *B. pseudomallei* strains from cases of acute bacteraemic melioidosis in Sri Lanka following an extreme weather event.

Methods: Ten cases with acute bacteraemic melioidisis following heavy rainfall were diagnosed in the Batticaloa District, Eastern Province, Sri Lanka between November and December 2015. Genomic DNA from eight culture isolates were used for multilocus sequence typing and for multiple real time PCR assays to determine Yersinia-like fimbrial/*Burkholderia thailandensis*-like flagellum and chemotaxis region (YLF/BTFC) and lpxo, *bimA*$_{BP}$ type of intracellular motility factor *bimA* and type A lipopolysaccharide cluster (LPS type A).

Results: Ten culture positive cases of melioidosis were identified and four patients died, giving a mortality of 40%, which is significantly higher than the mortality of 23% recorded in sporadic cases island-wide.Four isolates were YLF while 6 isolates belong to the BTFC gene cluster with four isolates being of a single multilocus sequence type (ST594). Two of ST594 isolates were from patients residing in the same area, while the other two were from other areas. Typical *bimA* type was not found in the majority of the strains (7/8 strains) in this case cluster. However, LPS type A were found in the majority of strains.

Conclusion & Recommendation: BTFC gene is rare in Asia, however it was present in Sri Lanka. Unique molecular variations found in Sri Lankan clinical isolates of *B. pseudomallei* may have implications for the severity of the disease outcomes. However, further studies should be conducted to expand the knowledge on the molecular epidemiology the *B. pseudomallei.* There is an urgent need to extend surveillance of melioidosis especially to under-resourced parts of the country.

Key words: *Melioidosis, B. pseudomallei*

PP 11

Legal and other obligatory responsibilities in dengue vector control in local government authorities

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Background: Dengue is an acute systemic viral infection transmitted from human to human by a vector mosquito. It is one of the most rapidly spreading mosquito-borne viral infections in Sri Lanka with extensive burden to the state health sector. A major role in the control of dengue is laid to Local Government Authorities (LGA). The awareness of legal and other obligatory responsibilities in LGA is crucial in control and prevention of dengue in Sri Lanka.

Objectives: To assess the legal and other obligatory responsibilities on dengue vector control in Local Government Authorities in Kalutara district.

Methods: A desk review of legislations to identify legal and other obligatory responsibilities of LGAs was carried out. The Ministry of Provincial Councils and Local Government, National Archives, Office of the Regional Director of Health Services – Kalutara, Local Government Authorities and relevant websites, were used to retrieve legal and other documents about dengue vector control, applicable to the LGAs.   Legal and other documents were assessed in three levels according to the relevance. The National level, Provincial level and Local Authority level legal and other responsibilities on dengue vector control, applicable to LGAs (Ordinances/Acts/Statutes) were reviewed.

Results: Six legislations were identified as key legislations which can be applied in dengue vector control in LGAs, namely, the Urban Councils Ordinance, Municipal Councils Ordinance, Pradeshiya Sabha Act, Prevention of Mosquito Breeding Act (PMBA), Nuisances Ordinance and the National Environment Act (NEA). LGAs have administrative, regulatory and control authority in public health. Protection and promotion of health and provision and preservation of comfort of the community in the area, are key responsibilities of LGAs. By-Laws can be made for health or health related matters in an administrative area including mosquito control. LGA s are liable for the punishments furnished by the National Environment Act or Prevention of Mosquito Breeding Act. Conclusions and recommendations There are many national level and provincial level legislations which can be applied to LGAs in Kalutara district in dengue control and prevention. The legislations should be further strengthened with rules and regulations for better implementation.

Keywords: *Dengue fever, vector control, legislations, local government authorities, Kalutara*

PP 12 (Abstract Removed as not presented)

~~Knowledge of Facebook users on depressive disorder: A Sri Lankan online descriptive study~~

~~Pramith Ruwanpathirana[1], Hiruni Amanda[2], Pubudu Chulasiri[3], Mahesh Rajasuriya[4]~~

PP 13
Assessment of the determinants of job satisfaction of the staff of De Soysa Hospital for Women

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Background: Right staff, at the right place at the right time is crucial to succeed the business. Right staff can't be confined to knowledge and skills of the staff, but it is determined largely by the attitudes of the staff especially in the health sector. Attitude is shaped up by the experience and perception; hence good perception and experience of the job prospers great attitudes. Job satisfaction is underpinned by the staff perception and experience on the job.Measuring job satisfaction is complex as the determinants are multidimensional. Literatures used, support of the supervisors, colleagues and junior staff, workload, remuneration, work environment, and career development opportunities as determinants of job satisfaction. Contemporary work related challenges and demand of the patients confronted by the state health sector, that is also common to the staff of De Soyza Hospital for Women (DSHW), didn't permit staff involving in completing lengthy questionnaire on patient satisfaction. National Health Services of United Kingdom uses friend and family test, that is composed of less than 10 questions, to routinely survey the staff satisfaction. It is time to develop a simple questionnaire to assess the determinants of job satisfaction among the staff in the state health sector.

Objective: To assess the determinants of the job satisfaction of the staff of De Soyza Hospital for Women

Methods: All staff, excluding senior managers and researchers of this study, were included in this study and the sample size was 420. Stratified sampling method was adopted in determining the sample size of strata that is staff categories. Simple random sampling method was adopted to select samples from each stratum. A self-administered questionnaire containing nine Likert scale questions was used to assess the determinants of job satisfaction. Determinants assessed were support from the superiors, workload, remuneration, work environment, career development opportunities and support of the junior staff.

Results: Response rate was 72.8%. Nurses formed the majority (36.3%; n=111). More than two fifth of the respondents (41.2%; n=126) served 4 or more than 4 years in this hospital. Above normal levels of satisfaction for support from the superiors, workload, remuneration, work environment, career development opportunities and support of the junior staff were 73.8% (n=226), 83.3% (n=255), 34.6% (n=106), 45.7% (n=140), 37.9% (n=116) and 30.4% (n=70) respectively. Nurses toped in above normal satisfaction in support from superiors (91.9%; n=102), work environment (54.9%; n=62), and career development opportunities (42.3%; n=47), while pharmacists topped in work load (100%; n=10) and midwives topped in remuneration (64.5%; n=20).

Conclusions and recommendations: Staff of DSHW were able to manage the workload as they had adequate superior support; however, their work environment, remuneration carrier opportunities, and support from the junior staff need improvement. Unwarranted variation among the determinants of the job satisfaction between various categories of staff need further exploration.

Key words: *De soysa hospital for women, job satisfaction, staff, health sector*

PP 14

Geographical Information System based monitoring and evaluation of Malaria Surveillance without complicated software

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Background: Sri Lanka is in the phase of prevention of re-introduction of Malaria with a strict surveillance system since obtaining Malaria free status in 2016. Entomological surveillance is a major strategy to measure the levels of receptivity. Though, the Anti Malaria Campaign has a very strong entomological surveillance system, there are some gaps in mapping component. Risk maps at appropriate scales can provide surrogate data and valuable information regarding spatio-temporal evaluation of entomological risk. Further, graphical representation of geographical and temporal distribution of malaria vector species facilitates important decisions in vector control. Geographical Information system Software-based monitoring and evaluation of surveillance needs highly advanced technical skills to operate. Poor retention of knowledge even after training is a major challenge. Therefore, a new methodology was introduced without complicated software.

Objectives: To monitor and evaluate malaria entomological surveillance by introducing Google mapping as a simple mapping tool for technical officers at Anti Malaria campaign.

Methodology: Google drive was used as the server. Shape files were converted into Keyhole Markup Language format and imported into Google My Maps. Excel data were mapped with an added location column representing geographical coordinates. Google forms were designed for real-time data collection and mapping. A training package was developed and Regional Malaria Officers (RMO) were trained. Maps with one kilometer surveillance circles were shared with field officers using smartphones for visualization. They were advised to map the location of breeding sites and share through Google My Maps.

Results: Visualization of field level entomological activities were improved in all Districts where training was conducted to use Google platform. Shared maps helped to give more comprehensive understanding on field activities for decision making and to identify areas that would need further surveillance in future.

Conclusions and Recommendations: Google Drive and Google My Maps platform can be used as a simple method to monitor and evaluate surveillance activities conducted by the AMC Head office and RMO at District level. Although, the analytical capacity may comparatively less than geographical Information based advanced software, this methodology is a cost-effective and adequate for monitoring and evaluation of programs in public health.

Key words: *Malaria surveillance, Google My Maps, GIS- based programme monitoring and evaluation*

PP 15

Knowledge and practices regarding prevention of animal bites and rabies vaccination among 18-60 years old patients, attending the anti-rabies vaccination clinic of District General Hospital, Matara

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Background: The increasing number of animal bite injuries among Sri Lankan community is a major cause for infections like rabies. Rabies is a 100% fatal viral disease but it is 100% vaccine preventable. Therefore this study was conducted among attendees of anti-rabies vaccination clinic, District General Hospital, Matara, to assess the knowledge, practice and experience regarding the animal bite which they were subjected

Objectives: To determine knowledge and practices regarding prevention of animal bites and rabies vaccination among patients of 18-60 years age, attending ARV clinic of DGH, Matara

Methods: Cross sectional study conducted in ARV clinic by convenient sampling (n=110) from 13thMarch-15thMarch 2018. Data were collected using a self-administered questionnaire and analysed using SPSS statistics 20 software. Percentages were used to interpret. Associations between knowledge level and the socio demographic factors were analysed by cross tabulation and chi square, where the significance assessed as $p < 0.05$.

Results: Majority was female (56.4%; n=62) and 58 (52.7%) were educated above G.C.E. O/L. Among the participants almost all (98.2%; n=108) were aware that rabies is a fatal disease. Majority (60.9%; n=67) were unaware on signs of dumb rabies. Almost all participants (99.1%; n=109) knew that dogs were the main reservoir of rabies. There was lack of knowledge regarding other animal reservoirs and modes of transmission. Majority (93.6%; n=103) were aware on first aid measures. Significant association was found between education level and the knowledge on rabies (p=0.001). Significant associations between education level and knowledge on applying ointments (p< 0.05), knowledge on dressing the wound (p=0.003) and knowledge on washing wound with soap and water (p<0.05) were found.

Conclusions & recommendations: The knowledge on prevention of animal bites was not satisfactory, mainly on modes of transmission, animals causing rabies other than dog & cat and identification of signs of rabid animals. Awareness on wound management following animal bites and post exposure prophylaxis (PEP) is almost satisfactory. Therefore future health education programs should be organized highlighting on these facts.
Key words: *rabies, animal bites, vaccination, anti-rabies*

PP 16

Pattern of growth and associated factors among 1-year-old children in Medical Officer of Health area, Mathugama

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Background: About 20% of Sri Lankan infants aged between 6 to 11 months are underweight. Mathugama, in RDHS area Kaluthara, consists of a population of 89222 in mixed cultural, ethnic and economical background. In 2017, the prevalence of underweight was 5.9% in infants whereas among 1-2 year old children it was 9.1%. This indicates that the prevalence of underweight increases by the second year of life.

Objectives: To describe the pattern of growth and its associated factors among 1-year-old children in Medical Officer of Health area, Mathugama.

Methodology: Community-based descriptive cross-sectional study was conducted among children aged one year living in MOH area, Mathugama. Children with premature births and congenital or chronic diseases were excluded and 384 children were selected using simple random sampling. Interviewer-administered questionnaire which is pre-tested and pre-coded, was used. Epi-info 7 was used to analyze the data and chi-square test was used to determine the associations, with level of significance set at $p<0.05$.

Result: Weight-for-age distribution of the 1-year-old children showed, 67.2% (n=258) between +2SD to -1SD; 28.9% (n=111) between -1SD to -2SD; 3.4% (n=13) less than -2SD and 0.5% (n=2) above +2SD. Height-for-age distribution showed 84.4% (n=324) between +2SD to -1SD and 15.6% (n=60) between -1SD to -2SD. Following factors had significant relationships with ...- low BMI of the mother ($P<0.01$) low birth weight ($p<0.0001$), family income ($p<0.05$) and gender ($p<0.05$). There was no significant relationship with occupation of the mother, exclusive breast feeding, age of the mother, nationality, number of children in a family or education level of the mother ($p>0.05$).

Conclusion & Recommendations: Prevalence of being at risk of developing underweight is 28.9% and risk of developing stunting is 15.6%. There is a significant relationship of ...... with low BMI of the mother, low birth weight, family income and gender of the child. Growth monitoring and promotion with adequate timely intervention is necessary to overcome the risk of these children shifting to underweight zone in their second year of the life, which will be a public health challenge.

Key words: *underweight, stunting, BMI*

PP 17

Nutritional status and associated factors among eighteen-month old children in Medical Officer of Health area Gothatuwa, Colombo, Sri Lanka

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Background: Proper nutrition is the keystone of health and development of a child. Nutritional status up to two years of age determines future growth and development as well as the overall health of a child. Eighteen-month-old children are a sub group included in under five age group which can be easily captured in child welfare clinics. Guardians of eighteen- month-olds too can be considered as a convenient group to be interviewed with minimum disturbance to the child-mother response and they can recall the events of the early life of the child easily.

Objectives: To determine the prevalence of selected nutritional conditions and to describe factors associated with them, among eighteen-month-old children in Medical Officer of Health area Gothatuwa, Colombo, Sri Lanka.

Methods: A clinic-based cross-sectional study was conducted among all eligible eighteen-month old children who attended the child welfare clinics conducted in MOH area Gothatuwa, Colombo from October 2018 to March 2019. Length and weight were measured using the Infantometer and the spring balance respectively and the measurements were interpreted according to the WHO growth standards included in the Child Health Development Record. Pre-tested interviewer-administered questionnaire with two components, on personal and socio-demographic characteristics and health-related information, was used to assess associated factors.

Results: Prevalence of underweight was 21% (n=47, 95% CI 15.6%-26.3%) while overweight was reported in 0.4% (n=1, 95% CI 0%-1.3%), 9.8% (n=22, 95% CI 6.3%-13.8%) was stunted and 15.2 % (n=34, 95% CI 10.7%-20.1%) was wasted. Number of children in the family (p=0.04), Number of children less than 5 years of age (p=0.01), number of main meals (p=0.04), size of main meal (p=0.04) were significantly associated with underweight while number of children in the family, number of main meals (p=0.03), absence of current breast feeding (p=0.01) were significantly associated with wasting. Number of children less than 5 years of age (p<0.05) and not having exclusive breast feeding (p=0.04) were significantly associated with stunting.

Conclusions & Recommendations: Prevalence of underweight and wasting were high, and prevalence of stunting was low compared to the Sri Lanka Demographic and Health Survey, 2016. Prompt actions need to be taken to address the acute nutritional problems.

Key words: *malnutrition, prevalence, eighteen-month old children*

PP 18

Body Mass Index (BMI) and it's relationship with prolonged sitting & gender among sewing machine operators in a selected garment factory in Colombo district

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Background: Obesity is a common medical condition around the world. Obesity and overweight are major risk factors for non-communicable diseases such as hypertension, type 2 diabetic mellitus and musculoskeletal diseases. Apparel industry brings the largest export income to the Sri Lanka and sewing machine operators who work for long hours in the seated position play a significant role in these garment factories.

Objectives: Purpose of this study is to determine the association of BMI with prolonged sitting and gender among sewing machine operators of a selected garment factory in Colombo district.

Methods: A descriptive cross-sectional study was carried out among 169 sewing machine operators, aged between 18-60 years. Simple random sampling method was used to recruit subjects. An interviewer-administered questionnaire was used to collect demographic data and the number of sitting hours per day at work. Height was measured to closest 0.01m, weight was measured to closest 0.01kg and BMI was calculated. BMI was categorized into four groups according to the conventional WHO classification. Statistical Package for Social Sciences (SPSS) version 22.0 software was used for data analysis.

Results: Majority of the participants were females (n=108, 63.9 %). There were 64 (37.9%) sewing machine operators who had 6 hours of chair sitting during work per day while 56 (33.1%) had 7 hours and 49 (29%) had 8 hours of chair sitting during work per day. In this study sample 31.1% males and 36.1% females were obese; 9.8% males and 9.2% females were overweight; 29.5% males and 17.5% females were underweight; 29.5% males and 37.3% females had normal body weight. There was no significant relationship between BMI and number of sitting hours ($p = 0.057$) or gender ($p = 0.32$).

Conclusions & Recommendations: The present study showed no significant relationship between BMI and number of sitting hours and gender.

Key words: *BMI, prolonged sitting, sewing machine operators*

PP 19

Nutritional status and selected factors associated with malnutrition among children between 2-5 years of age in Medical Officer of Health area Attanagalla, Sri Lanka

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Background: Malnutrition persists as one of the most serious health problems in the world and is the main contributory factor to child mortality. There are certain salient factors which, have been identified as the major root causes for malnutrition. Gampaha district is the second most populous district of Sri Lanka and prevalence of stunting, wasting and underweight among 2-5 year old children has been on average, at a level higher than 10%.

Objectives: To describe the nutritional status and selected factors associated with malnutrition among children aged 2 to 5 years, in Medical Officer of Health (MOH) area Attanagalla in Sri Lanka.

Methods: A community-based cross-sectional study was carried out in all fifty public health midwife areas in Attanagalla, Gampaha district from January to March 2014, among 455 children within the age category of 2 to 5 years. A division within each area was identified as a cluster, to select nine children each and the rest of the five children, were chosen from areas where the population was five thousand or more ($\geq$5000). Self-administered, pre-tested and structured questionnaire was used to collect data from the mothers or female guardians of the children. Ten (n=10) trained, data collectors administered the questionnaire by visiting the households of the identified sample.

Results: Prevalence of stunting was 16.3%, wasting 9.5%, and underweight was 18.7%. All three nutritional indices were higher among male children ($p>0.05$) and among children of mothers, within the age categories of 36-47 years and 48-59 years (df=2, $p>0.05$). Higher level of education (df=1, $p<0.01$), both parents being employed and having a high income were associated with a lower prevalence of the three nutritional indices. Breast feeding and complimentary feeding for less than six months had a significant ($p<0.05$) positive association. Lack of knowledge on proper feeding practices during a child's illness and unsafe drinking water ($p<0.01$), were other key concerns.

Conclusions & Recommendations: Malnutrition is an important health issue among 2-5 year old children in the Attanagalla MOH area. Addressing malnutrition by implementing community empowering and educational programmes in this highly populated area would enhance the country's efforts, in achieving the projected national target.

Key words: *children, community, malnutrition, stunting, underweight, wasting*

PP 20

Knowledge, attitudes and associated factors of overweight and obesity among new patients attending the medical clinic at Panadura Base Hospital

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Background: Overweight or obesity is defined as abnormal fat accumulation in the body. According to the definition of the Sri Lankan College of Endocrinologists, Body Mass index (BMI) 23-25 is overweight and BMI>25 is defined as obesity. Obesity is a medical problem that increases one's risk of diseases such as heart disease, diabetes, high blood pressure and even certain cancers. According to research even modest weight loss can improve or prevent health problems associated with obesity. It's important to know the current level of knowledge and attitudes on overweight and obesity and their associated factors when intervening to prevent this problem at population level.

Objectives: To assess the knowledge, attitudes and associated factors of overweight and obesity among new patients attending the medical clinic in Panadura Base Hospital

Methods: A descriptive cross-sectional study was carried out at Base Hospital Panadura from January 2018 to June 2019, among 403 randomly selected new patients aged 30-50 years attending the medical clinic. Data were collected using a pre-tested, self-administered questionnaire. Questions were analysed using descriptive statistics and all associations were described at 95% confidence level using chi-square test.

Results: Out of the total study sample 73.1% (n=291) was either overweight, obese or severely obese. Only 69.7% (n=281) of the sample knew the existence of a measurement called BMI while 55.8% (n=225) had ever taken any action to control body weight. Out of the participants who had taken some action to control their body weight during the past 3 months, 87.1% (n=196) were obese or overweight. Majority of the participants (76.9%, n=310) did not agree with the statement that stout appearance shows energy capacity to do many things while 83.9% (n=338) were against the statement that stout appearance gives a good job or marital opportunities. A significant proportion (56.9%, n=224) did not know about the presence of any relationship between the BMI and the risk of developing diabetes. At 95% confidence level, family history of obesity had a significant relationship with one's BMI (p=0.001) while gender (p=0.352), ethnicity (p=0.441), education level (p=0.23) and marital status (p=0.965) were not significantly associated with BMI.

Conclusions & Recommendations: Knowledge and attitudes on overweight and obesity of patients attending the medical clinic Base Hospital Panadura are not at a satisfactory level. There is a definite need to intervene by conducting awareness programs at medical clinic Base Hospital Panadura in order to improve patient's knowledge and attitudes on risk factors for Non Communicable Diseases including overweight and obesity.

Key words: *overweight, obesity, BMI, knowledge, attitudes*

PP 21

Relationship between the likelihood of reporting adverse events among Nursing Officers and their Perceptions on identified barriers and enablers for reporting

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Background: Incident reporting is an integral part of patient safety. Therefore, studying enablers and barriers to incident reporting is important to improve quality of patient care. Nursing Officers, who are front line health care providers, play an important role in incident reporting in hospital setup.

Objectives: The objective of this study was to measure the relationship between the likelihood of reporting adverse events by Nursing Officers in Medical, Surgical, Paediatric, Gynaecology and Obstetrics wards in the Teaching Hospital, Kandy and their perception on selected barriers and enablers, as identified in literature, for adverse event reporting.

Methods: This was a descriptive study, and the study instrument was a validated questionnaire with a six-point likert scale. The data was collected during one month starting from 15th of April 2017. Ethics clearance was obtained from the Postgraduate Institute of Medicine, University of Colombo, and permission was obtained from the Director of the Teaching Hospital, Kandy. Nursing officers working in Medical, Surgical, Paediatric, Gynaecology and Obstetrics wards in the Teaching Hospital, Kandy was the study population. The whole population was taken to this study as it is below the calculated sample size of 422. Correlations between the likelihood of reporting adverse events were measured with the participants' perceptions on their training on adverse event reporting, leadership, feedback received for reported adverse events, knowledge on adverse event reporting, presence of culture of blame and the existing process of adverse event reporting.

