

## 10TH INTERNATIONAL RESEARCH CONFERENCE

3rd and 4th August 2017

'Changing Dynamics in the Global Environment: Challenges and Opportunities'

# **ABSTRACTS**

General Sir John Kotelawala Defence University Sri Lanka

Ratmalana 10390 Sri Lanka This book contains the abstracts of papers presented at the 10<sup>th</sup> International Research Conference of General Sir John Kotelawala Defence University, Ratmalana, Sri Lanka held on 3rd - 4th August 2017. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form, without prior permission of General Sir John Kotelawala Defence University, Ratmalana, Sri Lanka

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## Message from the Chief Guest



I am pleased to send this message to the Abstract Book of the International Research Conference-2017 of General Sir John Kotelawala Defence University, Sri Lanka, especially on the occasion that it is held for the 10th consecutive time.

Research, experiment and invention have been in existence ever since the presence of man on this planet, and it has been brought into a whole new level and caliber in the 21st century, which can be witnessed in the pro-research environments and research conferences of this nature promoted and held by universities around the world. In this milieu, KDU-IRC, I believe, has become predominant in providing a collective platform for both civil and military specialists to engage in multidisciplinary discussions while showcasing new discoveries related to multiple disciplines.

I firmly believe that, this year's conference theme Changing Dynamics in the Global Environment, is both timely and appropriate for local as well as foreign scholars to display and gain recognition for their research achievements. Also worth mentioning is the importance of such collaborative multidisciplinary research which will ultimately pave path for inculcating professionalism, boosting international relations and nation-building, which, I presume, is undoubtedly one of the aims of KDU-IRC as well.

Finally, while congratulating and appreciating the work done thus far by Kotelawala Defence University in general and the conference organizers in particular, I wish all the success for the 10th International Research Conference of KDU.

HON SUSIL PREMAJAYANTHA Minister Ministry of Science, Technology and Research

## Message from the Secretary Ministry of Defence



It is a pleasure for me to send this message to the International Research Conference 2017 of General Sir John Kotelawala Defence University (KDU) in my capacity as the Secretary to the Ministry of Defence and the Chairman of the Board of Management of KDU.

It is well-known that Kotelawala Defence University has been rendering a yeoman service in the field of defence education catering to the requirement of producing graduate officers for the tri-services in Sri Lanka, and today it has grown in strength to extend its high quality, tertiary level, English medium education for Sri Lankan youth as well as for foreign students. In this context, it is heartening to see that it is also playing a leading role in the field of multi disciplinary research, and I am sure that the tenth anniversary research conference on the theme, "Changing Dynamics in the Global Environment: Challenges and Opportunities", would provide a sound platform to discuss with highest intellectual and philosophical depth on diverse issues in the dynamic world we are living today, particularly with a view to opening new avenues for solving our problems.

I take this opportunity to congratulate the Vice Chancellor and KDU staff on organising this important event and also to commend the researchers who took it upon themselves to make a valuable contribution to the knowledge bases of their respective disciplines, particularly in Defence and Strategic Studies. I wish the participants of this International Research Conference an intellectually fulfilling experience.

KAPILA WAIDYARATNE PC Secretary Ministry of Defence

## Message from the Vice Chancellor



It is with great pride and pleasure that I pen this message for the Abstract Book of the International Research Conference of General Sir John Kotelawala Defence University, Sri Lanka (KDU-IRC), especially at this symbolic moment when it is held for the 10<sup>th</sup> consecutive time. Over the past decade, KDU-IRC has made its distinct mark in the arena of multi-disciplinary research both nationally and internationally. This is certainly a matter that cannot be ignored; it gives me immense pride in reminiscence, especially as we celebrate KDU-IRC's 10th anniversary, and I am humbled to be at its helm.

Today, KDU-IRC has attracted specialists in diverse fields across the globe, enriching and encouraging its multi disciplinary space in the field of research and in the practice of knowledge dissemination. This year's conference under the theme Changing Dynamics in the Global Environment gathers experts both local and foreign under various disciplines, including defence and strategic studies. In particular, we are proud to have internationally eminent, Sri Lankan born scientists such as Prof. Chandra Wickramasinghe and Dr.

Bandula Wijay with us this time as they have made our motherland proud in the international arena as renowned experts and intellectuals in their respective domains.

KDU-IRC stands strong today with the great withstanding support of KDU staff and its wellwishers. I am especially thankful to the Ministry of Science, Technology and Research and the National Science Foundation, not forgetting the Ministry of Defence for their unfailing support in co-organising this conference.

It is my sincere wish that the plenary sessions, pre/post-conference workshops, and oral and poster presentations, which will unfold during the course of these significant days, will generate productive discussion and constructive criticism and will instigate thought for development in future. I hope that many would make KDU-IRC events an opportunity to study the changing dynamics in the socio-cultural environment in Sri Lanka, and help place our nation high, driving it towards success in the global matrix.

REAR ADMIRAL JAGATH RANASINGHE USP, psc MSc(DS)Mgt, MMaritimePol(Aus), PG Dip in CPS, Dip in CR, AFNI(Lond) Vice Chancellor

## Message from the Conferenc Chair



It is with great pride that I write this message as the Chair of 10th International Research Conference of General Sir John Kotelawala Defence University (KDU IRC), in this exciting time in KDU history.

For a decade KDU IRC has been a platform for knowledge sharing among researchers of various backgrounds. In this special year on its 10<sup>th</sup> anniversary, KDU IRC has invited over 50 experts from world over to share their knowledge and to initiate collaborations with their local counterparts numbering well over 1000.

KDU IRC received 557 research papers this year. Out of which 365 has been selected through a double blind peer review process for presentation. I, therefore, have no doubt that the outcomes of the conference would not only bring pride to KDU, but also uplift the status-quo of research and development of the country as a whole.

My task as the Chair this