Results: The response rate for the questionnaire was 69% (n=277). There was a statistically significant positive moderate correlation between the participants' likelihood of incident reporting and their perception on the process of reporting an adverse event ($r = 0.591$). Their perceptions on leadership ($r = 0.472$), perceived knowledge on incident reporting ($r = 0.462$), perception on feedback received for reported incidents ($r = 0.438$), perceived training received for incident reporting ($r = 0.378$) and the perception of the presence of culture of blame ($r = 0.164$) showed weak positive correlations with their likelihood of reporting adverse events.

Conclusions & Recommendations: As there were positive correlations between the participants' likelihood of incident reporting and their perception on the process of reporting an adverse event, leadership, knowledge, feedback, training and culture of blame, it can be recommended to improve these aspects to promote incident reporting in these selected wards in the Teaching Hospital, Kandy.

Key words: *adverse event reporting, patient safety, nursing officers' perception*

PP 22

Interventions to improve the employee care services at Base Hospital Udugama

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Background: Employees are the key factor in any organization to achieve the organizational goals and objectives. In order to achieve the targets, employees need to be motivated and satisfied.

Objectives: The aim of this study was to identify the key service areas expected from the administrative staff of the Base Hospital Udugama and implementation of a pilot project to improve the services.

Methodology: This study was an interventional study. Focus group discussions were conducted with the key stakeholders to identify the main issues in the office services. Main issues were identified by conducting nominal group technique. Root causes for the main issues were identified by conducting a focus group discussion. Changes were implemented in order to improve the identified key service areas. SWOT analysis and Abell's frame work were used to select the method of implementation. Each member was motivated by giving lectures and allocating responsibilities. Post evaluation was done monthly using a checklist.

Results: All office processes were audited step by step. Prolonged increment delay was selected as the main issue and it was about 2 to 6 months. According to the results, exact time taken for each step in the office processes was identified and It is found that the time taken to obtain a service letter, railway warrants, salary particulars, approval of over time claims and issuing of stationeries are higher and that patients were unsatisfied on the time taken for issuing of private medical bills. According to the analysis, inefficiency of the office staff, poor motivation, poor monitoring and evaluation were the main reasons for the above issues. According to the audit, every step in the process was responsible for the delays in the increment process. Audit showed that it had taken two months to six months to add increment to their salary. After the intervention, increments were added to the salary within one-month period. Parallel to the main issue other issuers also improved within two months.

Conclusions & Recommendations: According to the audit and the focal group discussion staff was unsatisfied on their main services. Their main concern was getting their increment on time. However, in every year their increments have been delayed. Following new intervention and motivational programmes the employee's satisfaction was improved. Staff of the Base Hospital Udugama was unsatisfied on the services provided by the administrative authority. By supervision and motivation of the administrative staff, administrative services of the hospital could be improved drastically.

Key words: *employee care services, employee satisfaction, salary*

PP 23

Engagement of Private Laboratories in Tuberculosis (TB) diagnosis in selected districts in Sri Lanka

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Background: For the majority presenting with symptoms of TB, private health sector is the first contact with health services in many Asian countries as per evidence from "Patient Pathway Surveys". Availability of quality diagnostic services in every point of care is essential for identification of TB patients early.

Objectives: To assess the availability of TB diagnosis in private hospitals / laboratories in selected districts in Sri Lanka and their practices and willingness to perform TB diagnosis.

Methods: A descriptive cross-sectional study was carried out in 172 Private Health Regulatory Council-registered private laboratories in randomly selected 10 districts in Sri Lanka. Information on availability of services, practices and attitudes was collected by pre-trained medical officers using an interviewer administered questionnaire.

Results: Majority of the sample (52%, n=90) are medium laboratories. Daily attendance is < 100 per day in 39% (n=67), 100 - 500 in 31% (n=54) and more than 500 in 21.5% (n=37) of the laboratories. Requests for for TB tests are received from Consultants, (26.7%), OPD/Wards of the same Institution (2.3%), OPD/Wards of the other Institutions (27.%), General Practitioners (21.9%) and Chest Clinic (2.3%). A part time Microbiologist is available in 116 laboratories and 75 have >1 permanent MLTs. Laboratories performing TB diagnosis are 66 (38.4%). Out of this 58 (82%) perform sputum microscopy and 4 (3%) perform TB culture. Out of 92 Medical Laboratory Technicians performing TB tests, 66 (72%) were trained to perform TB tests. Whereas, 14 (93%) Public Health Laboratory Technicians have undergone training. Only 15 laboratories have a sputum collection area out of which 11 had running water and good ventilation, 5 are closer to crowded places while 24 (5%) labs use toilets for sputum collection. Essential components for quality and safety are available in >35% of the laboratories. Positive results are informed to the referring physician or chest clinic by 57% (n=54) of laboratories. Only (15.7%) are maintaining a lab register and (5.8%) are notifying to NPTCCD. Willingness to perform TB tests was expressed by 71% (n=76) provided improved infection control (44 %), adequate staff (38%, n=65) and space (38%, n=67) are available. Significant association was found between the recent training and willingness to perform TB tests (p< 0.001).

Conclusions & Recommendations: The findings show that only 38% of laboratories are performing TB tests. Quality and safety measures are adopted by 35% of the laboratories. 71% labs (n=66) expressed willingness to perform TB tests. Therefore, measures should be taken to enroll more private laboratories for TB diagnosis following quality and safety assessment and capacity building.

Key words: *Tuberculosis, private sector laboratories*

PP 24

Prevalence of dengue haemorrhagic fever (DHF) and outcome of management in dengue patients presenting to Lady Ridgeway Hospital, Colombo

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Background: Morbidity and mortality of paediatric Dengue patients increase when they reach DHF state and it is not possible to predict DHF state at the early stages of the disease. Complicated DHF state is a good indicator for analysing Dengue patient management strategies. Periodic evaluation of characteristic features of DHF and its outcome associations are important.

Objective: To describe the prevalence of Dengue Haemorrhagic Fever and outcome of management in Dengue patients who presented to Lady Ridgeway Hospital Colombo.

Methods: A descriptive cross-sectional study was conducted among 423 Dengue patients admitted to the Lady Ridgeway Hospital. Children with immunodeficiency, chronic disorders and children who were transferred from another hospital with diagnosed Dengue fever were excluded. Interviewer-administered data collection sheet was the study instrument. Measures of central tendency, frequency and percentage were used to analyze data using SPSS version 25.0

Results: Mean age of the participants was 7.27 years (SD=3.59). A male predominance (N=220: 52.0%) was observed in the study sample. Prevalence of DHF among participants was 28.6% (n=121). Mean duration of time from the onset of fever to onset of DHF was 95.15 hours (SD=29.48). Mean time difference from clinical judgement to ultrasound confirmation of plasma leakage was 6.97 hours (SD=2.89). About eighty percent (80.9%) of the participants with DHF were given at least one dextran bolus (N=98), 14.3% were given blood products (n=17) while 13.2 % of DHF patients were admitted to ICU (n=18). Most prevalent complication during the hospital stay was secondary infections (n=46: 10.6%). Mean duration of hospital stay was 3.34 days (SD=1.66). Although age less than 2 years (OR = 1.663), male gender (OR = 1.023) and administration of incorrect paracetamol doses (OR= 1.410) were identified as contributary associated factors for DHF, findings were not statistically significant.

Conclusions & Recommendations: A significant number of patients develop Dengue Haemorrhagic Fever status. Therefore, early detection and close patient monitoring should be promoted and systematic strategies should be planned to minimize delays of confirming Dengue Haemorrhagic Fever. Accurate determination of risk factors for secondary infections and addressing them methodically will help to reduce the total duration of hospital stay.

Key words: *Dengue, haemorrhagic, fever*

PP 25

Screening for non-communicable diseases and risk factors: Are we providing gender equal accessible services in the Regional Directorate of Health Services area Jaffna?

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Background: Non communicable Diseases (NCD) account for more than two third of hospital deaths in Sri Lanka; It is also the major contributor of morbidity and disability. NCD prevention and control programme in Sri Lanka aims 25% relative reduction in premature mortality from cardiovascular diseases, cancer, diabetes, and chronic respiratory diseases by 2025. In order to achieve this, robust screening services for NCDs and risk factors should be available and accessible to both genders. Healthy Lifestyle Centres (HLC) have been established in the primary and secondary care hospitals and medical officer of health offices to provide such services; Therefore, it is pivotal to determine whether these services, provide gender equal accessible services. Accessibility of a service is determined not merely on geographical location, but also by service availability and waiting times.

Objectives: To Assess the gender equal accessibility of screening services for NCDs and risk factors in the Regional Directorate of Health Services (RDHS) area Jaffna.

Methods: There were 35 established HLCs functioning in the RDHS area Jaffna during the study period. NCD and risk factors screening performance data of all these centres for the first two quarters of 2015 were gathered from the returns at the NCD unit of RDHS and were analysed to determine the place of screening, attendees' gender break down and prevalence of NCDs and risk factors such as smoking, alcoholism, tobacco chewing, high blood pressure, high blood glucose, underweight, overweight and obesity.

Results: Majority (87%, n=6096) were screened in HLCs and among them 81.6% (n=5715) were screened in centers located in the hospitals. Out of those who were screened for, less than one third (31.3%, n=1907) were males. In contrast, outreach screenings, held at workplaces and community centers caught more proportion of males (46.5%, n=422). Out of the eight risk factors screened for, males were found to have a higher prevalence for five risk factors compared to females. Those were smoking, alcoholism, tobacco chewing, high blood pressure and high blood glucose.

Conclusion and Recommendation: Healthy lifestyle centers have failed to provide gender equal accessibility and males who are more prone to develop to NCDs had lesser accessibility. It is recommended to introduce user-feasible service availability times, reduces waits at the HLCs and conduct more outreach screenings.

Key words: *non-communicable disease, healthy lifestyle centre, regional directorate of health services, risk factors, accessibility*

PP 26 (Abstract Removed as not presented)

~~Reducing absenteeism of minor employees in National Hospital for Respiratory Diseases, Welisara~~

~~Dilka Saranasinghe[1*]~~

PP 27

Perceptions of Heads of Institutions on implementation of annual transfers in hospitals in Eastern Province, Sri Lanka.

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Background: Human resource management is one of the building blocks in health care systems all over the world. One major issue of service delivery in healthcare is improper distribution of healthcare workers. Implementation of annual transfers is essential not only to maintain proper cadre in all institutions, but also to avoid frustration of staff. All staff who have completed 2 years in health sector are eligible to apply for annual transfer. Furthermore, Medical Officers (MOO), at the completion of 4 years and other staff at the completion of 5 years should apply for annual transfer. Most of the transfers are not implemented, because of replacement issues or Heads of institution (HOI) not being willing to release.

Objectives: To describe the perceptions of Heads of institutions on implementation of annual transfers of healthcare workers in all hospitals in Eastern Province.

Methods: Descriptive cross-sectional study was conducted in all 66 hospitals (excluding Primary Medical Care Units (PMCU)) under the central and provincial ministries of health in Eastern Province. Data were collected from all HOI in May 2019 by using an online self-administered questionnaire and analysed using descriptive statistics.

Results: Response rate of the study was 92% (n=61). Among the HOI who have responded 93% (n=57) agreed that implementing transfers is essential. However, most of them (85.2%, n=52) mentioned that they would not agree to release staff without replacements. However, 72% (n=44) and 51% (n=31) of them were willing to release staff members who are obstacles to achieving the organizational goals and those who do not take responsibilities respectively, even without replacements. Further, 56% (n=34) of the HOI agreed while 44% (n=27) of them disagreed to release staff even with replacements when approved cadre is not filled. Majority of them (93.4%, n=57) denied the impact of political pressure on their decision making on release of staff.

Conclusions and Recommendations: Almost all the heads of the institutions felt transfer implementation is important. However, most were reluctant to release the staff if their cadre was not filled. Anyway, they were willing to release the staff members who were not useful to the institutions. It is recommended to take necessary action to fill adequate cadre to smoothen the implementation of annual transfers.

Key words: *perception, annual transfers*

PP 28 **(Abstract Removed as not presented)**

~~Computerization of blood bank functions and strengthening the information flow using Blood Bank Management System (BBMS)~~

~~W.P.B. de Silva[1]~~

PP 29

Sustainable public procurement practices related to Health Sector Procurement of Goods in Provincial Director of Health Services Office of Central province

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Background: Sustainable public procurement has major impacts on economy, society and environment. Significant proportion of public funds is spent on procurement of goods including medical equipment in public health sector hence it is important to examine whether the process is integrated with accepted sustainability concepts.

Objectives: The objective was to describe the sustainable public procurement practices related to procurement of goods in Provincial Director of Health Services Office of Central province.

Methods: A cross-sectional descriptive study was conducted. All goods procurement of year 2018 were examined for integration of sustainability criteria using a checklist. Criteria were identified through literature search. All officers who were involved in procurement of goods in year 2018 were selected to determine the knowledge level on sustainable procurement and a self-administered structured questionnaire was administered. Proportions of procurements which included the sustainability criteria were calculated. Average knowledge level on sustainable procurement were calculated and categorized to a scale with 7 grades. Knowledge level was compared according to selected socio-demographic factors.

Results: Proportion of 0.69 (95% CI: 0.62-0.75) out of 191 studied procurements were related to medical equipment. Procurement planning, prioritization and timely advertising were executed in a proportion of 0.90 (95% CI 0.86-0.94), 0.97 (95% CI 0.95-0.99) and 0.43 (95%CI 0.36-0.50) procurements respectively. Usage of standard bidding documents, evaluation of operation cost and maintenance cost were reported in a proportion of 0.69 (95%CI 0.62-0.76), 0.74 (95%CI 0.68-0.80) and 0.74 (95%CI 0.68-0.80) of procurements respectively. Performance-based technical specifications, requesting warranty period, requesting information on replacement parts were included in proportion of 0.69 (95%CI 0.62-0.76), 1.00 and 0.74 (95%CI 0.68-0.80) of procurements respectively. Eco-friendly quality standards and social welfare criteria were not included in bidding documents. Average knowledge score obtained by 18 responding officers was 52.44 (95% CI 29.37 – 75.51) out of 100 and was expressed as grade 2 (50-59) level of knowledge. Comparison of knowledge level with socio-demographic factors did not show any statistical significance at p<0.05.

Conclusions & Recommendations: Average knowledge score of 52.44 on sustainable public procurement explains the lack of integration of the concept to the procurement process, thus improving knowledge among officers of public health sector is essential.

Key words: *goods procurement, public procurement, sustainable procurement*

PP 30

An intervention to improve vehicle maintenance data system of Family Health Bureau

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Background: A well-managed transport system is vital for efficient functioning of Family Health Bureau (FHB), the national focal point for Maternal and Child Health. Accurate and timely data is needed for correct decision making in improving cost effectiveness and efficiency of transport management. Most drivers are allocated more than one vehicle, as only nine drivers are available for seventeen vehicles. Vehicle repair and routine maintenance records of FHB are maintained manually, making monitoring, review and retrieval processes difficult and time-consuming.

Objectives: To develop and implement a user-friendly, cost effective vehicle management information system for administrative purposes in FHB.

Methods: Key informant interviews and in-depth interviews were conducted with Director, Deputy Director, Consultant Community Physician (Planning), Administrative Officer, Senior Registrar-Health Informatics and Information Technology officer of FHB. Desk review was done to collect past vehicle maintenance records from 2015 to 2019 June. A Google form was developed and revised based on expected data requirements of different stakeholders. Relevant management assistant and administrative officer were trained for data entry by Senior Registrar-Health Informatics, and Information Technology officer. Aggregated data from 2015 to 2018 was entered to the system by the management assistant. Data entry and routine system maintenance was initiated from 1st January 2019.

Results: Time taken for data entry and retrieval of past data was reduced by 75%. The master data was accessible to the top management of FHB even through the mobile phones. Assessment of the cost effectiveness of the transport system, calculation of non-functional periods of vehicles and reasons, level of usage of different vehicles, capturing of unnecessary or repetitive repairs, prior planning on preventive maintenance and summary of vehicle maintenance data for periodical evaluation are possible within a short period of time and they facilitate timely and correct administrative decisions.

Conclusions & Recommendations: The new user-friendly vehicle maintenance data system needed minimal resources to develop and maintain, and facilitates efficient monitoring, review and retrieval of vehicle maintenance records compared to the manual system. It is recommended that this new system be monitored, evaluated and improved by the FHB management to ensure its sustainability.

Key words: *vehicle maintenance, data, monitoring*

POSTER SESSION 7: PATIENT PERSPECTIVES, COMPLEMENTARY AND ALTERNATIVE MEDICINE

PP 31

Traditional and Complementary health care services through Central Government Institutions in Sri Lanka- A Survey

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Background: Traditional and Complementary medicine (TCM) is dated back to ancient cultures and civilizations. It plays an important role in primary health care in many countries. Ayurveda, Unani, Siddha and Traditional medicines are different types of medical systems which are being practiced in Sri Lanka. Assessment and documentation of performance of TCM system is vital for the development of health care of the nation.

Objectives: To assess the performance of TCM services delivered by the central government Ayurvedic hospitals in Sri Lanka in recent years.

Methods: This is secondary data analysis of annual performance reports of respective years published by the department of Ayurveda for recent 5 years (from 2012 to 2016)of eight healthcare institutions were checked and following most important factors were selected to assess the progress; number of TCM medical officers employed, number of outpatients, number of inpatients, number of special clinic patients and annual expenditure incurred .

Results: It has been found that, the change from 2012 to 2016 in the selected indicators was medical officers 186 to 232, number of OPD patients 330 659 to 448 282, number of IPD patients 56 428 to 57680 number of special clinic patients 129 940 to 198 911 and annual expenditure incurred these institutions Sri Lankan rupees 544 828 400 (544.83million) to 25 731 00 000 (2573.10 million) respectively.

Conclusions and recommendations: Even though the allocations and number of medical officers gradually increased in recent years, number of beneficiaries decreased due to the disturbances in IPD patient's treatment (due to wards constructions of Borella Teaching hospital during this period and some patients had family dissent inward admission). So the increase in financial allocation may justifiable with the patient's records.

Key words: *TCM, Sri Lankan ayurveda, performance*

PP 32

A comprehensive analysis of *Yoga a*sana as a non-pharmacological therapy in the management of prenatal complications – A Review

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Background: Pregnancy is a condition in which woman changes both from inside as well as outside. Practicing yoga during pregnancy provides benefits to unborn child and mother by numerous ways. For most of women, labour is a time of apprehension of fear and agony. These changes create obstacles or hurdles in the normal life of a pregnant woman and yoga in pregnancy can help the woman to cruise through these changes. Yoga soothes the mind, refocus the energy and prepare the woman physiologically and psychologically for labour.

Objectives: To analyze comprehensive literature on types of Yoga postures which is said to be effective on pregnancy to facilitate the labour difficulties.

Methods: Information was collected from authentic Ayurveda texts, scientific journals, and research articles and through the electronic media. Five types of authentic books were studies and 40 research papers were perused.

Results: 70% of these studies revealed that Yoga asana such as Utthitrrikasan (Extended triangle pose), Virbhadrasan (warrior pose) and Vrikshasan (Tree pose) are suitable to practice in first trimester of the pregnancy period. 20% of it has evidenced asana types such as Vajrasana (Thunderbolt pose), Matsyakridasana (Flapping fish pose), Marjariasan (Cat stretch pose), Tadasana (Mountain pose) & Kati chakras (Waist rotating pose) suitable for second trimester of the pregnancy. Further 15% of literature studies reflects that the Ardhatitaliasan (Half butterfly), Pornatitaliasan (Full butterfly), Chakkichalanasan (Churning mill pose) & Utthanasan (Squat and Rise pose) suitable for third trimester of the pregnancy. And also 80% these studies pointed out that the Anuloma Viloma pranayama, Apana Mudra & Akash Mudra are very suitable to practice in the all the stages of the pregnancy period to promote relaxation and to build internal energy.

Conclusions and Recommendations: Literature has proved that by practicing mentioned Yoga asana during pregnancy period, it will help to reduce perceived stress and improves adaptive autonomic response in healthy pregnant women.

Key words: *pregnancy, yoga asana*

PP 33

Evaluation of inward patients' experiences on nurses' care in Base Hospitals, Batticaloa District, Sri Lanka.

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Background: Patient satisfaction was an important indicator of the quality of care during hospital stay and is seen as a key concept for evaluating and improving healthcare. There has been a rapid expansion in the use of the term "patient experience" in the general healthcare vernacular and in the realm of both clinical practice. In the wake of this expansion, there has been an increasing acknowledgement that patient experience is now a top priority for healthcare leaders. The Beryl Institute defines the patient experience as "the sum of all interactions, shaped by an organization's culture, that influence patient perceptions across the continuum of care".

Objectives: To evaluate inward patients' experience on nurses' care in Base Hospitals, Batticaloa District, Sri Lanka.

Methods: Hospital based descriptive cross-sectional study was carried out in all four Base Hospitals in Batticaloa District in March 2019. All the patients who admitted in Surgical and Medical wards were included for this study. Data collected by self- administered questionnaire for assessing their experience. Date were analyzed using descriptive and suitable inferential statistics by SPSS version 21.

Results: Among the respondents, just above 65% (n=221) of them mentioned they had an opportunity to talk to nurse when needed. However, 27.7% (n=94) of them said they did not get chance at all to talk to a nurse when needed. Further, 61% (n=207) of them reported that answers given by nurses were understandable. Moreover, almost 70% (n=237) of the patients felt nurses who treated them knew enough about their care and treatment. Participants had high confidence and trust on the nurses (87.9%, n=298) treated them. However, only 50% (n=170) mentioned nurses were kind and caring towards them. The overall care of nurses was appreciated as good by 62% (n=210) of the respondents. Overall care was found to be statistically significant between the Base hospitals (p=0.01).

Conclusions and Recommendations: This study revealed that patients had different experience about the different aspects of nurses' care. Overall it is positive experience by patients. However, it needs to be improved. It is recommended to conduct soft skill training for nurses to interact with patients to give better experience.

Keywords: *patients' experience, nurses' care*

PP 34

Prosthetic limb experience among unilateral lower limb amputees.

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Background: Lower limb amputees, their families and health care providers have to face a specific set of problems to regain their independence. Therefore, the findings of this study will be beneficial to improve quality life of prosthetic limb users in the Sri Lankan context.

Objectives: Objective of the study is to explore the experiences of prosthetic limb users in physical, psychological and social domains.

Methods: Qualitative phenomenological study was conducted among purposively selected 20-60 year old 20 male lower limb prosthesis users with less than one year experience. Who have received prosthesis from Sri Lanka School of Prosthetics and Orthotics (SLSPO) at the, rheumatology and rehabilitation hospital, Ragama in 2017. Data were collected using a semi structured interview guide and analyzed using Colaizzi's thematic analysis.

Results: Four themes were derived from the participant's experiences, which are the physical embarrassment, emotional exhaustion, coping strategies and impact on social and family relationships. Pain, walking difficulties, limited mobility, wearing difficulties and sleep disturbances are the main physical problems they had to face. As emotional exhaustion mainly identified sub themes are body image disturbances and effect on psychological revolution. Problem focused strategies and negative avoidance are sub themes of coping strategies. The social issues they revealed are social isolation, disruptions on daily living and neglecting by other and peers.

Conclusions and recommendations: Finding revealed that the prosthetic limb users had to face many issues in physically, psychologically and socially domains. It is better time to care givers to pay more attention in limb manufacturing, counseling or emotional support should be encouraged and government policies should be implemented their occupational requirement. Financial support should be provided through monetary monitory funds and NGOs. Care givers should consider them as human being in social network and treat them in respective manner with provide safe environment for them.

Key words: *amputation, prosthetic limb, physical embarrassment, emotional exhaustion*

PP 35

Comparative analysis of selection of private verses public oral health care service provider in agro-based areas in Sri Lanka

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Background: Patients' satisfaction becomes an important issue to provide a high-quality oral health care. Detailed investigations on patient perceptions on perceived quality of oral health care services provided by out- patient department of private and public health services providers are rare.

Objectives: This study aimed to study patient perceptions of quality of oral health care services provided by private versus public hospital in the divisional secretariat area Mahiyanganaya.

Methods: A cross sectional descriptive study was carried out in randomly selected patients, who visited to public and private dental clinics in the study area. The general formula for calculating a population proportion with absolute precision was used for calculation of the sample size. Systematic random sampling technique was used to obtain the sample. Data from total of 422 participants were attained using an interviewer administered questionnaire. Using 28 questions, patient's satisfaction was analyzed. Factor analysis was used to reduce the dimensionality of the variables. Then, binary logistic regression model was fitted to investigate the significant factors, which affect for the insight of the patient on the selection of private verses public oral health care service. Statistical Package for Social Services version 21 was used to analyze the data.

Results: According to the frequency distribution, patient's satisfaction level on the communication skills of staff (n=233, 54.18%), quality of the staff (n=232, 55.63%), environment (n=207, 62.35%), received health care service (n=219, 53.16%) and the quality of the treatment (n=229, 53.26%) is high in the private sector than the public sector. Using factor analysis, covariates are reduced into four factors. They are Quality of the staff and received service(X1), Clinical environment and the facilities provided by the oral health care service (X2), Feeling to revisit (X3) and Recommendation(X4)**.** All the coefficients in the logistic regression model are significant (p value < 0.05). Since, all the coefficients are negative (X1=-1.473, X2=-1.738, X3=-0.234, X4=0.935); it can be identified that patients are more likely to choose private oral health care service than public oral health care service.

Conclusions and Recommandations: According to the fitted logistic regression model, it can be concluded that the patients who are consuming private sector oral health care service are highly satisfied with the Quality of the staff and received oral health care service, Clinical environment and the facilities provided by the dental clinic, Feeling of revisiting and Recommending the clinic to others, than the public sector consumers. Due to that, patients are more likely to choose private sector oral health care service than the public sector health care service.

Key words: *oral health care service, private verses public, agro-based areas*

PP 36

Implementation of the productivity concept to improve quality of services and client satisfaction at maternal and child clinic, Ratmalana

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Background: Clinic attendance of a patient mainly depends on the quality of the services received and the overall satisfaction about the services. A study carried out at the same clinic has shown that most patients were not satisfied with registration (45%) and waiting time for consultation (33%). It was evident in MOH clinics, increased waiting time and delays had a direct influence on their participation for the clinics. Thus it was important to implement a practice that ensured proper functioning of the clinics at MOH.

Objectives: To develop a model clinic with quality and productive services.

Methods: A new clinic was established with the collaboration of Dehiwala Mount Lavinia Municipal Council. External view of the clinic was improved using the green productivity concept. Productivity concept was implemented to improve the quality, productivity and to minimize the unnecessary wastage. Waiting time for the patients was minimized by prescheduled appointment system. Community mobilization for various activities in the clinic setup and periodical customer satisfaction surveys were held.

Results: Time taken for services has improved remarkably and attractive new look was given to the clinic. National level foreign delegations visited this clinic in six occasions. This has been identified as a model clinic by RDHS, FHB and the Epidemiology unit.

Conclusions and Recommendations: High satisfaction in the patients attending the clinics by giving prior appointments thereby improving their attendance. Establishing separate breastfeeding room, developing play area for children using colour codes for identification are some of unique features of this clinic. By utilizing lean concept all activities carried out in this clinic has ben identified all value added processes been modified to minimize waiting time and non-value added processes have been removed.

Key words: *productivity concept, maternal and child clinic, Ratmalana*

PP 37

Developing a Prototype Master Patient Index

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Background: A Master Patient Index (MPI) is a centralized index of all patients in a health care system. This index is composed of a unique identifier for each patient, linked to his/her demographic data and clinical encounters. A MPI is essential to ensure data interoperability in different health care institutions. The Health ministry of Sri Lanka is planning to develop MPI for the country. This project focused on developing the prototype MPI for Sri Lanka with the view to implementing and scaling up to national level.

Objectives: 1) To develop a prototype Master Patient Index for Sri Lanka; 2) To identify data element for Master Patient Index and 3) To identify a suitable API model for the proposed Master Patient Index.

Methods: This project consisted of 3 phases. Phase 1: requirement analysis using focus group discussions (FGD) with information system users. Phase 2: identification of the suitable Application Programming interface (API) model. Phase 3: development of the prototype a combination of monolithic and microservices architecture was selected to develop the MPI.

Results: FGD were conducted in 6 hospitals. There were 78 interviewers (Male-36, and female - 42). They highlighted the key requirements for the MPI, which were the unique identification method and different searching criteria and merging records to avoid duplication. Using this information, the requirements specification for MPI was developed. A combination of monolithic and microservices architecture was selected to develop the MPI. The API using the Personal Health Number (PHN) as the unique patient identifier and HL7 standard was developed and implemented.

Conclusions and Recommendations: Development and implementation of a MPI has facilitated the long due need for interoperability among health information systems in Sri Lanka that bridged the gap between HHIMS,HIMS systems in Sri Lanka.

Key words: *MPI, interoperability, API, PHN, Unique Patient Identifier, HL7, HHIMS, HIMS*

PP 38

Educating sedentary professionals on a healthy diet – Developing a pleasure oriented health education leaflet

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Background: Current efforts to promote healthy eating remains largely unsuccessful as individuals fail to adhere to dietary recommendations. Recent findings have shown the potential benefits of marketing pleasures of eating healthy foods compared to health oriented dietary messages. The urban executive with a sedentary lifestyle is especially at risk of developing non-communicable diseases at a relatively young age.

Objectives: To develop a health education leaflet using the pleasures of eating, targeting young/middle aged sedentary professionals to raise awareness on "healthy rice plate" and other dietary recommendations.

Methods: A literature review was carried out to identify dietary recommendations for healthy eating for sedentary professionals. Key messages promoting pleasures of healthy eating were developed. Healthy eating was addressed through different dimensions of eating pleasures identified by previous studies, including sharing a meal; discovery; variety; cooking; and the sensory aspects of foods. The messages were developed to arouse the pleasures of eating healthy foods to market healthy nutrition while negative messages on morbidity, mortality, non-communicable diseases and obesity were purposefully not mentioned. The leaflet was designed in English.

Results: Five urban executives who had sedentary lifestyles, aged between 30- 40 years (two banking executives and three accountants) evaluated the drafted leaflet. The majority of executives (80%, n=4) found the leaflet attractive and all five of them were of the opinion, the leaflet brought out the message that healthy eating can be pleasurable.

Conclusions and Recommendations: Health education leaflet promoting the pleasures of healthy eating can be used to educate young urban executives' healthy eating habits.

Key words: *healthy eating, eating pleasures, health education, sedentary professionals*

PP 39

Pneumatic Tube System for clinical sample transportation at the National Hospital of Sri Lanka

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Background: Pneumatic tube systems (PTS) play an important role in many hospitals for transportation of clinical samples to the laboratory from wards. A specimen is placed in a container into transparent plastic tube and destination is selected from the sending station. Then a powerful vacuum action inhales the tube and it begins, its journey through the network of pipes connecting numerous locations throughout the hospital. The National Hospital of Sri Lanka has identified the need of such system and requested National Engineering Research and Development Centre (NERDC) to establish one for the hospital.

Objectives: To establish a Pneumatic Tube System for clinical sample transportation at National Hospital of Sri Lanka.

Methods: Initially the research and development (R&D) work was carried out in NERDC premises. The developed PTS will be established in the 2nd medical ward complex. Two PTS stations for sending and receiving PTS carriers will be setup in 4th floor and the ground floor of that building and the main exchange point will be established in the 2nd floor. The two PTS stations will be linked to the main exchange point. The sub exchange point in the right side of the building of the 2nd medical ward complex will also be setup in order to connect the third medical complex to the system in the second phase. Sub exchange point will be established on the 2nd floor of the 3rd medical ward complex and PTS stations will be established in each ward of both complexes in the second phase. Central PTS station in the main laboratory will be connected with tubing system to the two medical ward complexes. At the end of the second phase, all medical wards will be connected to the laboratory through PTS.

Results: R&D work of the system was done over 1½ years with several workshops including NERDC students. Main challenge faced was to ensure passage of samples with the increasing length between sending and receiving ends and was overcame by adjusting pressure gage in the tube with expert help. Main challenge awaiting is to establish the developed system in the hospital. Several structural changes to be carried out in medical ward complex and main laboratory to install and operate this system. Special staff training to be carried out including change management and maintaining mechanism of the system to be established. Awaiting funding source to start this second phase of the project.

Conclusions and Recommendations: Excepted outcome is the efficient patient management through timely available lab investigation results.

Key words: *pneumatic tube system, timely lab investigations*

PP 40

Establishment of oral pathology diagnostic service at the premier multispecialty tertiary care public dental hospital in Sri Lanka

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Background: The National Dental Hospital (Teaching) Sri Lanka is aspired for advancing maxillofacial and oral health care through excellence in patient-centered services, research and innovation. Oral cancer poses a major public health challenge as the most common cancer sub-type among males in Sri Lanka. There was a glaring gap in availability of efficient and effective oral pathology diagnostic services for this multi-specialty, tertiary care public dental hospital.

Objectives: To establish a fully-fledged oral pathology diagnostic service for the National Dental Hospital (Teaching) Sri Lanka

Methods: Project setting was the National Dental Hospital (Teaching) Sri Lanka. Director General of Health Services, Deputy Director General of Dental Services, Deputy Director General of Logistics, Deputy Director General of National Hospital Sri Lanka, Director Medical Supplies Division were the main stake holders. Formal stakeholder meetings were organized and they were convinced on this vital timely need. The accomplished activities comprised of identification of space within the hospital building premise to construct oral pathology laboratory, designing the lab plan, appointment of Procurement committee, appointment of Technical Evaluation committee, procurement of laboratory equipment, cadre creations and ordering of chemicals from medical supplies division and ensuring the supply of electricity and water.

Results: Human resource comprised of 2 Oral Pathologists, a Medical Laboratory Technologist and a Dental Surgeon. All essential lab equipment and facilities were established. 1200 incisional & excisional biopsy reporting were performed in 2018, including 4 Oral & maxillofacial Units and 8 hospitals from other geographical areas. Of which, 12.1%(n=145) were oral cancer cases and the data were fed to the national cancer registry. The mean durations for reporting of an incisional biopsy and an excisional biopsy were 6 days and 10 days respectively in 2018, recording a 3-fold rapidity and a 78.3%(n=527) increase in the histopathological diagnoses performed compared to the period prior to establishment of oral pathology laboratory.

Conclusions and Recommendations: Establishing the oral pathology diagnostic service for the National Dental Hospital (Teaching) Sri Lanka deemed a successful project. Such centralized pathological diagnostic services could be recommended for expanded clustered care for a network of peripheral hospitals for rapid diagnoses and timely interventions.

Key words: *oral pathology, diagnostic services, oral health*

PP 41

Age at presentation for surgery and anatomical types of hypospadias among children presented to Lady Ridgeway Hospital for Children, Colombo

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Background: Hypospadias is associated with anatomical, fertility related and psycho-sexual problems. Surgical reconstruction is recommended around 2 years of age to minimize these issues. Anatomical type of hypospadias is a predictor of the individual's post-surgical expectations. Studies on age at presentation for surgery and anatomical types of hypospadias are rare in Sri Lanka. Data from a study on age at presentation for surgery is useful to help motivate health workers for timely surgical referral. Study on anatomical types of hypospadias would show the spectrum of hypospadias and post-operative expectations in Sri Lankan children.

Objectives: To describe the age at presentation of Sri Lankan children and to analyze the spectrum of hypospadias in Sri Lankan children

Methods: 100 consecutive hypospadias patients operated by author at Lady Ridgeway Hospital for Children (from 2014/01/01-2018/02/28) was analyzed retrospectively. Data were collected from author's personnel operations log book where anatomical description, surgical technique and age at presentation of each hypospadias were recorded. (every practicing surgeon requires maintaining a personnel operations log book). Hypospadias is anatomically described based on urethral meatal position as distal (sub-classified as prepucial deformities, glanular, subcoronal and distal shaft) and proximal (sub-classified as mid-shaft, proximal shaft, penoscrotal and perineal).

Results: Only 31 (31%) presented for surgery before the recommended age of 2 years of age and, 69 presented later. 40 presented between 2.1-5 years of which: 12 presented late due to errors of medical personnel and 28 due to parental negligence.
22 presented between 5.1-10 years of age of which: 2 presented late due to medical officers' difficulty in diagnosing distal meatus and 20 due to parental negligence. All 7 between 10.1-12 years presented late due to parental negligence. Analysis of anatomical spectrum found 74distal and 26proximal hypospadias (text-book description of European children: around 70% distal, 30% proximal). Analysis of distal hypospadias found; 16 (22%) prepucial deformities, 4 (5%) glanular meatus, 38 (51%) sub-coronal meatus and 16 (22%) distal-shaft meatus. Analysis of proximal hypospadias found; 6 (23%) mid-shaft meatus, 5 (19%) proximal-shaft meatus, 14 (54%) penoscrotal meatus and 1(4%) perineal meatus (There are no standardized international data on sub-classifications of hypospadias).

Conclusion and Recommendations: Education of Health personnel on the importance of timely referral is recommended. Position of urethral-meatus as a predictor of post-reconstruction expectations is useful to educate health workers.
Key words: *hypospadias, anatomical spectrum of hypospadias*

PP 42

Prevalence of cardiometabolic risk factors and Metabolic Syndrome among clients treated with Clozapine at General Hospital- Kalutara as outdoor clients

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Background: Clozapine is an atypical antipsychotic known to be associated with increased risk (11% - 64%) of developing metabolic syndrome. This risk has not been assessed among Sri Lankan patients.

Objectives: To determine prevalence of cardiometabolic risk factors and Metabolic Syndrome among clients treated with Clozapine at General Hospital- Kalutara as outdoor clients

Methods: A descriptive cross sectional study was carried out among hospital clients treated with clozapine for three or more months at General Hospital, Kalutara using an interviewer administered questionnaire. Blood samples were taken for fasting blood sugar and lipid profile. Anthropometric measurements (height, weight and waist circumference) were done and clinical data were obtained from medical records.

Results: There were 53.6% (n=52) male and 46.4% (n=45) female clients included in the study. 40.21% (n=39) were of 21-35yrs and 46.39% (n=45) of 36-50yrs. There were 53.61% (n=52) clients without an income. The amount of Clozapine given were as follows: 21.65% (n= 21), <200mg/day; 36.08% (n=35), 201-300mg/day; 26.8% (n=26), 301-400mg/day; 14.43% (n=14), 401-500mg/day and 1.03% (n=1), >500mg/day. The duration of Clozapine intake was as follows: 7.22% (n=7) for a period of 3-12 months; 21.65% (n=21) for 13-24 months; 7.22% (n=7) for 25-36 months; 8.25% (n=8) for 37-48 months and 55.67% (n=54) for more than 49 months. There were 68.04% (n=66) clients with Fasting Blood Sugar <= 100mg/dL and among 31.96% (n=31) clients it was > 100mg/dL. Lower level of HDL (<= 40mg/dL for male and <= 50mg/dL for female clients) was 29.9% (n=29). There were 44.33% (n=43) clients with triglyceride level >=150mg/dL. There were 93.81% (n=91) clients with normal blood pressure <130/85mmHg and 6.19% (n=6) clients >=130/85mmHg. The distribution of BMI was as follows: 20.62% (n=20) BMI <18.5kg/m2; 49.48% (n=48) 18.5-24.9kg/m2; 25.77% (n=25) 25-29.9kg/m2 and 4.1% (n=4) >= 30kg/m2. Female clients with waist circumference =>80cm were 34.02% (n=33) and male clients with waist circumference =>90cm were 12.37% (n=12). According to International Diabetes Federation criteria 2006 there were 18.6% (n=18) clients treated with clozapine at GH-Kalutara with risk of metabolic syndrome. There was significant association between the presence of metabolic syndrome and impaired FBS (P=0.000), low HDL level (P=0.000), increased triglyceride level (P=0.000), increased BP (P=0.000), BMI level (P=0.001) and female gender (P=0.015). Current dose of clozapine was not significantly associated with metabolic syndrome.

Conclusions and Recommendations: Less than one fifth of the clients treated with clozapine were at risk of metabolic syndrome. Further studies are suggested on a larger sample size to arrive at a more generalizable prevalence for Sri Lanka.

Key words: *metabolic syndrome, Clozapine, prevalence, IDF criteria, Cardiometabolic risk factors*

PP 43

Clinical spectrum of Lichen Planus Pigmentosus among patients attending Dermatology clinic of Colombo North Teaching Hospital.

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Background: Lichen Planus Pigmentosus (LPP) is a rare pigmentary disorder of unknown aetiology which is characterized by symmetrically distributed hyperpigmented macules and patches mainly distributed over the sun exposed areas of the body. It is more common in people with Fitzpatrick skin types iv-v. Though spontaneous resolution is a possibility, LPP has a prolonged natural course. There is no proven treatment hitherto.

Objectives: To determine the clinical spectrum, triggering or aetiological agents and impact of LPP among patients attending the dermatology outpatient clinic of Colombo North Teaching Hospital, Sri Lanka.

Methods: A descriptive cross-sectional study was done at Dermatology outpatient clinic of Colombo North Teaching Hospital, Sri Lanka during 2016-2017. Data collection was done using an interviewer administered questionnaire. Data were analysed by SPSS (v.18) software package.

Results: Total of 33 patients were examined. 75.8% (n=25) were females and male to female ratio was 1; 3.1. Mean age of onset of the disease was 35.85 years and 97% (n=32) did not have a family history. Duration of the disease ranged from 1 month to 6 years and 51.5% (n=17) had skin lesions for 1 year to 5 years. Upper limbs, neck and face were affected in 75.8% (n=25), 69.7% (n=23) and 63.6% (n=21) patients respectively. Scalp and nails were spared. Skin lesions were in 5 patterns; i.e. blotchy, diffuse, reticular, linear and perifollicular in 48.5% (n=16), 15.2% (n=5), 12.1% (n=4), 9.1% (n-3) and 3.0% (n=1) respectively. Maximum mean DLQI score of 14.5% was recorded in patients of 31-40 years of age. Only 6.1% (n=2) had large effect on their quality of life while 21.2% (n=7) had moderate effect and 42.4% (n=14) showed small reaction.

Conclusions and Recommendations: Although, it was expected that LPP has a moderate to large effect on affected individuals' quality of life due to its chronicity and the pigmentation more common over the exposed areas of the body, disease had small effect on majority of patient's quality of life.

Key Words: *Lichen planus pigmentosus, pigmentary disorder, clinical spectrum, Dermatology Life Quality Index (DLQI)*

PP 44

A case of idiopathic acute pancreatitis following cesarean section delivery

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Background: Acute pancreatitis is a sterile inflammation that progresses to development of systemic inflammatory response syndrome and multisystem organ failure. The common causes of acute pancreatitis are gallstones, alcohol consumption, and endoscopic retrograde cholangiopancreatography. Compared to the number of reports related to these common causes, there are few reports on acute pancreatitis associated with pregnancy.

Case Report: The patient, a 31-year-old previously healthy woman, developed severe abdominal pain and distention on her first day after cesarean section. She has undergone cesarean section due to pre labour rupture of membrane at the 38 weeks of period of amenorrhea. She is with a weight of 81.4kg on dietary control for gestational diabetes mellitus. She had an uncomplicated cesarean section delivery. On review of systems, she complained of severe abdominal pain and distension on first day after delivery. On physical examination, her abdomen was distended with tenderness in epigastric region, and breath sounds were decreased in both lower lung fields. Under a suspicion of acute pancreatitis, she was initially managed with conservative treatment. However, she developed intra-abdominal fluid collections and left sided pleural effusion. Post partum day 1, she was conscious and oriented. Her vital signs were as follows: blood pressure, 130/80 mmHg; heart rate 102 beats/minute; respiratory rate 44 breaths/minute, and body temperature 38.3℃. Her serum amylase level is 636IU/L (30-100 IU/L). Her X ray erect abdomen showed bi lateral small basal effusions with no evidence of bowel obstruction. Further investigation revealed a total leukocyte count of $17.6 \times 10^3/\mu L$ ($4.0\text{-}10.0 \times 10^3/\mu L$), hemoglobin level of 13.1 g/dL (12-16 g/dL), platelet count of $220 \times 10^3/\mu L$. CRP level is 360.83mg/L, creatinine level of 0.8 mg/dL (0.7-1.4 mg/dL),Na+ 132,K+ 3.9, Cl- 93mmol/l, and Calcium concentration of 8.98 mg/dL (8.8-10.5 mg/dL). An initial chest X-ray showed bilateral pleural effusion. Ultra sound scan of the abdomen confirmed pancreatitis with ascites and bi lateral pleural effusions. She was kept nil by mouth and conservatively managed with intravenous broad-spectrum antibiotics IV Cefataxime 1g tds, Intra venous fluids 3l/24hrs, NaCl 5g TDS, and other supportive care. 6days after delivery, her total leukocyte count and c-reactive protein level began to decline. She had daily fever of more than 38℃, but the fever peak declined. Her symptoms were improving and discharged with good clinical recovery.

Discussion: The incidence of acute pancreatitis during pregnancy is 19% in the first trimester, 26% in the second trimester, 53% in the third trimester, and 2% in the postpartum period. Therefore, acute pancreatitis rarely occurs in the postpartum period. Furthermore, there are few reports about acute pancreatitis occurring after cesarean section delivery.

Key words: *acute pancreatitis*

PP 45

Patient profile and anticoagulation outcome on Warfarin therapy with metallic valve replacement; a single center experience

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Background: Warfarin is the most commonly used anticoagulant in worldwide and lifelong warfarin therapy is recommended for prosthetic metallic valve replacement. Anticoagulation outcome depends on the maintenance of International Normalized Ratio (INR) within the Therapeutic Time Range (TTR) which can be evaluated by cross section method. According to the British Committee for Standards in Haematology (BCSH) INR should be within the TTR at least 60% of time.

Objectives: This study was conducted to identify the profile of patients and anticoagulation outcomes on patient with warfarin therapy for prosthetic metallic valve replacement in cardiology clinic.

Methods: A cross sectional review was conducted at cardiology unit in Teaching Hospital Kandy from 20th of October 2018 to 20th of January 2019 by analysis of clinical records of the patients with metallic valve replacement who were on warfarin therapy for more than 3 months. Anticoagulant outcomes were analysed according to the Theraputic Time Range (TTR) by using cross section method.

Results: Out of 202 subjects, 52% (n=105) were males while 48% (n=97) were females with a mean age (SD) of 51.83(12.89) years. Hypertension, diabetes mellitus and dyslipidemia present in 46.5% (n=94), 40.6% (n=82) and 31.2% (n=63) patients respectively. Rheumatic fever (73.8%, n=149) was the commonest indication for valve replacement. Infective endocarditis (13.9%, n=28) and mitral valve prolapse (12.4%, n=25) were the other indications. While a majority of (57.9%, n=117) had undergone mitral valve replacement, others have had aortic valve replacement (25.8%, n=52) and dual valve replacement (16.3%, n=33). In 37.6% of patients, the target INR values were within the TTR according to the cross section method. There were 13.9% (n=28) of bleeding events, 15.8% (n=32) of low INR admissions, 10.9% (n=22) of high INR admissions and 4.5% (n=9) of strokes recorded as the adverse events while on warfarin therapy.

Conclusions and Recommendations: Rheumatic fever is still the commonest indication of mechanical valve replacement in Sri Lanka. The TTR of target INR values in our study population was less than the recommended 60% of time by BCSH.

Key words: *anticoagulation outcome, metallic valves, therapeutic time range*

PP 46

A qualitative study to assess the availability of resources at Microscopic Centres for Tuberculosis screening in Kalutara District

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Background: In Sri Lanka although nearly 17,000 Tuberculosis (TB) cases are estimated only around 11,000 new cases are reported. The Ministry of Health (MOH) states that there is significant underutilization of Microscopic Centres (MC) (Ministry of Health, 2016). Availability of resources at MC such as Public Health Laboratory Technicians (PHLT), guidelines, laboratory equipment is important for the screening process enabling efficient utilization of MC.

Objectives: To assess the availability of resources qualitatively at Microscopic Centres in Kalutara district.

Methods: A qualitative study was carried out in MC during January 1st to 31st March 2017. All staff members(n=10) involved in TB screening such as Regional Epidemiologist, District Tuberculosis Control Officer, Medical Officer Planning, Public Health Laboratory Technicians, Tuberculosis Assistants (TA) were taken as the study population. Key informant interviews were held using a semi structured interviewer guide. Analysis of qualitative data was carried out using the Grounded Theory (Strauss & Corbin, 1990) and Constant Comparative Methodology (Kolb, 2012). The steps include data refining, categorizing, comparing the incidents applicable to each category, integrating the categories and their properties and delimiting the theory.

Results: The mean age of the participants was 43.6 years (SD=7.94) and 60% (n=6) were females. All participants (n=10) emphasized that PHLT and TA staff is not adequate. Of the participants 70% (n=7) stated that training is not adequate. Majority of staff indicated that the provision of WHO recommended safety goggles (90%, n=9), N95 or FFP2 equivalent safety masks (100%, n=10) and provision of disinfectants (70%, n=7) were inadequate. None of the MCs had an established cough area while MC at Panadura was very unsafe.

Conclusions & Recommendations: The PHLTs and TBAs are inadequate and their In-service training programs (ISP) were not adequately conducted. Annual ISP for MC staff and long term recruitment plan is recommended. WHO recommended deficient essential resources are recommended to be purchased through annual estimates of the Regional Director of Health Services. or National Programme for Tuberculosis Control & Chest Diseases. Pandura MC need to be shifted to a safer place to minimize vulnerability.

Key words: *microscopic centres, Tuberculosis, resource availability*

PP 47

Psycho-social distress and financial burden among parents of children attending epilepsy clinics at the Lady Ridgeway Hospital for Children

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Background: Psychosocial and financial wellbeing of parents affect the quality of life and the compliance to the management of chronic childhood conditions. However, documented literature is scarce on the parents of children of epilepsy in this regard, in Sri Lankan setting.

Objectives: To describe the psycho-social distress and financial burden among parents of children attending epilepsy clinics at the Lady Ridgeway Hospital (LRH) for Children.

Methods: A descriptive cross-sectional study was conducted among 630 parents of children attending the epilepsy clinic at LRH between March 2018 and January 2019. An interviewer-administered questionnaire with equally weighted 10 questions was used to collect data on psycho-social distress. Financial burden was assessed using a tool validated for Sri Lanka. Data collection was done by two trained data collectors. Total psychosocial-distress score was calculated with scores between 0 and 100. Higher values suggests higher distress. Associations of selected numerical variables and knowledge were evaluated with Spearman correlation-coefficient.

Results: Most (n=572, 90.8%) were mothers, while 9.2% (n=58) were fathers. The median age of mothers was 36 years (IQR= 31 to 41) and it was 40 years (IQR=37.5 to 46.0) among fathers. Nearly 67% (n=427) of the participants had a monthly family income of Rs 40, 000.00 or below. The median psychological distress score was 40 (IQR=20 to 50) for mothers and 30 (IQR=20 to 40) for fathers. Out of 630, 34.1% had to go into debts, 30% had to sell some of their belongings, 32.2% experienced a potential loss of income and 49% had to restrict routine expenses in order to compensate for the direct or indirect expenses needed for the care of the child. Among fathers, the distress was significantly increased with advancing age (p=0.042) and lower education level (p=0.008). It was not significantly associated with the monthly family income (p=0.120). Among mothers, none of these factors were significantly associated with distress score (p>0.05).

Conclusions & recommendations: The burden of psycho-social distress is present among many parents of children with epilepsy. The factors affecting this distress differ with parent's gender. When different aspects of financial burden is concerned, nearly one third to half of the parents suffer due to the illness of the child. More research must be encouraged focusing on planning social-support interventions.

Key words: *psycho-social distress, financial burden*

PP 48

Coverage of the service provisions for non-communicable diseases screening in the Medical Officer of Health area Kuruwita

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Background: Non communicable diseases (NCDs) are becoming a global pandemic due to life style and environment changes. Programmes and interventions were introduced globally to combat it. Screening is a major strategy of secondary prevention of NCDs. Assessment of community level coverage of those programmes is essential for planning new interventions based on successfulness of implemented programmes as it reflects both gaps in service delivery and population health literacy.

Objective: To determine the coverage of the service provisions for screening of NCDs in the Medical Officer of Health (MOH) area Kuruwita

Methodology: A descriptive cross sectional study was conducted in 35 to 65 aged cohort living in Kuruwita MOH area. Two stage cluster sampling was implemented to recruit 360 participants. Primary sampling unit was Grama Niladhari divisions and 30 out of 39 were selected by random sampling. Secondary sampling unit included 35 – 65 years aged individuals. Interviewer administered questionnaire that contained socio demographic data and a direct observational check list of available medical documentation were utilized. Analyses was carried out by SPSS software and descriptive statistic was generated.

Results: Of the total population 37.4 % (CI:32.3-39.9) participants had been diagnosed as having one or more NCDs, 26.1 % (CI:21.5-30.66) were never screened and rest were with negative screening results. About 8.4 % (CI:5.51-11.8) had reached health system 5 times but full screening package had been delivered for only 0.06 %(CI:-1.5-1.6). More than half had been screened for hypertension (58.4%, CI:51.7 – 65.0) and diabetes (50.3%, CI: 43.6 -56.9) at least once in their life time. Majority (93.5%, CI:88-98.9) had never undergone a clinical oral examination. Only 27.8% (CI:21.3 – 34.3) of the population received systematic screening while 32.3% (CI: 25.7 – 38.8) had received opportunistic screening.

Conclusion and recommendations: NCD screening vary from the highest coverage of 58.4% (CI: 51.8-65.0) for hypertension and lowest of 6.5% (CI: 1.0-11.9) for oral malignancies. NCD screening programme should be modified with new strategies to capture remaining one-fourth of the population and opportunistic/systematic single package should be introduced.

Key words: *screening, coverage, non communicable diseases*

PP 49

Socio-demographic, clinical characteristics and the status of blood pressure control among hypertensive patients attending the medical clinic of a primary care level hospital in Sri Lanka

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Background: Hypertension is an important public health problem worldwide. It is a major risk factor for cardiovascular disease, chronic kidney disease, stroke and premature death. Studies have found that up to two thirds of hypertensive patients do not have blood pressure under control.

Aims: To assess the socio-demographic, clinical characteristics and the status of blood pressure control among hypertensive patients attending the medical clinic at Type C Divisional Hospital, Ganthuna, Sri Lanka.

Methods: A descriptive cross-sectional study was conducted during a period of one month among 173 hypertensive patients. Non-probability purposive sampling method was used to ensure adequate sample size. Interviewer administered questionnaire was used to collect data on socio-demographic characteristics, disease related characteristics and treatment related characteristics. Weight, height and blood pressure were measured using standard methods.

Results: Mean age (SD) of the participants was 64 (10.7) years and majority (73.4%, n=127) of were female. Fifty six percent (n=98) were overweight (25%, n=44) or obese (31%, n=54). Majority (83%, n=143) of the participants did not have adequate physical exercise. Furthermore, around one third of hypertensive patients (29%, n=50) were not aware of adverse effects of high salt intake on blood pressure. Seventy-seven percent (n=133) of were diagnosed with dyslipidemia, while 16.8% (n=29) were diabetic. Although majority (85.5%, n=148) had attended to the follow-up clinic continuously during the last three months and 79.8% (n=138) of them had taken their last hypertensive medication dose at the time of data collection and poor blood pressure control was observed among 22% (n=38) hypertensive patients.

Conclusion and recommendations: The prevalence of modifiable risk factors for hypertension is considerably high in this group and there is a clear need of further improvement in blood pressure control. It is recommended that educational programmes on prevention and control of modifiable risk factors for hypertension be conducted.

Key words: *clinical characteristics, hypertensive patients, medical clinic, primary care level, Sri Lanka*

PP 50

Knowledge, attitudes and associated factors on immunization among mothers of children under five years of age in Pita-Kotte medical officer of health area

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Background: Immunization is considered as the most cost-effective public health intervention. The success of the immunization program for children is determined by the knowledge, attitudes and practices of the parents or caregiver.

Objective: To describe the knowledge, attitudes and associated factors on immunization among mothers of children under five-years in Pitakotte Medical Officer of Health (MOH) area.

Methods: A community-based descriptive cross-sectional study in Pitakotte MOH area using a multi stage cluster sampling among 120 mothers with a child under five years, using an interviewer administered questionnaire. Mother's knowledge regarding five major aspects were assessed: vaccine preventable diseases; Extended Program of Immunization (EPI) vaccines; timely vaccination of children; contraindications and adverse events following immunization (AEFI). Attitudes regarding immunization were assessed under four areas: importance of immunization; AEFI; government vs. private-sector immunization and vaccine experience of the child. Descriptive statistics were used to describe the study population, knowledge score and frequencies and percentages were used to summarize data on attitude.

Results: response rate 95% (n=114). Mean age of mothers was 30.82 (SD=6.07) years. Majority of participants (88.6%, n=101) have obtained vaccines for their children from the government sector. More than 50% of women obtained ≥50% marks for knowledge on vaccine preventable diseases, timeliness of vaccines and AEFI. knowledge on EPI vaccines and contraindications for vaccination more than 50% of mothers got <40% marks. Majority thought that getting immunization through vaccination was safer than by acquiring the disease (78%, n=89) and immunization should be legally mandatory (88%, n=100). In spite of the hardships faced by the children during vaccination 96.5% (n=110) of mothers thought vaccination was justifiable. Only 9% utilized private sector immunization and more than 85% (n=97) thought government sector as the safer sector to get immunized. Mother's education level, family income and number of children were significantly associated with the overall knowledge of mothers (p<0.05).

Conclusions and recommendations: Mothers had satisfactory knowledge on many aspects of immunization and majority of mothers had favorable attitudes towards immunization. Knowledge on EPI vaccines and contraindications was poor and public health staff should pay more attention to educate mothers on these aspects.

Key words: *immunization, knowledge, attitudes, vaccine, vaccination, mothers, EPI, AEFI*

PP 51

Jadelle® - Levonorgestrel contraceptive implants: A study on reasons for removal in an urban district in Sri Lanka

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Background: Jadelle® - reversible, long term, hormonal contraceptive implants are being used in Sri Lankan family planning program for more than a decade. Although it is intended for a period of 05 years, users discontinue it at various periods of time for different reasons.

Objectives: To evaluate the reasons for removal of contraceptive implant - Jadelle® and the duration of use.

Methods: A descriptive cross-sectional study was conducted. Data were collected from all females attended seeking removal of Jadelle® to family planning clinic at Teaching Hospital, Mahamodara and field family planning clinics at Medical Officer of Health (MOH) areas of Municipal Council-Galle and Gonapinuwala. Data collection was done from February 2018 to February 2019 using an interviewer-administered questionnaire. Data analysis was done using SPSS ver.21.

Results: Response rate was 98.9% (n=392). Mean duration of using Jadelle® (SD) was 4.08 (1.48) years. Majority (56.6%, n=222) of the participants have used Jadelle for the intended period of time, i.e. 05 years. However, 38.8% (n=152) of the participants have removed Jadelle® before 05 years and 12.5% (n=49) within the first year of insertion. A few (4.6%, n=18) had kept it beyond the fifth year without removing. The reasons for removal of Jadelle® are completion of the intended time period (42.1%, n=165), expecting a child (35.2%, n=138), menstrual irregularities (5.9%, n=23), myths (14.0%, n=55) and other reasons (2.8%, n=11). The main reason for removal of Jadelle® within first year of insertion is myths (59.2%, n=29).

Conclusions & recommendations: Clients come to family planning clinics should be well counselled in order to minimize the wastage of resources, both human and physical, associated with early discontinuation of Jadelle®. Short term hormonal contraceptive implants should be made readily available at the family planning clinics to be used when needed.

Key words: *Jadelle®, hormonal contraceptive, levonorgestrel implants*

PP 52

Pattern and life-time prevalence of reproductive health problems among the women of reproductive age attending outpatient department of Provincial General Hospital Rathnapura, Sri Lanka

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Background: Reproductive health plays a major role in human life. A woman has to experience three stages of human reproductive health events starting from menarche, pregnancy and menopause. Hence women can face several reproductive health issues in their life-time.

Objectives: To describe the life-time reproductive health issues of women who attended the outpatient department (OPD) of the Provincial General Hospital (PGH) Rathnapura.

Methods: A descriptive cross-sectional study was conducted at OPD of PGH Rathnapura in March 2017. A total of 425 females were selected by convenient sampling while they were waiting for their appointments. Information was gathered using a self-administrated questionnaire.

Results: The age distribution of the participants varied from 18 to 50 years and mean age was 37 years. Most of the participants (56%, n=238) had attained menarche at 12 and 13 years of age and 31.8% (n=135) at a later age. Majority of participants (75.1%, n=319) had regular menstrual cycles. A majority (88.5%, n=376) were married and 83.8% (n=356) of them had pregnancy and of them 32.6% (n=116)   had their first pregnancy before the age of 20 years. A majority (61.8%, n=220) became pregnant between 20 to 30 years. Of the participants 56.5% (n= 240) had experienced at least one reproductive health issue during their life-time. They were categorized as follows; Menstrual disorders 39.8% (n=169), Family planning problems 9.2% (n=39), Pregnancy associated complications 8.5% (n=36), Subfertility 2.8% (n=12), Premenopausal issues 2.1% (n=9), Sexually transmitted diseases 1.9% (n=8), and others 1.9% (n=8).

Conclusions & recommendations: Majority of women in the reproductive age group who visited OPD of PGH Rathnapura were suffering from one or more of the reproductive health problems. Therefore, it is important to conduct health education sessions at the OPD to create awareness among the OPD attendees.

Key words: *reproductive health problems, outpatient department, Rathnapura*

PP 53

Study on knowledge and practices of paracetamol administration on children for fever control at domestic level among parents of children who were admitted to paediatric ward and attending paediatric clinic at Teaching Hospital Kurunegala

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Background: Paracetamol is a commonly used analgesic and antipyretic medication and it can be safely administered in the paediatric age group. Paracetamol is freely available as an over the counter medication. Parents are frequently administrating paracetamol to their children without medical advice.

Objectives: To describe the usage, knowledge and practices on fever controlling by using paracetamol at domestic level among parents of children who were admitted to paediatric ward and attending paediatric clinic at Teaching Hospital Kurunegala

Methods: A Descriptive cross-sectional study was conducted among 408 care givers of the children presented to Teaching Hospital Kurunegala from June 2016 to November 2016. All children between 1year and 14 years of age who presented to paediatric clinic and ward were included in the study. Children who had chronic illnesses were excluded. Systematic random sampling technique was applied, and interviewer administered questionnaire was used as the study instrument. Data were analysed by using SPSS version 25.0. Odds ratio was used to determine associations and 95% confidence interval was applied to determine the statistical significance.

Results: Mean age (SD) of children was 6.57 years (2.94). Smaller number of participants had a precise knowledge regarding normal body temperature (46.1%, n=188) and 29.4% (n=120) of the participants used the correct paracetamol dose and dose interval. Majority of the participants who use the correct dose follow the correct dose interval (73.3%, n=88). Use of correct dose of Paracetamol was significantly associated with usage of thermometer (OR=1.706, 95% CI=1.108-2.627). Inspection of the thermometer and adjusting to zero before measuring temperature was significantly associated with providing adequate Paracetamol dose (OR=1.655, 95%CI: 1.078-2.548) and following correct time intervals for administration of Paracetamol (OR=1.670, 95%CI: 1.090-2.558). Caregivers less than 40 years of age was significantly associated with administration of Paracetamol at correct time intervals (OR=1.629, 95% CI:1.040-2.557).

Conclusions and recommendations: Measures should be taken to provide clear instructions regarding Paracetamol doses and administration intervals of Paracetamol on the containers of Paracetamol preparations. Domestic clinical thermometer usage should be promoted.

Key Words: *paracetamol, dosage, knowledge*

PP 54

Relationship between maternal Body Mass Index (BMI), pregnancy weight gain and Low Birth Weight (LBW) of newborns, in Welikanda MOH area in the Polonnaruwa district

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Background: Maternal under nutrition and low birth weight deliveries are considerable public health problems in Sri Lanka.

Objectives: To describe the BMI among antenatal mothers at their booking visit and to assess the relationships with maternal BMI, pregnancy weight gain and birth weight

Methods: This retrospective study was conducted in Welikanda MOH area in the Polonnaruwa district by using secondary data of all mothers (451 newborns) who had delivered during 1st January 2016 to 31st December 2016 after completion of 37 weeks of gestation. Data were extracted from the pregnancy register, birth and Immunization register and CHDR B portion by using a data extraction sheet. Data entry and analysis were done through excel software. Results are presented as proportions.

Results: There were 26% Low BMI, 49% of normal BMI and 25% high BMI among antenatal mothers at booking visit. The proportion of delivering normal birth weight babies for low BMI, normal BMI and high BMI mothers who achieved normal pregnancy weight gain were 82%, 92%, and 64% respectively. The proportion of delivering low birth weight babies for low BMI, normal BMI and high BMI mothers who did not achieve normal pregnancy weight gain were 39.5%, 24.8% and 17.5% respectively. Proportion of low birth weight babies among low BMI, normal BMI and High BMI mothers irrespective of their pregnancy weight gain were 30.7%, 17.1% and 14.1% respectively. Mothers who have normal BMI at booking visit were more likely to get normal pregnancy weight gain in their pregnancy (p=0.00024).

Conclusions and Recommendations: Mothers with normal BMI had higher possibility of delivering babies with normal weight irrespective of their pregnancy weight gain. Mothers who achieved the expected weight gain according to their BMI category also had a higher possibility of delivering normal weight babies irrespective of their BMI at the booking visit.

Keywords: *maternal BMI, pregnancy weight gain, low birth weight*

PP 55

IDENTIFICATION OF DYSLEXIA WITHIN PRIMARY SCHOOLS IN WESTERN PROVINCE, SRI LANKA

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Background: Dyslexia is a specific reading disability which could be seen even among highly intelligent people. If not identified early, they might fail in their education and health with secondary emotional, behavioral and social complications. Early identification leads to comprehensive assessment for diagnosis, remediation and accommodation. Primary school teachers are the persons who could identify them in schools. Thus, their readiness is crucial to pick up children with reading disability at early age.

Objectives: To assess the primary school teachers' readiness in identifying children with Dyslexia in schools in view of getting them referred to health services.

Methods: A qualitative research was carried out with primary school teachers in five schools in the Western province. All types of schools were purposefully selected to get a maximum variation sample (Type A, B, and C government schools, a private school and an international school). Focus group discussions were held with eight teachers in one group. A loosely structured questionnaire guided the discussions lasted for one hour each. Content analysis was done with interview transcripts.

Results: Main themes generated were: Lack of self-confidence and helplessness, Lack of focus and responsibility, Poor teacher-parent understanding and Minimal support system. Due to lack of specific knowledge among teachers had led to lack of self confidence in identifying children with possible Dyslexia. Even qualified teachers with special needs education had self-doubt which ended up focusing on either mainstream students or children with obvious physical disabilities, leaving out children with hidden disabilities like Dyslexia. More awareness about Dyslexia was seen among non-government teachers. Due to lack of public awareness, parents and teachers had come to a platform where there was denial, blaming and passing the responsibility to each other. Even though teachers suspect some children need evaluation, there were neither qualified professionals freely available to refer them nor other supportive mechanisms to move forward with these children.

Conclusions and Recommendations: Dyslexia identification in primary schools in the Western Province was not satisfactory. Necessity of; generating public awareness, improving teacher's knowledge, provision of resources to schools, developing health services to diagnose Dyslexia and policy implementations were recommended.

Keywords: *dyslexia, primary schools*

PP 56

Outcome of renal transplant surgeries done at National Institute of Nephrology, Dialysis and Transplantation

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Background: The National Institute of Nephrology, Dialysis and Transplantation (NINDT) was established in 2009 as a National center and tertiary referral hospital for chronic kidney disease, Dialysis and Renal transplantation. At present, NINDT remains the only dedicated renal care hospital in the country dealing with all aspects of renal care, dialysis as well as live and deceased donor renal transplantation.

Objective: To evaluate the overall performance of NINDT as a 'National Center' for renal transplantation and its growth and progress as a unit over the ensuing 9 years since inception.

Methods: A retrospective audit design was adopted and all the patients who have undergone renal transplantation under NINDT transplant program from2010 to 31st of December 2018 were evaluated. The data were extracted from operating theatres, Intensive Care Units, and clinic registers. Data were analyzed with SPSS version 22.

Results: A total of 295 renal transplants were performed over the past 9 years. Of these 215 (72.9%) were males. Mean recipient age was 43 (±13) years. 72.9 % (n=215) were live donors and 27.1% (n=80) were deceased donors. One year survival rate was 80.9% and three year survival rate was 73.5%. Majority of deaths were due to sepsis (54%). One year survival rates among males and females were 76% and 79.2% respectively. There was no statistically significant difference in survival between genders (p=0.58). The one year and three year survival rates among live donor and deceased donor transplants were 78.15% vs 73.75%, with the difference not reaching statistical significance (p= 0.43). The survival rate of younger recipients (<60 years) was 80.5% while that of older recipients (≥60 years) was 52%; (p<0.01). The odds of survival were 3.8 times higher in younger recipients compared to those who were ≥60 yrs. (OR=3.8; 95%CI:1.6-8.9).

Conclusions & Recommendations: The distribution of live versus deceased donor numbers depicts the general trend observed in all units in Sri Lanka, where the deceased donor program remains in a process of evolution. Sepsis remains the main cause of death among transplant recipients and will require close scrutiny to minimize post-transplant sepsis while maintaining the optimal immunosuppression. As expected, younger recipients fared better compared to older counterparts. Future strategies should be focused on promotion of deceased donor renal transplantation and minimizing of post-transplant infections with stricter protocols and close follow up.

Key words: *renal transplant, live, deceased*

PP 57

Patient waiting time in outpatient department of Base Hospitals, Batticaloa District, Sri Lanka

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Background: The Outpatient Department (OPD) of a hospital provides diagnosis and care for patients who do not need to stay overnight. It is the first point of contact between patients and hospital. OPDs is considered as the window to hospital services. The impression about the hospital starts at OPD and therefore, it is essential to give excellent experience to patients at OPD. Patients' waiting time has been defined as "the length of time from when the patient entered the outpatient clinic to the time the patient actually leaves the OPD".

Objectives: To assess the patient waiting time in OPD of all Base Hospitals (BH) in Batticaloa District.

Methods: Hospital based descriptive cross-sectional study was carried out in all four Base Hospitals in Batticaloa District in June 2019. Calculated sample size was 341. A multi-stage stratified cluster sampling technique with probability proportionate to the size of each Base Hospitals. Data were collected using a check list for patients' waiting time. Data were analyzed using descriptive and suitable inferential statistics.

Results: Response rate was 90.9% (n=310). Median waiting time (IQR) for registration was 5.0 minutes (7.0 min) in all Base Hospitals, among them highest was at BH Kaluwanchikudy (7.0±10 minutes) and lowest was in BH Valaichennai (2.0±10.0 minutes). The median waiting time for consultation (IQR) was 11.5 minutes (16.0 min) and it was highest at BH Kaluwanchikudy (18.0±34.0 minutes) and lowest at BH Valaichenai (6.0±12 minutes). Moreover, median consultation time (IQR) was 3.0 minutes (4.0 min) and it was highest at BH Kattankudy (8.0±4.0 minutes) and lowest at BH Valaichennai (2.0±2.0 minutes). The Median waiting time for pharmacy (IQR) was 5.0 minutes (7.0 min) with highest at BH Kattankudy (10.5±6.0 minutes) and lowest at BH Valaichennai (2.0±2.0 minutes). Overall median waiting time at OPD at all Base hospitals (IQR) in Batticaloa district was 29.0 minutes (25.0 min) and it was highest at BH Kaluwanchikudy (35.0±48.0 minutes) and lowest at BH Valaichennai (14.0±15.0 minutes).

Conclusions and Recommendations: Waiting time for stages of OPD treatment is different among Base hospitals. Highest waiting time was for "waiting for consultation". Over the phone registration and appointment system are recommended to reduce waiting time for registration. and waiting time for consultation. It will reduce overall waiting time. Individual hospitals need to improve on waiting time of different stages to reduce overall waiting time.

Key words: *waiting time, outpatient department*

PP 58

Appointment systems in clinics conducted at National Hospital of Sri Lanka

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Background: The National Hospital is the largest and leading government health care provider in the country. More than 3500 patients attend daily for different clinics conducted in the hospital and long waiting time at these clinics was a major problem faced by the hospital. To reduce the patient waiting time and congestion, an appointment system was introduced to the clinics about 4 years ago.

Objectives: To describe the appointment systems in clinics conducted at National Hospital Sri Lanka

Methods: A descriptive cross-sectional study was carried out in May 2017 at all clinics conducted in the hospital. In-depth interviews were carried out with clinic in-charge officers and doctors including consultants regarding availability and type of appointments given in their clinics, advantages they gained with the appointment system and the problems they faced with implementation. Few patients were also interviewed to get their views about the current system. Waiting time calculated by assessing the time spent in the clinic and pharmacy. Secondary data was collected using clinic registration books.

Results: There were 142 clinics conducted during a week in 31 different fields. Out of these 111 clinics (78%) had appointment systems and appointments for the first visits were given in 73 (65%) clinics. Three types of appointments were found in the clinics; date only (12 clinics, 1.8%), date and time (63 clinics, 56.8%), date, time and appointment number (DTN) (36 clinics, 32.4%). Staff patients are given separate appointments in 11 specialty clinics. In medical clinics with DTN appointments longest waiting time was 110minutes with an average of 85minutes. Compared to 3-4hrs of waiting time earlier. Both staff and patients were satisfied with appointment system on reduction of waiting time and congestion. Delay in starting the clinics than the scheduled appointment time was not uncommon, and some patients had still not adhered to the given appointments. Trade union actions and public holidays had great impact on the appointment system.

Conclusions & Recommendations: Introduction of appointment system has helped to reduce waiting time and congestion in clinics and giving appointments with date, time and appointment number is recommended for all clinics.

Key words: *appointment system, waiting time*

PP 59

Role of biopsy and radiological investigations in diagnosis of paediatric solid tumors: a retrospective analysis

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Background: Childhood cancers form a specific entity of tumors which differ markedly in clinical behavior, histology and site of origin. Statistics regarding accurate diagnostic modalities in paediatric solid tumors are minimal in Sri Lanka.

Objective: To evaluate the role of biopsy and radiological investigations in diagnosis of paediatric solid tumors in Lady Ridgeway Hospital (LRH)

Methods: An institutional based retrospective study carried out by extracting data to a proforma from histo-pathological reports and request forms, patient summary records prepared for Multi-disciplinary meetings and cancer registry of LRH from patients presented during the period of 2016 to 2018. Ethical approval was obtained from the Ethics Review Committee of LRH.

Results: Out of 208 patients with solid tumours, preoperative biopsy had been performed in 107(51.4%) while surgical resection as a method of cure was done in 76(36.5%). Resection margins were clear in 49% of the cases while lymph node resection had been performed in 16.7%. According to the final histological diagnosis 40(19.2%) patients were diagnosed with neuroblastoma, 37(17.8%) with nephroblastoma, 23(11%) with hepatoblastoma, 27(12.9%) with lymphoma and 10(4.8%) patients with small blue cell tumours. Majority of the patients had undergone at least one modality of radiological investigation. CT was the most common radiological method used 138(66.3%), while ultrasound scan was used by 106(51%) and MRI by 37(17.8%).

Conclusions and recommendations: Biopsy had been performed in more than half of the population and a majority had undergone radiological evaluation. Preoperative biopsy and radiological evaluation play a major role in overall management of solid tumours. Advancing the findings of this study with prospective information from Maharagama - Apeksha Hospital, including morbidity and mortality data is recommended.

Key words: *solid tumours, preoperative biopsy, radiological investigations*

PP 60

Diagnosing Dengue Haemorrhagic Fever with limited ultrasound scan at the Centre for Clinical Management of Dengue and Dengue Haemorrhagic Fever in Sri Lanka

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Background: Dengue is a major public health problem in Sri Lanka. The 2017 largest dengue epidemic in Sri Lanka, attracted many patients, to District General Hospital Negombo and Centre for Clinical Management of Dengue and Dengue Haemorrhagic Fever (CCMDDHF). National Dengue Guidelines (NDG), applied judiciously, ensured a smooth short recovery with zero mortality. Limited ultrasound scan (USS) was essential to objectively diagnose dengue haemorrhagic fever (DHF). Maintaining pulse pressure (PP) above 30mmHg at all times and urine output (UOP) between 0.5-1ml/kg/hour and avoiding unexplained tachycardia; together with timely interventions to keep the above parameters within those limits, successfully avoided prolonged shock, repeated shock and fluid overload, without exceeding the fluid quota specified in NDG.

Objective: To describe the use of USS in early detection of DHF among patients admitted to CCMDDHF

Methods: An observational study of 400 consecutive serologically confirmed DHF patients treated during their leaking phase at CCMDDHF from January 2017. Routine serial limited USS of chest and abdomen was performed on all patients with platelets less than 150,000 or if patient was in hospital when platelets reached 150,000. Data from Bed Head Tickets (BHT) was entered to an Excel database and descriptive analysis was done using R software.

Results: Indications for 1st USS on admission to CCMDDHF were; platelet count dropping below 150000 towards 100000 and be below (100%), rising packed cell volume (PCV) above baseline 10.8%, clinical suspicion of leaking 7.5%, haemodynamic instability 4.5%, low UOP 3.2%. Out of the study population at 1st USS early leaking was detected in 90%, in contrast to 7.5% detected clinically. Pericholecystic thickening (PCT)/ pericholecystic effusion (PCE) or fluid in Morrison's Pouch (MP) was taken as early leaking and was seen in 90%. Of the patients 10% had gross leaking (pleural effusion >2cm), 74% had fluid only in abdomen and 26% had fluid in abdomen and chest. Repeated serial USS confirmed progressive leaking (gradual fluid accumulation) in all.

Conclusions & recommendations: In DHF, use of routine limited USS is essential to detect DHF early, most would have leaking in abdomen which is not detectable clinically. By the time clinically detectable leaking occurs there will be gross leaking. Non progressing isolated pleural effusion on serial USS warrants further investigation to look for an additional cause (pneumonia, tuberculosis etc.).

Key words: *dengue fever, dengue haemorrhagic fever, ultrasound scan, leaking*

PP-61

Parental attitudes, practices and psychosocial status in preparing their children for the Grade Five Scholarship Examination and its association with children's performance

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Background: The attitudes, practices, and psychosocial status of parents in preparing their children for the grade five scholarship examination have major implications on children's academic performance, extracurricular activities and interpersonal relationships. Implications of above-mentioned factors on children's performance have not been previously researched in Sri Lankan setting.

Objectives: To assess the attitudes, practices and the psychosocial status of parents in preparing their children for the grade five scholarship examination, and its association with children's performance.

Methods: A descriptive cross sectional study was conducted among 107 parents of grade five students in Colombo educational division. Multistage cluster sampling was used. Information regarding socio-demographic factors, parental psychosocial factors, parental practices and performance of children (academic, extracurricular performance and interpersonal relationships) were obtained. Chi-square test was used to assess association between parental and child factors.

Results: Majority of parents were in the low socioeconomic class (n = 17,100%) were with better practices in parenting their children for the grade five scholarship examination (p<0.05). All parents with poor parental practices (n=14, 100%) were having children who performed well in extracurricular activities (p<0.05). Practices in parents of 95.6% students (n=43) attending primary only schools with regard to preparing them for the scholarship examination were found to be satisfactory (p<0.05).

Conclusions and Recommendations: Primary only schools have created an environment for good parental practices. Low parental socioeconomic status has positively influenced good parenting with regard to the scholarship examination. However, the categorization of schools in current Sri Lankan setting has had an impact on parental practices. We recommend to further this study on a larger scale in order to make alterations to the existing examination for the benefit of the students as well as for their parents.

Key words: *psychosocial status, parental practices, grade five scholarship examination*

PP 62

The sociodemographic characteristics, types of violence and health seeking behaviour of the clients attending Mithuru Piyasa centre in General Hospital Kegalle, Sri Lanka over one and half years.

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Background: Gender based violence is prevalent globally. It occurs in many forms and is a significant risk factor for poor health impacting on individual's physical, sexual and psychological health, as well as their socio economic well-being. Mithuru Piyasa Centers are established in hospitals to provide support to victims of gender based violence.

Objectives: To describe sociodemographic characteristics of the study population. To assess type of violence occurring and their consequences. To investigate the reason for attending and the services provided by the centre.

Method: A record-based descriptive cross-sectional survey was carried out at General Hospital Kegalle, among all the attendees (n=378) to Mithuru Piyasa centre, from January 2017 to June 2018, using past confidential records to fill the questionnaire. Age, gender, socio economic characteristics and health seeking behaviour were described using descriptive statistical methods. The type of violence and consequences were assessed. Non-parametric tests were applied to find out significant associations.

Results: The total study population was 378. Majority were female 87.6%(n=331). The young/reproductive age group was the most vulnerable category in both genders (Female 74.3%, n=246, Male 68.1%, n=32). More male clients (80.9%, n=38) were employed than female (32.6%, n=108) (p<0.001). Self-referral was the most common method of referral in both genders (Female 46%, n=152, Male 55%, n=26). Major proportion of both genders belonged to the married category (Female 94.6%, n=313, Male 95.7%, n=45). One third of study population of both genders had suffered for years before they attended. (Males 36.2%, n=17 and Females 35%, n=116). Majority had suffered for months (Males 51.1%, n=24 and Females 38.1%, n=126)). Emotional violence was the highest violence experienced by both genders (Female 86.2%, n=285, Male 89.3%, n=42). Presence of physical and economical violence were higher in female gender when compared to males (p<0.001). Rape was the most experienced sexual violence by female gender (10.2%, n=34). Majority of both genders got emotional consequences (61.7%, n=29 males and 61.6%, n=204 females). Physical consequences were more with the females (30.8%, n=102) than the males (14.3%, n=7). Suicidal tendency was more with the female gender ((17.8%, n=59 in females and 4.3%, n=2 in males). Only 11.8% (n=39) females were pregnant at the time of violence. Majority communicate only with immediate family members and friends in both genders (females 60%, n=200 males 59.5%, n=28). Most of the time relationship of the perpetrator to the client was wife (87.2%, n=41), or husband (70.9%, n=235). Domestic violence was the major reason for attending Mithuru Piyasa by female clients (60.1%, n=199) (male clients.38.3%, n=18). Only 39% (n=129) of the perpetrators of the female clients had taken alcohol at the time of violence, but 51.7%, (n=102) females had faced

physical violence by perpetrators under the influence of alcohol. 3% (n=10) females had very high risk and 4.8% (n=16) had high risk for their lives. Only one third of the study population of both genders (38.2%, n=18 males and 36.2%, n=120 females) had a willingness to go to the police. From the 7.8% (n=26) of the female population who had very high to high risk for their lives, only 61.5% (n=16) of them had gone to the police. 19.2% (n=5) were willing to go to police while another 19.2% (n=5) were not willing to go to police. Only females (6%, n=20) needed legal aid referral. Social service (female 6.5%, n=23, male 2.1%, n=1) and police (female 4.5%, n=15, male 2.1%, n=1) referrals were needed by more females than males. Staff had discussions with the perpetrators of 51% (n=24) of male clients but only 33.8% (n=112) of female clients.

Conclusions and Recommendations: More unemployed females in reproductive age were vulnerable for domestic violence by spouse. They mostly suffered by emotional consequences and some had suicidal tendencies. Majority communicated only with the family members and friends and accepted external support only after long suffering. Some of them were not willing to have police support even they had high risk for their lives. This indicates need of easy access service centres other than the police and short term safe houses to reduce suicides and other consequences for females.

Key words: *gender base violence, risk for life, female gender, Mithuru Piyasa*

PP 63

Reaction towards a social media profile with 'manifestations of depression' in terms of suicide risk: a study among Sri Lankan facebook users

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Background: Behaviour on Social Networking Systems are being used to develop methods to predict suicide and depression. Response of the social media users towards such indicators (manifestations of depression) can be utilized to empower them for early recognition and suicide prevention.

Objectives: To describe the response of Sri Lankan Facebook users towards possible suicide risk of a peer with online manifestations of depression

Methods: Participants were given an online, self-administered, interactive questionnaire with a case vignette of a friend (Z) that included a video of Z's Facebook profile with manifestations of depression. Those who decided to contact Z were serially given information through chat histories that fulfils ICD-10 criteria for severe depression and were questioned about asking for suicidal thoughts. Those departed from the storyline were given the same information as 'through a friend'. All participants were asked whether they suspected suicide, and would they take steps to prevent despite reducing freedom.

Results: Study sample(n=208) included 116 females (55.8%). The mean age was 26.03 years (range 16–57). A personal history of depression was found in 11.1% (n=23) while 50.5% (n=105) knew a person with depression. Out of the 152 (73.1%, p<0.001) who continued to contact Z; 116(76.3%, p<0.001) suspected suicide, 111 (73.0%, p<0.001) would take preventive steps but only 15 (9.9%, p<0.001) would ask about suicide. Everybody who asked had suspected and 10(66.7%, p=0.197) of them were willing to take steps in prevention. Of the 137 who wouldn't ask about suicide, 101(73.7%, p<0.001) still suspected and 76 (75.2%, p<0.0001) would take preventive steps. From the 35 who didn't suspect the possibility of suicide, 25(71.4%, p<0.001) would act in prevention. From the 56 who didn't continue to contact Z, 30 (53.5%, p=0.593) didn't suspect suicide, but 38 (67.9%, p=0.001) were willing to take steps. Only 21(37.5%) both suspected and were willing to take steps in prevention.

Conclusions & recommendations: A significant number in both general population and those who engaged would suspect and are willing to take steps to prevent suicide. However, there is a deficiency in enquiring about suicide. Empowering the social media users on recognizing social media manifestations of depression, importance and means of approaching towards suicide risk will contribute to suicide prevention.

Key words: *suicide, depression, social media, social networking systems*

PP 64

Mindfulness based stress reduction among nursing officers in Base Hospital, Horana

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Background: Stress affects all compartments of health including physical, mental, social and spiritual health of a person. It is evident that stress is more prevalent among health care workers. Stress of the healthcare workers could lead to a provision of sub optimal service for the patients. In addition, safety of patient care would be affected. Nursing officers are an important category of the health care team suffering from stress in daily activities.

Objectives: To implement a "Mindfulness Base Stress Reduction" intervention for nursing officers at base hospital Horana and to assess its effectiveness

Methodology: A quasi- experimental study was conducted to reduce stress and perception of stress among nursing officers in the Base Hospital, Horana. Baseline stress level was assessed by Expanded Nursing Stress Scale (ENSS) and Depression, Anxiety and Stress (DAS) scale. Then a six week mindfulness based stress reduction (MBSR) package was implemented for participated nursing officers. MBSR is considered to be a short term stress reduction strategy. Similar to the baseline assessment, effectiveness of the MBSR package was assessed following the implementation. At the pre-intervention as well as at the post intervention, information ascertained by a self-administered questionnaire. Ethical clearance was obtained from Ethics Review Committee of University of Colombo.

Results: Forty three nursing officers as intervention group and 47 nursing officers as non-intervention group participated the study. Intervention successfully completed with 16% drop out rate. Majority (57.4%) of nurses in the non-intervention group were between 40 to 60 years of age while majority (53.5%) of nurses in interventional group were between ages of 20 to 40 years. However, this difference is not significant (P = 0.1506). Some of the variables (21) in ENSS were shown association with MBSR intervention. There is an improvement of perception of stress after the intervention.

Conclusions and Recommendations: Results of prospective randomized control study show benefits of MBSR intervention to reduce perception of stress among nursing officers. This can be implemented to other hospitals as it is a non invasive, cost effective programme. Further studies are also suggested to explore more evidence about MBSR intervention.

Key words: *stress, mindfulness based stress reduction, Expanded Nursing Scale*

PP 65

Assessing knowledge, attitude and usage patterns of skin lightening products among female trainees of National Vocational Training Institute, Colombo

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Background: Skin lightening products usage is very popular worldwide, especially in Asian countries. Many consumers are unaware about the health risks of skin lightening products globally.

Objectives: To assess knowledge, attitude and patterns of usage of skin lightening products among female trainees of National Vocational Training Institute, Colombo 8.

Methods: Cross sectional descriptive study was conducted in National Vocational Training Institute, Colombo. Sample was limited to 150 due to logistic reasons. Simple random sampling was used to select female trainees who were present on the day of data collection using attendance register of the day as sampling frame. Each eligible trainee was given a serial number accordingly and final sample was selected by a computer based random sampling table. A pre tested self-administered questionnaire was used. Descriptive statistics were used to describe the findings. Ethical clearance was obtained from Ethics Review Committee of Faculty of Medicine, University of Colombo.

Results: Overall 76%(n=114) of participants had a satisfactory level of knowledge on skin lightening products. Skin lightening products usage was 71.3% (n=107). Most popular formulary was creams (87.9%, n=94). Majority (52.3%, n=56) used skin lightening products once a day. Among participants who used skin lightening products, 46.8%(n=44) used creams for face and neck. a little more than half (53.3%, n=57) had made the decision to use skin lightening products by themselves. Safety profile was the most concerned factor when purchasing (68.2%, n=73). Reading and following instructions of the label was practiced by majority (77.6%, n=83). Meanwhile, 77.4% (n=80) had quit at least one skin lightening product. Among all participants, 56% (n=84) had a positive perception about having a lighter skin tone.

Conclusions & recommendations: Major proportion of sample respondents was using skin lightening products. Majority had an overall satisfactory knowledge on skin lightening products. Having a lighter skin tone was considered as a positive fact by the majority. Further studies should be planned to assess the safety levels of skin lightening products.

Key words: *skin lightening products, trainees, lighter skin tone*

POSTER SESSION 14: HEALTH MANPOWER

PP 66

A cross sectional study on knowledge, attitude and practices among medical officers on screening for Tuberculosis in selected hospitals in Kalutara district.

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Background: In Sri Lanka 6000 new cases of Tuberculosis (TB) are reported annually. Underutilization of Microscopic Centres (MC), poor contact tracing and inadequate detection of new cases have been identified as major weaknesses of the TB control program Sri Lanka.

Objectives: To assess the knowledge, attitude and practices among Medical Officers (MO) on screening for TB in selected hospitals in Kalutara district

Methods: Descriptive cross-sectional study, carried out from January-March 2017, among all the MOs (n=202) in selected hospitals on screening for TB collected using a pretested, self-administered questionnaire. Practices were assessed using clinical vignettes (case scenarios elaborating natural cases). The cut-off value for satisfactory knowledge score was 68%, favourable attitudes score was 36.1 and the score for practices was 66.7%.

Results: Majority of MOs (86.9%, n=147) had satisfactory knowledge and favourable attitudes (87%, n=147) on screening for TB. However, half of them (50.9 %, n=90) had unfavourable attitudes towards referring patients with more than 2 weeks of cough and 39.2% (n=68) on performing CXR on suspected pulmonary TB (PTB). Among the MO, 63.3% (n=107) had unsatisfactory practices towards screening TB, 60 %-79% (n=104-134) treated PTB suspects with bronchodilators and antibiotics.

Conclusions and Recommendations: Overall knowledge and attitudes were satisfactory among MOs but half of MOs have poor attitudes on referring TB suspects. Majority of MOs had unsatisfactory of practices towards screening of TB. Compulsory In-service training programs are recommended for OPD doctors to train at national Program for Tuberculosis and Chest Diseases (NPTCCD) before taking up duties. Identifications of different case presentations should be incorporated at training schedules.

Key words: *knowledge, attitudes, practices, tuberculosis, screening*

PP 67

Traditional nursing uniform: Sri Lankan nurses' perspectives

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Background: Uniform could indicate a sense of professionalism, responsibility and allow the public for immediate identification. Worldwide, the traditional nursing uniform has been changed drastically to a smart uniform according to nurses' needs. But, unfortunately, the traditional uniform is remaining in Sri Lanka which consisting the gown, apron, cap and belt.

Objectives: To review the current perception among Sri Lankan nurses towards changing the uniform.

Methods: A quantitative descriptive design was used in this study. A self- administered questionnaire was distributed among randomly selected 2233 female nurses from all the General and Teaching hospitals in Sri Lanka. Prior to data collection, ethical approval was obtained from Ethics Review Committee of National Hospital of Sri Lanka and informed consent was taken from each voluntary participant. Data analysis was done using SPSS version 20.

Results: Majority of nurses (88%) believed that the uniform build-up the trust between the nurse and client while, 35% thought the uniform keeps them away from fashions and makes them loyalty to the management (30%). Results had emphasized, 44.1% nurses preferred for current uniform without changes while 43.4% liked scrub with cap as the future uniform. However, 60.5%, agreed to have two uniforms for work and for presentation. Among those who preferred for a new uniform, 89% had foreign exposure. Further, shoes (72%), frock (46%) and cap (38%) were comfortable, but the apron (55%), collar (54%) and belt (35%) were uncomfortable for nurses within the current uniform. Further, regarding future uniform, 62% preferred for blue color, including the cap (85.9%), frock (56.2%), apron (56.6%), collar (51.2%), belt (56.5%), shoes (89.1%) and badge & watch (90.4%). Moreover, 56.4% agreed the future uniform not needed to show the seniority while 51.8% thought a special dress is not required for pediatric wards.

Conclusions and Recommendations: Study finding revealed that nurses are willing to not only for the traditional uniform but also for a modern uniform equally. This indicates that, nurses are in a transitional stage between the traditional and modern uniform. Therefore, it is recommended to conduct future studies to identify changing needs of the Sri Lankan nurses' uniform.

Key words: *traditional nursing uniform, Sri Lankan nurses, modern uniform*

PP 68

The knowledge and attitude on pain management and their associated factors among nursing students at School of Nursing, Vavuniya

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Introduction: Pain control in patients is important as untreated pain, impede their response to treatments and negatively affect their quality of life. Optimal pain management requires adequate knowledge, positive attitudes and the use of competent pain assessment measures. Nurses are key players and have an essential role in the management of pain. Applying nursing roles require that nursing students attain an adequate knowledge towards pain, its management and positive attitudes on it.

Objectives: To assess the knowledge and attitudes on pain management and their associated factors among nursing students in School of Nursing, Vavuniya.

Methods: A descriptive cross sectional study with a purposive sample of 140 second and third year nursing students who are exposed to more clinical work among three academic years at School of Nursing, Vavuniya, was conducted using a pre tested self-administered questionnaire that included the modified Ferrell and Mc Callery's (2012) Knowledge and Attitude Survey Regarding the pain (KASRP). "Good" knowledge and attitude was considered in those having a score of more than 75 % while 51 % to 74% were considered as "Fair". Data were described using descriptive statistics and associations were assessed using the Mann Whitney U test. Significance was set as $p < 0.05$. Ethical clearance was obtained from Rajarata University of Si Lanka.

Results: Response rate was 97% (n=140). The majority belonged to age group 23-25 (80.0%, n=112). The mean age was 23.7 (SD=1.10). Majority of nursing students were female (96%, n= 135), Sinhalese (76%, n=107) and Buddhist (70%, n=98). Most had "poor" knowledge on pain management (70%, n=98) and had "fair" attitudes (70%, n=98). "Good" attitudes were reported by 7% (n=10). The year of study and additional study of reference materials were significantly related with both knowledge and attitudes of pain management ($p < 0.01$).

Conclusions and Recommendations: The overall knowledge among nursing students on pain management was "poor" and the majority of had fair attitudes on pain management. Pain management education need to be strengthened and positive attitudes should be cultivated through curricular reforms in nursing education.

Key words: *pain management, knowledge, attitudes*

PP 69

Knowledge and attitudes of healthcare workers at a selected hospital in Western Province regarding service provision to visually disabled patients

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Background: Patients with visual impairment need to access the healthcare system and use medicines just like others. However, the difficulties and barriers they face in this process are poorly recognized and no studies have been done in Sri Lanka to assess the knowledge and attitudes of healthcare workers regarding service provision to these patients.

Objectives: To determine the gaps in knowledge and attitudes of healthcare workers regarding service provision to visually disabled patients and to assess effectiveness of a capacity building in-service training workshop

Methods: A workshop was conducted at National Hospital, Sri Lanka, for 82 participants including doctors, nurses, pharmacists and physiotherapists, selected by purposive sampling. A pretest and a post-test were conducted using a self-administered questionnaire. Analysis of these were done to assess the baseline knowledge and attitudes of the participants and the level of improvement at the end of the workshop. SPSS (version 20) was used to analyze data.

Results: Majority (79.2%) of participants have managed patients with visual impairment and 53.2% had difficulty communicating with them, 42.9% had difficulty making them understand instructions, 77.9% had needed more time to manage them and 36.4% felt less confident in managing them. There were many knowledge gaps in the participants on service provision and effective methods of communicating health information to vision impaired patients as determined by the pretest. They reduced significantly following the training workshop as determined by the post-test analysis ($p < 0.05$).

Conclusions and Recommendations: Attitude and knowledge gaps were identified among health care workers on service provision to visually impaired patients, emphasizing the need for further research and in-service capacity building programs.

Keywords: *visually disabled patients, disability, blind*

PP 70

Knowledge and practices of regulations for food (color coding for sugar levels) 2016 among food handlers in National Institute of Health Science field practice area

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Background: The manufacture of carbonated and fruit containing sugary drinks has increased recently. There is a trend to drink sugar sweetened drinks to quench the thirst instead of drinking potable water due to media advertisements and promotions, peer pressure and current social attitudes. To monitor and regulate the excessive consumption of sugar, the Ministry of Health Sri Lanka under the section 32 of the food Act number 26 of 1980 has issued the Food Regulation 2016 on 03rd May 2016 under extraordinary gazette notification No.1965/18. The Medical Officer of Health, Public Health Inspector and Food and Drugs Inspector are authorized officers to implement it and make the community aware on the above regulations.

Objectives: To assess the knowledge and practices of the consumers in NIHS Field practice area regarding the food Regulation 2016 and to assess the conformity of the labels of carbonated and fruit drinks sold in NIHS area to the above regulation

Methods: A cross sectional study was done among 426 consumers above 12 years of age, selected randomly using multistage cluster sampling technique from selected PHI areas. The sampling frame for the available carbonated and fruit drinks in the study area was prepared by the principal investigator after visiting a sample of food establishments in the study area selected through multistage cluster sampling. The labels were assessed with a checklist prepared by a group of experts. The sugar levels of the drinks were assessed by biochemical testing.

Results: All labels had at least one violation. There is a good correlation of the sugar levels stated in the label with the sugar levels assessed biochemically. in 44.4% of labels the diameter of the color circle was less than 1cm. Artificial sweeteners (E-950, E-951, E-955) have been added to the carbonated or fruit drinks in which the label mentioned "contains less sugar" or "zero sugar". The knowledge of 75% consumers (out of 273) is unsatisfactory (less than 40% of total marks).

Conclusions and Recommendation: The consumer's knowledge of the Food Regulation 2016 was poor and there are areas of non-conformity of the labels to the above regulation in some aspects.

Key words: *food regulations, sugary drinks, carbonated drinks, consumer knowledge,*

PP 71

Pathogens isolated in relation to chest x-ray findings in community acquired pneumonia (CAP) in children

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Background: Community acquired pneumonia (CAP) is a significant cause of mortality and morbidity in young children worldwide. The chest x-ray (CXR) is widely used as an aid in diagnosis however, its value in aetiological diagnosis is debatable.

Objectives: To describe the distribution of pathogens in relation to CXR findings in CAP in children

Methods: A descriptive cross-sectional study was carried out including 123 children, 3 months to 14 years of age admitted to two teaching hospitals with a clinical diagnosis of CAP according to British Thoracic Society guidelines. Nasopharyngeal samples were collected from all patients and analyzed using multiplex real time PCR assay detecting seventeen respiratory viruses and five bacteria. CXRs were blindly reported by a radiologist and categorized into 3 groups according to the WHO classification 1) Primary end-point consolidation/pleural effusion 2) Other consolidation/infiltrate 3) No consolidation/infiltrate/effusion. Institutional ethical clearance and parental consent were obtained. The statistical analysis was done using SPSS 22.0 version.

Results: Out of 123 participants 107 CXRs were reported. The mean age was 41.5 months and female to male ratio was 1.3:1. The three CXR groups had 39.3%, 49.5% and 11.2% (n=107) children respectively. The most frequently detected viruses by PCR assay in group 1, 2 and 3 were rhinovirus, respiratory syncytial virus (RSV) and influenza-A virus respectively. Group 3 had statistically significant difference in Influenza-A virus positivity compared to group 1 (p=0.017) and group 2 (p=0.004). Group 2 had a statistically significant increase in RSV detection compared to group 1 (p=0.033). The total viral, bacterial, and mixed infections or the rest of the individual viral and bacterial causes showed no statistically significant association with the CXR findings (p≥0.05).

Conclusions and Recommendations: CXR findings show a significant association with Influenza A and RSV infections but no value in differentiating between viral, bacterial and co-infection in this preliminary study. Studying a larger population will provide a better picture on the impact of CXR findings in defining paediatric CAP.

Key words: *chest x-ray, paediatric community acquired pneumonia, PCR, bacterial pneumonia, viral pneumonia*

PP 72

WHOLE EXOME SEQUENCING IN PRE-CONCEPTION CARRIER SCREENING OF SRI LANKAN POPULATION

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Background: Genetic diseases are an important cause for morbidity and mortality in all ages, especially in childhood. Individually these diseases are rare but as a group their frequency is significant. Being an Island with a small geographical area, prevalence of autosomal recessive diseases is expected to be high in Sri Lanka due to a higher incidence of inter-ethnic and consanguineous marriages. An effective pre-conception carrier screening method contributes to higher detection of at-risk couples, facilitates informed reproductive decision making and reduces the long-term care cost for families as well as the health care system.

Objectives: To determine the rate of clinically significant homozygous variants by whole exome sequencing in a cohort of children suspected of autosomal recessive disorders presented to human genetics unit, Faculty of Medicine, University of Colombo.

Method: 30 patients with/without consanguineous parents clinically suspected of autosomal recessive disorders were retrospectively analyzed from an anonymized database. On these patients, genomic DNA were previously extracted, and next generation sequencing was performed on Illumina HiSeq platform. Analysis was done on data which passed through an in-house bioinformatics pipeline. Validation results of parents for the detected variants carried out with sanger sequencing were also analyzed.

Results: 11 out of 12 patients (91.6%) with consanguineous parents and 10 out of 18 patients (55.5%) with non-consanguineous parents were detected with homozygous variants for autosomal recessive disorders which align with the phenotypic details of the patients. Validation results proved that parents of patients were carriers for the diseases.

Conclusion and Recommendations: Our study shows that whole exome sequencing improves detection of clinically significant homozygous variants in patients with autosomal recessive diseases. Hence it is of importance to continue pre-conception carrier screening in consanguineous couples on a large scale to prevent these diseases. The study also reveals that autosomal recessive diseases exist even in the sub set of patients with non-consanguineous parents at a significant rate, therefore, it may be of benefit if the screening is extended to all couples regardless of consanguinity in Sri Lankan population.

Key words: *pre-conception carrier screening, whole exome sequencing, autosomal recessive diseases, homozygous variants*

PP 73

ANALYSIS OF SPECIFIC ANTIBODIES IN PATIENT BLOOD SAMPLES OF COLOMBO NORTH TEACHING HOSPITAL BLOOD BANK

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Background: Blood compatibility assessment between patient and donor is important before transfusion of any blood component to prevent incompatible transfusions and life-threatening post transfusion reactions. Identification of common potentially harmful antibodies in patient plasma facilitates the supply of compatible blood for transfusions.

Objectives: To assess the demographic data and prevalence of autoantibodies and alloantibodies in patients and to determine the action taken after detection of the antibodies

Methods: An institution-based descriptive cross-sectional survey was carried out at Regional blood bank of Colombo North Teaching Hospital, from May 2018 to April 2019. Altogether 92 patient samples with initial positive antibody screening and sent for further assessment at reference laboratory, National blood centre, Narahenpita were evaluated. Sample sending register and blood bank copies of reports were used as the data collection tools.

Results: Majority of samples were of females and it was 76 (79%). Clinically significant antibodies were detected in 78 (81%) patients and out of them antibody with highest prevalence was Rh antibodies 27 (28%). Lewis antibodies detected in 25 (26%) and autoantibodies detected in 13 (13%) samples. Majority of samples were from gynecology & obstetrics units 43(45%), out of them 36 (83%) had clinically significant antibodies with Rh antibodies detected in 15 & Lewis antibodies in 17 patients. Medical units had sent 23 (24%) samples and of which clinically significant antibodies detected in 17 (74%) samples. In post antibody detection, nearly for half of samples (53%) pre-warm compatible blood were given and for 39 (41%) samples antigen negative blood were given.

Conclusions and Recommendations: Antenatal blood grouping & antibody screening at booking visit and follow up need to be strengthened. Health education regarding Rh sensitization & antenatal prophylaxis need to be arranged for both clinical staff and patients.

Keywords: *autoantibodies, alloantibodies, Rh antibodies, patient's blood*

PP 74

Spectrum of bacterial pathogens causing skin and soft tissue infections and their antibiotic susceptibilities in cancer patients at Apeksha hospital, Maharagama

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Background: Skin and soft tissue infections (SSTIs) in patients with malignancies are common and frequently have serious consequences. These infections are caused by a wide range of microorganisms with variable anti-microbial susceptibilities. Knowing the bacterial pathogen spectrum and their susceptibility pattern helps in proper empirical therapy.

Objectives: To analyse the spectrum of bacterial pathogens associated with skin and soft tissue infections and their antibiotic susceptibility pattern in cancer patients at Apeksha Hospital

Methods: A descriptive cross-sectional study was carried out for an 18-month period from September 2016 to March 2018. Specimens of pus, swabs or tissue received from adult cancer patients admitted to Apeksha Hospital, Maharagama with SSTIs were analysed. Routine aerobic culture and anaerobic culture using anaerobic gas packs in an anaerobic jar were performed. Isolated organisms were identified up to the species level by biochemical tests and antibiotic susceptibility testing was performed by disc diffusion method according to CLSI 2012.

Results: A total of 80 aerobic bacterial isolates were obtained from 85 patients with SSTIs and there were no strict anaerobes. *Staphylococcus aureus* was the commonest (27.5%, n=22) bacterial species and 60% (n=13) were methicillin resistant (MRSA). None had resistance to anti-MRSA agents. Out of the 55 (69%) Gram negatives the commonest were Enterobacteriaceae (52.5%, n=42) followed by *Pseudomonas* (13.75%, n=11). Out of Enterobacteriaceae *Escherichia coli* was the predominant (38%, n=16) species. *Klebsiella* species (*K. pneumoniae=9, K. terrigena=2, K. ornitholytica=1*) and *Proteus* species (*P. mirabilis=7, P. vulgaris=2*) accounted for 31% and 21% of Enterobacteriaceae respectively. Enterobactericaea showed >40% resistance to each of the tested antibiotics except amikacin (7%), netilmicin (31%) and meropenem (10%). *Pseudomonas* species had the highest resistance to ticarcillin-clavulanate (64%).

Conclusions and Recommendations: Multi-drug resistant Enterobacteriaceae and MRSA were predominantly isolated from cancer patients with SSTIs. Empirical therapy calls for a combination of broad-spectrum antibiotics hence, aetiological diagnosis is vital for streamlining of therapy.

Key words: *skin and soft tissue infections, cancer, antibiotic susceptibility, bacterial*

PP 75

Antioxidant and antibacterial properties of *hibiscus Rosa-sinensis linn*. Flower extract

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Background: Several plants possess high medicinal and therapeutic values which are beneficial to humans to maintain a healthy lifestyle. *Hibiscus rosa-sinensis* Linn. is a member of Malvaceae family, a large spreading shrub with serrate simple leaves and bright red colour flowers. This plant has been commonly cultivated in tropical countries, *viz:* Sri Lanka, India and China as an ornamental plant, and considered to have a superior value in indigenous traditional medicine, especially in Ayurveda medical system from ancient times.

Objectives: To determine the scientific evidences of antioxidant and antibacterial properties of *H. rosa-sinensis* flower extract for future clinical usage

Methods: Information was gathered from more than 40 articles of biomedical journals, published over a few decades. Additional information was collected from various botanical publications.

Results: Evidence revealed that various extracting solvents have been used to obtain *H. rosa-sinensis* flower extracts. Total phenolic and flavonoids contents have been calculated and DPPH free radical scavenging activities assessed. Further, linoleic acid oxidation potential to measure the ability of compounds which act as scavengers to determine the antioxidant activity of *H. rosa-sinensis* flower extracts have been assessed. Accordingly, a high percentage of scavenging and oxidative capacities were obtained. Agar disc diffusion assay revealed the antibacterial effect of flower extraction assessed against Gram negative and Gram positive bacteria (*Escherichia coli, Pseudomonas, Salmonella, Staphylococcus sp., Streptococcus sp.* and other common pathogenic bacteria.) in comparison with commercially available antibiotics. It was found that antibacterial effectiveness depended on different solvents which were used for extraction, while positive results were obtained.

Conclusions and Recommendations: According to this literary analysis, it could be concluded, that *H. rosa-sinensis* flower extract has a high antioxidant potential to enhance good health of humans and has a potential to be used to develop herbal medicines in pharmaceutical industry to prevent oxidative stress.

Key words: *antioxidant, antibacterial, Hibiscus rosa-sinensis Linn. flower, oxidative stress*

PP 76

Demographic characteristics and MRSA colonization status of patients receiving haemodialysis at a Dialysis Centre in Eastern province of Sri Lanka

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Introduction: Impaired immunity due to renal failure, comorbidities and malnourishment will increase the virulence and the adherence of hospital bacteria. Infection is an important cause of morbidity and mortality among patients with end stage renal disease.

Objectives: To describe demographic characteristics and MRSA colonization status among patients receiving haemodialysis at a Dialysis Centre in Eastern province of Sri Lanka.

Methods: A descriptive study using retrospective methodology. Data were extracted from patient records using a data sheet.

Results: From the 40 patients receiving dialysis at General Hospital Ampara, 75% (n=30) were males and 25% (n=10) were females. The mean age (SD) of the patients was 57.625 (14.35) years. Among the patients 92.5% were Sinhalese and 7.5% Muslims. For haemodialysis access 42.5 % had arteriovenous fistula, 37.5% had central venous catheters, and 20% were receiving dialysis through tunnelled catheters. Among the sample 4 patients (10%) were colonised with MRSA. In a majority the colonized site was found in intravenous catheters (75%), after decolonization process all reported negative for MRSA in repeat cultures.

Conclusions and Recommendations: The overall prevalence of MRSA colonization was 10%. Majority of the patient's positive for MRSA had temporary lines for dialysis. Strict adherence to standard strategies to prevent MRSA especially among patients undergoing haemodialysis via temporary lines can prevent MRSA colonization.

Key words: *MRSA, haemodialysis, temporary lines, renal failure*

PP 77

Ultrasonographic length of morphologically-normal kidneys in children presented to a premier tertiary healthcare setting of Sri Lanka

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Background: Accurate prediction of reference ranges of renal lengths facilitates clinical decision making. Currently a single renal-length-reference chart is used for both kidneys, which is solely based on the age of the child without adjusting for anthropometrics.

Objectives: To assess the length of morphologically-normal kidneys ultrasonically and to construct models to predict the renal lengths of children presenting at the Department of Radiology, Lady Ridgeway Hospital for Children.

Methods: A descriptive cross-sectional study was done among 424 children with 233 males and 191 females at the study setting. Study population included children undergoing abdominal ultrasound scans for indications not related to renal disease. Children with a family history of renal diseases or with morphologically-abnormal kidneys were excluded. Bipolar-lengths of kidneys, gender and anthropometrics were documented. Normality testing of variables were done with graphical techniques and with Kolmogorov- Smirnov test. The difference between the left and right kidneys were evaluated by Wilcoxon signed rank test. The associations of the lengths with the categorical variables were evaluated with Mann Whitney U test and the numerical variables with the Spearman correlation coefficient. Having tested for assumptions, multivariant analysis was done with multiple linear regression.

Results: The mean (SD) bipolar-length of right and left kidneys were 6.83 (1.43) and 7.05 (1.36) respectively ($p<0.001$). Age, height and weight were significantly correlated with the renal lengths ($p<0.05$). Until 16 months, there was a significant difference between the renal lengths between males and females ($P<0.05$), yet the association with gender was not significant from 17 months and in overall. Until 16 months, the best linear-regression equation ($p<0.001$) for the left kidney was; 3.827 + 0.019(length in centimeters) + 0.141(weight in kilograms) - 0.023(age in months) - 0.347(for male sex). For the right kidney, it was; 3.888 + 0.020(length or height) + 0.121(weight) - 0.037(age) - 0.372 (for male sex). The respective R squares were 59.2% and 53.5% with VIF (Variance-Inflation-Factor) ranging from 1.06 to 2.08. From 17 months, best equation for left kidney ($p<0.001$) was; 5.651+ 0.022(age) + 0.01(BMI). For right kidney it was; 5.336 +0.022(age) + 0.012(BMI). The R squares were 62.5% and 66.1% with VIF being 1.

Conclusions and Recommendations: The established models explain more variability for children above 17 months. Both renal lengths are affected significant by the body's' anthropometric parameters. For each kidney, separate normograms of renal lengths which are local-context-specific must be prepared. Further research must be promoted.

Key Words: *renal length; predictive models of renal length; renal length references; Sri Lanka; ultrasonographic renal length*

PP 78

Management of a probable pseudomonas pseudoalcaligenes outbreak in the intensive care unit of the National Institute of Infectious Diseases, Angoda

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Background: Pseudomonas pseudoalcaligenes is an environmental organism which can cause opportunistic infections in humans. This organism usually grows in moist environments. During a period of twenty-five days (26/10/2018- 20/11/2018), Pseudomonas pseudoalcaligenes was isolated in the blood cultures of three patients in the Intensive Care Unit (ICU) at the National Institute of Infectious Diseases, Angoda. Since these patients developed bacteremia, 48 hours after admission to ICU, it was considered as a hospital acquired blood stream infection.

Objectives: To investigate the outbreak and take measures to control it

Methods: To find the source of infection, the following environmental cultures were taken. (Saline from manometer connected to measure central venous pressure, sterile swabs used for skin preparation when blood cultures were taken, Alcohol hand rub, Saline from the saline bottle which was used to flush the central venous pressure line ports, tap water (early flow and late flow), Surface of the tap outlet), as there was a possible leak in the roof of the ICU, contamination was possible as the outbreak occurred during the rainy season. There was a doubt whether the dehumidification by the air conditioning system was adequate in creating an optimum environment. However, neither environmental sampling from the ceiling nor the air conditioning system was done due to the practical issues in lacking sensitivity when sampling a large surface area. As the typing of organisms was not done in the reference laboratory, antibiogram was used to link the organisms.

Results: Pseudomonas pseudoalcaligenes with the same antibiogram (resistance was observed for meropenem, imipenam, ceftazidime, ciprofloxacin and sensitive for colistin) was isolated from the saline from manometer of the CVP. As CVP line saline was collected through the port it was not clear whether it was due to the port colonization or the colonization in the saline itself. (Following remedial measures were taken to minimize the spread of this organism. (ICU staff was given hands on training on hand hygiene, aseptic method collection of blood cultures and central venous pressure line care, CVP bundle care was introduced to the ICU staff by the Infection Control Nursing Officer, Sterility of sterilizers was checked (spore test was negative) and reassured, Measure were taken to repair the roof leaks and optimize the functioning of Air conditioning, After 20.11.2018 none of the blood cultures received from the ICU was positive for Pseudomonas pseudoalcaligenes)

Conclusions and Recommendations: Strategic intervention and sustained commitment can arrest a possible outbreak in an ICU.

Keywords: *Pseudomonas pseudoalcaligenes, ICU, outbreak*

PP 79

Assessment of extent of utilization of Microscopic Centers for screening of tuberculosis, in selected hospitals in Kalutara district

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Background: Tuberculosis (TB) still remains one of the top 10 leading causes of death worldwide. In Sri Lanka nearly 6000 new cases are reported annually. Underutilization of Microscopic Centres (MC) along with poor contact tracing and inadequate detection of new cases have been identified as a major weakness in TB control program in Sri Lanka.

Objective: To assess the extent of utilization of MC, in selected hospitals in Kalutara district

Methods: A descriptive cross sectional study was carried out in Kalutara district where the MC are available. Referral data on patients (n=1522) were extracted from TB Laboratory Registers (TBLR) of all MCs (Panadura, Horana, Beruwala, Ingiriya, Bulathsinhala including Chest Clinic Kalutara (CCK)) using a checklist between January 1st to 31st March of 2017.

Results: Majority of MC (80%, n=4) were under-utilized by OPD (<3 referrals per 1000 OPD attendees) and none of the MC's including CCK were utilized by nearby public and private healthcare institutions to MC. Nevertheless, MC were satisfactorily utilized (> 3 referrals per 1000 inward attendees) by in-ward settings of same hospitals where MC are located. None of the units of hospitals maintain a TB suspect Register (TBSR) recommended by NPTCCD. Three consecutive sample submissions of majority of MC (80%, n=4) remain below 50%.

Conclusions and Recommendations: The majority of MC are not utilized by the medical officers of nearby public or private health providers in the vicinity. None of the hospitals use TBSR which has been introduced by the National program of TB and Chest Diseases (NPTCCD). Continuous staff awareness, periodic review meetings about TBSR at public sector, annual in-service training programs on MC staff, are recommended.

Key words: *tuberculosis, microscopic centres, utilization*

PP 80

Development of "Dengue Pathfinder": A real time web-based field dengue control e-surveillance system

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Background: Dengue is a public health problem in Sri Lanka and real time surveillance is a critical component of dengue prevention and control. Currently surveillence depends on the paper based H544 notification and online DenSys system, whilst delays in notification still persists, resulting in retrospective analysis of data rather than real time data leading to poor predictive analyses, hindering early preventive and control strategies. Dengue Pathfinder was designed to minimize delays in notification, receipt and investigation to optimize the Dengue surveillance system and control activities.

Objectives: To develop a comprehensive real time e-surveillance system consisting of notification of the disease, control activities, outbreak prediction and modelling with real time epidemic tracking system.

Methods: Designing of new system was done based on available literature and from inputs received through several focus group discussions conducted among stakeholders (Medical Officers of Health, Public Health Inspectors, Entomological officers). Source coding was done using structural lay outs of each data structures to design the characteristics of the grid. The e-surveillance system comprised of two steps. Step one was online case notification and uploading of patient information through an Android app and Web application. Step two was online uploading of field investigation data and images. Brainstorming sessions were conducted to identify key indicators to monitor activities that will be carried out during Dengue control operations. An iterative process was carried out to develop the "e surveillance steps" which were pilot tested in the field (in Galle District) and thereafter modified based on the inputs of the Public Health Inspectors, Field Entomological Officers and Medical Officers of Health.

Results: The Dengue Pathfinder facilitated universal notification, enabling anyone who has downloaded the mobile Android app or the Web app to notify suspected Dengue cases. Stakeholders can filter the notifications and reports as the specified logged user. Auto generated program indicators to evaluate the control program assesses "vulnerability level of a premise compared to the premise itself, it's neighbourhood, common sources, other Medical Officer of Health areas and other districts". It also has an inbuilt program to identify morbidity dynamics by trend analysis, bar charts, density maps and the patient's geographic information on the Google maps and these were found to be important to plan control activities. The auto generated entomological survey indicators on Breteau, container & premise indexes at Grama Niladhari division level was a most useful tool in epidemic tracking.

Conclusions and Recommendations: The "Dengue Pathfinder" appears to be a user-friendly e-surveillance system which is able to elicit useful indicators for surveillance, it is recommended to conduct a pilot study to test it's effectiveness in the field.

Key words: *dengue e-surveillance, dengue notification, dengue control & monitoring, program indicators, dengue outbreak prediction*

PP 81

Deficiencies in the provision and the barriers in accessing contraceptive services for reproductive age women working in Avissawella Export Processing Zone

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Background: Women working in export processing zones (EPZs) contribute significantly to the economy. They are reported to have risky sexual behaviours which may end up in unwanted pregnancies. Proper contraceptive use by a working woman would be a profitable investment for her productivity. However, this productive population has not been specifically targeted by family planning (FP) programmes. Addressing deficiencies in FP service provision to this vulnerable group of women is a priority.

Objectives: To describe the deficiencies in the provision and the barriers in accessing contraceptive services for reproductive age women working in Avissawella EPZ

Methods: Deficiencies in provision and barriers in accessing FP services were explored and described by individual interviews and focus group discussions conducted with a purposively selected sample of 55 which comprised of EPZ workers, factory managers and healthcare workers. A semi-structured interviewer guide was used. Thematic analysis of data was done using inductive method.

Results: Non-availability of family planning services after working hours was the main perceived deficiency in service provision and high opportunity cost for visiting clinics for FP services was the main barrier in accessing FP services among women working in Avissawella EPZ.

Conclusion and Recommendations: Barriers in accessing routine FP services by working women exist in Avissawela EPZ. Workplace based client friendly FP services which are integrated with other health services such as well women clinic services, screening for Non-Communicable Diseases and screening for oral health will be beneficial in addressing these.

Key words: *deficiencies, barriers, contraceptive services, working women, export processing zone*

PP 82

Analysis of research grants offered by Medical Research Institute

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Background: Research committee of the Medical Research Institute was established in 2011 with the aim of facilitating medical research by approving and providing research grants according to the management service circular 44 and 45 of 2010. Research grants are offered as a mode of financial assistance for proposals on medical specialties and for collaborative research with non-medical specialties. The grant is funded by Education, Training and Research Unit of Ministry of Health and Ethics review committee (ERC) is responsible for monitoring approved research.

Objectives: To analyse the research grants offered by MRI and study the monitoring process on approved grants

Methods: Descriptive cross-sectional study was carried out in 2018 January. Data were collected on grant approval process, approved proposals and the monitoring process using in-depth interviews with relevant stake holders, desk reviews and web browsing for available guidelines.

Results: Out of 389 submitted, ERC had approved 332 proposals up to 2018. Detailed analysis was done on 191 proposals approved up to 2014 and grants had been approved for 70 proposals, coming to a total value of Rs.97. 6 million. Among the MRI units that received grants biochemistry (n=6) and virology (n=5) had the highest proposals. There was no data base on offered grants, but separate files were maintained for each proposal submitted. Completeness of the files were poor, no proper documentation was found on proposal approval, in 44%, 79.5% and 81.6% of files analyzed from 2011-2013 respectively. Grant approval was available only in the research committee minutes and no approval letter was issued. Without signing any agreement grant is issued completely for purchasing equipment after the approval, regardless of commencement of project. No inventory document was maintained at MRI on equipment purchased under the research grants. Only 12 researchers had informed about the completion of the projects but only one project report was available. Project monitoring was not attended to and none of the researcher had provided a progress report.

Conclusions and Recommendations: Lack of information on issued grants was a major problem identified. Mechanism should be developed for researchers to be accountable when obtaining grants and monitoring should be done on approved grants using a computerized database

Key words: *research grant, monitoring*

PP 83

The learning style preferences of diploma trainees of Physiotherapy and Occupational therapy in Sri Lanka

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Background: Adult learners have different learning styles. The learning style greatly influences education. Understanding adult learning styles would help to develop teaching and learning strategies and this will help to enhance the knowledge and skills of the adult learners.

Objectives: To determine the learning style preferences of diploma trainees and identify learning style differences among the male and female students and physiotherapy and occupational therapy students

Methods: Descriptive cross sectional study was conducted among students in the school of physiotherapy and occupational therapy, Colombo. All 63 diploma trainees were selected for this study. A self- administrative questionnaire included the demographic data and VARK (Visual, Aural, Read/write, and Kinesthetic) questionnaire version 8.01 with 16 questions.

Results: Overall finding showed the most preferred learning style was multimodal (68.9%, n=63). A reasonably high preference was also shown on Kinesthetic style (22.9%, n=63). There were no significant differences found in Visual, Aural, Read/write, and Kinesthetic scores in males and females ($p>0.05$) as well as between physiotherapy trainees and occupational therapy trainees ($p>0.05$).

Conclusions and Recommendations: Most students prefer multimodal learning style. There were no significant differences found in learning styles scores among males and females, and among the two training courses. Healthcare teachers could consider the results identified in this study to accept diversity in learning styles among students and facilitate student learning. Moreover, students themselves can use this knowledge to change their learning styles.

 Key words: *learning styles, VARK, physiotherapy, occupational therapy, students*

PP 84

Issues in methodological rigor and ethics in research projects submitted to Ministry of Health Sri Lanka for salary incentives

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Background: Following a government directive in 2012, Ministry of Health Sri Lanka introduced a salary incentive ("research allowance") for its employees conducting research. Each research proposal needs approval from one of 26 Ministry-recognized Ethics Review Committees (ERC) either in universities or health care institutions (HCI) around the country. Although the ERC review is expected to carefully assess scientific rigor and ethical soundness of these research proposals, the process appears to considerably vary across ERCs in its scientific approach and objectivity. Given that the National Health Research Ethics Committee under the National Health Research Council Act is yet to be established to streamline the review process of ERCs as one of its functions, it's prudent to review the same proposals objectively at the ministry level along with the recommendations of the ERC recommendations.

Objectives: To review proposals submitted to qualify for research allowance for methodological rigor and ethical soundness.

Method: Research Management Committee of the Ministry of Health reviewed all research proposals (250) submitted to the Ministry in 2016, independent of ERC reviews.

Results: Majority of proposals (65.6%) reviewed by University ERCs and 47.2% were associated with postgraduate degrees. A total of 17.6% (n=44) had issues (mostly, poorly-formulated objectives and methodological deviations); 4.2% of proposals reviewed by University ERCs and 45.3% by HCI. Quality of letters issued by the ERCs was poor in 5.6%.

Conclusions and Recommendations: Variation in the review outcome between university-based and HCI-based ERCs was significant (p<0.05) and needs attention for remedial intervention. The process of recognition of ERCs may need re-evaluation.

Key words: *ethical issues, research projects, ministry of health, salary incentives, research allowance*

PP 85

National survey on medical officers and dental surgeons to describe the distribution and improve the electronic information system.

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Background: Despite the Ministry of Health appointing medical officers (MOs) and Dental surgeons (DS) based on the existing cadre norms, the discrepancy in the distribution and the shortage are reported frequently. Though management assistants have been appointed and are expected to update the data on number of MOs and DS via Google sheets, many institutions fail to do so.

Objectives: To describe the distribution of MOs and DS in Sri Lanka and to improve the timeliness and accuracy of the data in the electronic information system on MOs and DS who serve under the Ministry of Health Sri Lanka

Methods: This was carried out as one day online survey, declared as National Health Survey Day, on 1st April 2019. 182 data collecting centers covering the entire country were identified and participated as instructed by an internal circular. Study population was MOs and DS who serve under Ministry of Health. Data collected through online Google Forms while management assistants of those institutions worked as data entry operators. To maintain the accuracy of the data, data entry operators were trained in a one-day workshop, maintained validation rules within the online form, concurrently collected and compared data from human resource units and payroll details under the supervision of the head of the institutions.

Results: 325 data entry officers participated in the workshop spending Rs.181225.00. Two sessions were conducted by 03 resource persons. 182 institutions (100%) participated in data uploading while 12 officers monitored the process centrally. Including post graduate trainees, 17910 MOs and 1510 DS were identified by the survey. All the Google sheets were updated during the survey. 11000 (61.42%) MOs were under line ministry institutions and 6910 (38.58%) were under provincial ministry. Uva province had the lowest number (772, 5.09%) and Western province had the highest (5347, 35.28%). Doctor patient ratio for Sri Lanka was 0.81 per 1000 population; Highest in Colombo RDHS (1.35) and lowest in Nuwara Eliya RDHS (0.37). Male Medical officers (50.31%) were slightly higher than female medical officers (49.69%). 698 (46.23%) DS were under line ministry institutions and 812 (53.77%) were under provincial ministry. North Central Province had the lowest number 87 (6.3%) and Western province had the highest 360 (26.09%). 645 (42.72%) DS were males and 865 (57.28%) were females.

Conclusions and Recommendations: Distribution of medical officers over the island is inequitable. Timely updated Google Sheets provided the real time picture for decision making. This type of surveys are recommended to be conducted at regular intervals to understand key concepts on appointing, distributing and transferring of MOs and DS in Sri Lanka.

Key words: *distribution, medical officers, dental surgeons*

PP 86

Attrition rate among students of School of Nursing Kalutara

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Background: Global attrition rate of nursing students has risen to a significant level. School of Nursing Kalutara is a relatively young nursing school and it offers Diploma in Nursing which is a three-year course. Nine batches have already passed out and four batches are currently undergoing their nursing diploma training.

Objectives: To describe the attrition rate among nursing students at School of Nursing, Kalutara.

Methods: A descriptive study was conducted using secondary data derived from January 2007 to July 2019. Data were extracted from the administrative records of School of Nursing, Kalutara.

Results: Total number of registered students were 1569. All students who dropped out were females. Attrition rate during this time period was 7.3% (n=115). Most students dropped out of nursing school during their first year of study (4.9%, n=78). The rate of drop out during second year of study was 1.5% (n=25) and a few students left the nursing school during their third year of study the (0.7%, n=12).

Conclusion and Recommendation: Most of students dropped out of the nursing school during their first year and rest of them left the course after spending more than a year in the nursing school. Further studies are recommended to study the factors which contribute for the attrition of student nurses.

Key words: *attrition, nursing school, student nurses, drop out*

PP 87

Responsiveness in maternity wards in a government and semi government hospital

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Background: Health Systems' Responsiveness includes clinical as well as the non clinical aspects related to the way individuals are treated and the environment in which they are treated. The post natal period in the ward is a milestone in a woman's life and depends greatly on the institutional care received. With medicalisation of child birth, a pregnant woman has many challenges to face with each delivery and responsiveness plays a prominent role.

Objectives: To describe levels of responsiveness in maternity wards in a government hospital, District General Hospital Kalutara and a semi government hospital, General Hospital, Sri Jayawardenapura

Methods: This is a hospital based descriptive cross sectional study using an interviewer administered questionnaire and a check-list, with a comparative analytical component among maternity patients in a District General Hospital and a Semi Government Hospital. The convenient sample (N=422) comprised of patients who received care in the post natal maternity wards during a specific time period.

Results: The socio demographic and economical characteristics of the two sectors displayed many differences in age, marital status, education levels and income status. The level of responsiveness in the government sector was lower than the semi government sector and the difference was significant (p<0.05). Patients attending maternity wards of semi-government hospital perceived higher levels for 7 out of 8 elements of responsiveness than those attending the governemnt hospital. Majority of the government hospital rated Quality of basic amenities (77.7% n=150) as most important and the semi government sector rated communication (97.3%n=185) as the most important element. The most evident limitations of basic physical resources the government sector displayed was shortage of the number of beds available.

Conclusions and Recommendations: The semi government sector scored higher than the government sector for responsiveness perceived. The findings indicated plausible explanations of the difference between the sectors as overcrowding and poor bed conditions that prevents maternity patients receiving adequate rest. It is suggested that the government sector needs to improve infrastructure and reduce over crowding in tertiary care institutions while strengthening base hospitals and divisional hospitals for maternity care in order to achieve health systems responsiveness.

Key words: *responsiveness, government hospital, semi government hospital*

PP 88

Assessment of School Dental Clinic Assistants' profile and training needs

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Background: In the school dental clinic the functions of School Dental Clinic Assistants (SDCA) are vital. Lack of data had adversely affected the Dental Health Human Resource planning at national level.

Objectives: To describe the workforce profile, to identify their knowledge on common oral diseases and based on these findings to ascertain the training needs of school dental clinic assistants

Methods: A cross sectional study was conducted among 183 (nearly 50%) of the school dental clinic assistants representing all the 25 districts. A newly developed pilot tested interviewer administered questionnaire was used to collect data.

Results: All were females. The mean age was 46 years. Among them, 64% and 21% have passed GCE O/L and GCE A/L examination respectively. Most were permanent government sector employees working under relevant Provincial Health Ministries. The mean working experience was 13.2 years and had worked as an SDCA in a school dental clinic more than 80% of their total government employed working period. None of them had received any training before accepting duties as a SDCA and most (81%) have participated in 1-3 training programmes while working. The in service training programmes they have participated were mainly on infection control (56.8%), communication skills (42.1%) and general administration (12.6%). Most of them could give proper brushing instructions. Their knowledge on periodontal diseases and dental caries was not satisfactory. They were not aware of the causative factors or preventive measures of oral lesions. Nearly 12% and 44% did not know about the correct sterilization procedures and correct dental material mixing techniques respectively.

Conclusion and Recommendation: All SDCA's need a basic training in all aspects of dental clinic procedures including material mixing, instrument sterilization and causes and prevention of common dental diseases before appointing to the post. A formal basic level training programme is strongly suggested.

Key words: *school dental clinic assistants, workforce profile, training status, training needs*

PP 89

Availability and functioning of the hospital development committees in Galle District

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Background: Hospital Development Committees (HDC) are one of the major parts a hospital/ health care unit consisting members from hospital and other government and non-government institutions. HDS plays a vital role in developing the hospital structurally and functionally. Presence of HDC is one of the major criteria to assess the quality of the hospital.

Objectives: To describe the availability and functions of HDC in Base (BH) and District hospitals (DH) and Primary Care Units (PMCU).

Methods: The secondary data were extracted from the planning unit at RDHS office- Galle into a check list of all base hospitals, District Hospitals and Primary Medical Care Units. In case there were some missing information, Medical Superintends, Medical Officers in Charge were contacted and collected. The secondary data were analysed and presented in frequencies, percentages and means.

Results: Out of all health care centres, 3 (6.3%) were base hospitals, 20 (41.7%) were District Hospitals and 25 (52.1%) were Primary Care Units. Only 1(33.3%) BH, 9 (45%) and 1 (4%) PMCU have Hospital Development Committees. While 1 (33.3%) BH and 4 (44.4%) DH have members more than 8, 4 (44.4%) DH had less than 5 members. Out of all PMCU, only 1 (4%) had a quarterly meeting in 2018 and 2 (25%) DH and one (33.3%) BH had monthly meetings. One (33.3%) DH and 1 (12.5%) BH committees had planning and development decisions at the meetings and 2 (66.7%) BH committees and 4 (20%) DH committees aware on existing guidelines of functioning of committees. Out of 3 BH, two had received donations where no HDC were established and out of DH and PMCU there is no associations of availability of HDC and reception of donations (p= 0.81 and p=0.61 respectively).

Conclusions and Recommendations: The establishment of Hospital Development Committees is poor in the Health care centres although many institutions know the guidelines and necessity of establishing them. Reception of donations is independent of availability of HDC. Hospital administrations should be encouraged to establish and continue the functioning of them to improve the quality of hospital

Key words: *hospital development committees, district hospitals, primary medical care units*

PP 90

Availability of sanitary facilities in outpatient setting of primary medical care institutions and district hospitals in Galle District

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Background: Safe and high-quality water, sanitation and hygiene is fundamental to preventing and controlling infection in health care facilities. Presence of toilets and other sanitary facilities is one of the main indicators to assess the health care quality of an institution as well as the development of a country. Presence toilet facilities and other sanitary facilities for the patients in out-patient departments and clinics in primary care institutions has not been well established.

Objectives: This study aimed at to study the availability of the sanitary facilities in District Hospitals and Primary care institutions in Galle district

Methods: All Primary care Institutions (PMCU) and District Hospitals (DH) in Galle district were selected for the study. The number of toilets by gender, availability of soap in the toilets, and times of cleaning a day was inquired. Available data were extracted into data sheet. The data is presented by the count, proportions and means. The results were analyzed separately for PMCU and DH.

Results: Average number of patients visiting Outpatient Department in a day is 91.9. Out of 24 PMCU, sixteen PMCU have at least single functioning toilet for the patients in OPD setting (76.79%). Only one PMCU has separate toilet for males and females. Out of sixteen PMCU, which have at least one toilet (there should be a toilet for at least 15 20 people), only 11 toilets have soap and other cleaning facilities (68.75%). Average times of cleaning is 2.36 a day comparing to minimum 3 times a day. Among 15 District hospitals, mean number of patients visiting the OPD is 191.4. Three DH (20%) have no a single toilet for patents visiting OPD. Four DH (26.7%) have separate toilets for males and females. Only Eight DH (53.3%) have soap in the toilets. Toilets are cleaned 2.1 times in a day.

Conclusions and Recommendations: The number of toilets should be increased to cater the sanitary facilities for patients at least one toilet for 25-5- people and there should be separate toilets for males and females. Availability of soap and higher number of times (more than 3 times a day) for cleaning should be encouraged.

Key words: *sanitary facilities, out-patient departments*

PP 91

The level of public awareness of oral cancer and potentially malignant oral disorders in MOH area Kalutara following public awareness programs

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Background: Oral cancer is the most common cancer among males and sixth among females and account for 12.9% of total malignancies in Sri Lanka. There are several predisposing factors associated with oral cancers. According to recent studies in a rural population of Sri Lanka, the level of public awareness of oral cancer was not satisfactory and even low on oral potentially malignant disorders.

Objectives: To assess the level of public awareness of oral cancer, their early symptoms and risk factors in Kalutara MOH area.

Methods: A cross sectional community-based study was conducted in the MOH area Kalutara by interviewing 507 subjects above the age of 30 years, over a 3 months period from November 2012. House to house survey was carried out by using trained health volunteers. Probability proportionate to size cluster sampling technique was used to identify the clusters and all eligible subjects were interviewed by starting at a random number in the voting list. Pre-tested interviewer administered questionnaire was used to collect information which contained questions on socio-demographic variables and 14 question on awareness on the subject. Inform written consent was obtained from the subjects and ethical approval was obtained from National Institute of Health Sciences, Kaluthara. The SPSS (version 13) software package was used for data analysis. The relationships between two categorical variables were tested by Chi-square test.

Results: Five hundred and sixteen subjects were approached and all consented to participate in the study. Among the total sample, 48% were malse and 30% of the subjects were in 40-49 year age group. The level of awareness of oral cancer and OPMD was 98% and 43% respectively. There were no significant differences (p >0.05) between gender, age and occupational categories and awareness of oral cancer and OPMD. However, significant differences (p<0.05) were observed with educational level, ethnicity and sector (village or estate) and awareness of oral cancer and OPMD. Nearly half (54%) of the study participants were not aware of early signs and symptoms of oral cancer and OPMD. Majority (80%) of the study participants were aware that betel chewing is a risk factor for oral cancer and OPMD and only 23% did not recognize that alcohol use as a risk factor for oral cancer.

Conclusions and Recommendations: Awareness of oral cancer and OPMD and their associated risk factors, especially early signs and symptoms, was poor among this community. Therefore, there is an urgent need to implement public health educational and promotion campaigns to improve the level of awareness on oral cancer and OPMD among these communities.

Key words: *oral cancer, awareness, oral potentially malignant disorders, risk factor, betel chewing, smoking, alcohol*

PP 92

Knowledge and practices regarding myocardial infarction and its secondary preventive strategies among the post myocardial infarcted patients attending cariology clinics at National Hospital of Sri Lanka

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Background: Globally, Myocardial Infarction (MI) is an important cause of premature death and is a major cause of morbidity and mortality among adults in Sri Lanka as well. Adequately informed patients are an important pre-requisite for implementing both primary and secondary preventive strategies for MI.

Objectives: To describe the knowledge and practices regarding MI and its secondary preventive strategies among post-MI patients.

Methods: A clinic based cross-sectional descriptive study was conducted among 120 follow up patients with one or more episodes of MI at National Hospital. Data were collected from all eligible and consenting patients who presented to the clinic on the dates of data collection (whole population sampling). A questionnaire and clinic records were used to collect information on knowledge about the disease and symptoms, risk factors, complications and secondary preventive strategies as well as patients' compliance and practices. Knowledge and compliance levels were categorized as excellent, good and poor. Association between selected sociodemographic factors with knowledge and compliance level was assessed using chi-square test.

Results: The majority of the study participants were males (n=75, 62.5%). Most of the participants belonged to the 51-60 year age group (n=47, 39.2%). The majority of the participants were from Colombo district (n=64, 53.3%). When considering the highest education level most of the participants have studied up to grade 6-10 (n=39, 32.5%). Only 2 (1.7%) of the study subjects did not have any school education. Most of the participants had an income between Rs 20,000 – 50,000 (n = 71, 59.2%). When considering the overall knowledge level about the disease and its secondary preventive strategies 27.5% (n=33), 35.8% (n=43) and 36.7% (n=44) had 'Excellent', 'Good', and 'Poor' knowledge levels respectively. Forty percent (n=48) of patients did not exercise regularly, while a significant amount (n=40, 33%) still consumed alcohol. Only small proportion of the study population didn't follow the recommended controlled diet (n=36, 30%), at the same time only nineteen percentage (n=23, 19.2%) of the population is currently smoking. Higher income and education as well as shorter length (<1 year) from last attack were associated with better knowledge (p<0.05). But there was no significant association between the knowledge level and actual practices. However, a significantly better (p<0.05) practice was observed with increasing episodes of MI.

Conclusions and Recommendations: There is a lot of room for improvement of patients' knowledge following MI, as per the gaps identified through this research. The counselling programmes should be structured accordingly emphasizing on areas such as educating patients on what happens in MI, the risk factors and how to control thus to prevent recurrence, the not so common symptoms of possible recurrence etc. Further, research is required to see how a behaviuoral

change could be brought about by increasing knowledge. It would be useful to assess the practices with regard to disease control at follow up sessions as reinforcement is important to maintain good practices. A check list may help in this regard when managing a heavy patient load.

PP 93

Prescribed antibiotic and its cost among outpatient department attendees at the Teaching hospital Kandy, Sri Lanka

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Background: Outpatient departments (OPD) provide comprehensive non-urgent, ambulatory medical care. Rational use of drugs, specially antibiotics is a decisive factor in quality of service in OPD. Throughout the world, 50% of prescribed drugs in OPDs are irrational. Misuse of antibiotics and poor adherence to treatment guidelines are identified as irrational drug uses. Persistence antibiotic misuse leads to antibiotic resistance and generates unnecessary health costs.

Objectives: To describe the prescribed antibiotic and its cost among OPD attendees at the Teaching Hospital Kandy (THK), Sri Lanka.

Methods: A descriptive cross sectional study was conducted in THK between 22/07/2017 to 31/07/2017. A sample of 1173 OPD attendees were selected by systematic sampling method. Structured questionnaire and checklist was used. Cost was calculated using annual drug estimate of 2017 of Ministry of Health, Sri Lanka. Ethical clearance was obtained from THK.

Results: Majority were females (63.1 %, n = 740) and mean age was 46.18 (SD=15.69). Antibiotics were prescribed for 34% (n=399) and among them 99% were empirical prescriptions. Penicillin was the most commonly prescribed antibiotic class (n=300, 74.9%) and amoxicillin was the antibiotic (40.2%, n=165). Cloxacillin, Cephalexin, and Co-amoxyclav respectively represented 18.8% (n=77), 15.4% (n=63) and 14.7% (n=60). Average duration of antibiotic prescription was 3.26 days. About 35% (n=143) of all antibiotic prescriptions accounted for respiratory complaints. More than 50% (n=23) out of 39 patients with only common cold and all the patients with UTI symptoms (n=11) have been prescribed an antibiotic. Total cost for all antibiotic prescription spent by the government for total sample was 22,040.00 LKR. Average cost per an antibiotic prescription was 53.63 LKR.

Conclusions and Recommendations: One out of three OPD attendees was prescribed an antibiotic. Almost all antibiotic prescriptions were empirical. Irrational antibiotic prescriptions could be identified. Even though the cost of antibiotics for a prescription was low, it can be minimized further. Continuous antibiotic audits and feedback are needed. Continuous professional development of prescribers will be an ideal method in order to mitigate this situation.

Key words: *antibiotics, cost, OPD*

PP 94

Study on factors affecting teenage pregnancy and its socio-cultural consequences faced by teenage mothers in Monaragala District

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Background: Adolescents in Sri Lanka are increasingly exposed to early sexual experiences resulting in teenage pregnancies. The teenage pregnancy rate is a powerful indicator of the overall well-being of the population. The study was conducted in Monaragala District in Sri Lanka which is known to have high prevalence of teenage pregnancies. It was 6.9% in 2015, a little above the national average. Teenage pregnancy may be prevented by interventions targeting setting specific factors.

Objectives: To describe psychosocial, socio economic and cultural factors affecting teenage pregnancy and socio-cultural challengers faced by the teenage mothers

Methods: A community based descriptive cross-sectional study was carried out among 60 teenage mothers who delivered during year 2016, identified through pregnancy record. They were interviewed by the principle investigator using a pre-tested, structured questionnaire mixing both close ended and open-ended questions.

Results: One third of teen mothers had got through G.C.E. ordinary level examination showing a better education compared to their sex partners where only 18% had got through G.C.E. ordinary level examination. Two third of sample had become pregnant by the age of 17 and by the time of interview, only 41% of teen mothers were legally married to their child's father. The teen mothers showed very poor financial status with over 80% having < Rs.16,000.00 monthly income (National poverty line is below Rs. 36,000/=) and 90% of them experience financial difficulties than being with their parents. 61% of girls were schooling by the time of pregnancy and has continued schooling with the pregnancy for some time.

Conclusions and Recommendations: Poor educational targets and low socio-economic situation may have acted as contributing factors for teen girls to become pregnant. Collaborative effort of health and non-health sectors are needed to prevent risk factors and mitigate challenges faced following teenage pregnancy.

Key words: *teenage pregnancy*

PP 95

A study on the patient perspective of fatigue and lifestyle difficulties in patients with severe vision impairment, Sri Lanka

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Background: Vision is one of the most important senses of living beings. However, vision can be impaired due to various reasons. Fatigue is a common symptom felt by patients with irreversible visual impairment. Therefore, it is necessary to identify the fatigue among visually impaired patients and their lifestyle difficulties.

Objectives: To describe the patient perspective of fatigue and lifestyle difficulties among patients with a severe visual impairment.

Methods: A qualitative, one to one in-depth interview method was used to collect data until the point of saturation was reached (N=20) among severe vision impaired patients after direct visual examination. Thematic analysis was used to analyze data.

Results: Majority of the participants stated that they were experiencing fatigue and they believed that it was due to visual impairment. Majority stated that they experienced lifestyle difficulties due to vision impairment and fatigue. Majority of participants were having sleep disturbances which lead to fatigue and lifestyle difficulties. Although the majority was having visual impairment-related fatigue and lifestyle difficulties, they were confident that they can cope up with the difficulties they face while the minority had no idea on how to manage it.

Conclusions and Recommendations: Patients with severe vision impairment were experiencing fatigue and lifestyle difficulties. Although it has caused much interference, majority of patients can cope up with the issues. Further studies are recommended to find out how vision impairment leads to fatigue and lifestyle difficulties.

Key words: *fatigue, lifestyle difficulties, severe vision impairment, patients*

PP 96

Student's perceptions on the learning styles preferences in the School of Radiography, National Hospital Colombo

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Background: The Learning process vary from person to person due to differences in cognitive processing. There were no studies found on learning preferences of Radiography schools including Radiography school of Sri Lanka.

Objectives: To assess student's perception of learning styles preferences in the School of Radiography using VARK Questionnaire (version 7.8)

Methods: This descriptive, cross sectional study was carried out among 50 students during the academic year 2017/2019 at the School of Radiography, The Visual, Aural, Read/Write, and Kinesthetic questionnaire (the self-administered VARK questionnaire, version 7.8) was used to categorize learning style preferences. Data were entered and analyzed by using SPSS (version 22.0) software.

Results: A total number of 50 Diagnostic and Therapeutic Radiography students participated in this study. Overall response rate of 94%. Among them 27.79% were Kinesthetic, 27.26% Read and write, 25.26% Aural and 16.75% were Visual respectively. There is a significant association between Q1 and Q12. (r= 0.295, p=0.044), Learners preferred kinesthetic mode compared to the others. Least preference was for visual mode.

Conclusions & recommendations: Radiography is a subject that favours practical activities and majority of students preferred kinesthetic learning style.

Key words: *radiography, learning styles, preferences, mode*

PP 97

Continuous Professional Development (CPD) among Medical Officers and Dental Surgeons in Teaching Hospital, Peradeniya - Perceptional assessment

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Background: The process of updating knowledge, attitudes and practices among professionals is described as Continuous Professional Development (CPD). To maintain an efficient and effective health service it is essential that the health care professionals update their knowledge and practices regularly.

Objectives: To describe the perception on Continuous Professional Development (CPD) among Medical Officers and Dental Surgeons in the Peradeniya Teaching Hospital.

Methods: A descriptive cross sectional study was done among 190 medical Officers and dental Surgeons in the Teaching Hospital Peradeniya, using a self-administered questionnaire, adapted from global literature with a Content Validity Index of 80%.

Results: Response rate was 68% (n=129). Among participants 74% (n=95) believed that Sri Lankan doctors are updated with relevant current professional knowledge. Among the officers 39% (n=50) felt the responsibility of CPD is with Sri Lanka Medical Council, while 43% (n=56) felt it was held by the ministry of health and 18% (n=23) felt the responsibility was with the professional colleges. Furthermore, 41% (n=53) felt priority should be to improve knowledge and 13% (n=17) said priority should be given to improve attitudes, while 46% (n=59) felt it should be to improve practices. Only 14% (n=18) had participated in any CPD program within past 3 years. Among participants 55% (n=71) disclosed that time is the main restriction to participate in the CPD programs while 27% (n=35) revealed financial issues as a restrictive factor. Only 14% (n=18) were agreeable to CPD score based license renewal system for Sri Lankan doctors.

Conclusion and Recommendations: Majority of doctors believed that SLMC, Professional Colleges or Ministry of Health is responsible for CPD of medical officers and dental surgeons. Nearly a quarter cited lack of time as the main barrier for CPD. Less than a one fifth of the doctors had participated in any type of CPD during the last three years. Restricting factors for participations, responsibility of conducting CPD and current level of participation should be considered in the planning and implementation of CPD programs.

Key words: *CPD, medical officers, dental surgeons*

PP 98

Factors influencing the implementation of quality assurance programme in selected government hospitals under Eastern Provincial Ministry

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Background: Quality is an essential part in the delivery of health care to the patients. A study on the implementation of Quality Assurance Programme could provide information regarding how well to improve this in the future.

Objectives: To determine the factors influencing the implementation of Quality Assurance Program in the selected government Hospitals under Eastern Provincial Ministry.

Methods: A cross sectional, descriptive study among 425 medical doctors, nursing category staff and professionals supplementary to medicine employed in 12 base hospitals in the Eastern Province using a proportionate, stratified sampling method and self-administered questionnaire was carried out. SPSS 22 software package was used for analysis.

Results: Response rate was 71% (301 / 425). The correlation coefficient between independent variables and dependent variable of the study identified that monitoring system ($r=0.61$, $p < 0.05$), physical resources ($r=0.60$, $p < 0.05$), training ($r=0.52$, $p < 0.05$), top management commitment ($r=0.49$, $p < 0.05$), team work ($r=0.35$, $p < 0.05$) had positive influence on the Quality Assurance Programme implementation respectively. Gender ($p < 0.05$) and Job category ($F=4.970$, $p < 0.05$) have significant influence on the implementation of Quality Assurance Programme. They have been considered as moderating variables, however, the service period of staff in the hospital was not identified as a moderating variable ($F=1.067$, $p > 0.05$).

Conclusion and recommendations: All independent variables correlated positively with Quality Assurance Programme. Adequate physical resources, good leadership, proper monitoring system, team spirit and proper training should be given to improve the quality of patient care.

Key words: *Quality Assurance Programme, Training, Top management involvement*

ACKNOWLEDGEMENT

- Staff of the Department of Government Printing for their contribution in printing programme publications
- Staff of Waters Edge for their efficient help during the symposium
- Media institutions and media personnel for the due publicity given for this national event
- All the reviewers who reviewed the abstracts amidst their busy schedules with commendable commitment
- All the judges and panelists of the symposium for their valuable technical inputs and commitments
- All the scholars who have submitted their abstracts for making the symposium a grand success
- Mr. Dhammika for arranging all the logistics of the symposium and helping to make it an excellent event.
- All the staff members and the students of the training schools for their enormous dedication to glorify this event and Dr. Aruna Sandanayaka for coordinating it.
- Staff of the Education, Training and Research Unit for working tirelessly and unconditionally to make this symposium a success.
- All who extended their time and efforts generously to make the National Health Research Symposium 2019 a reality with glamour and elegance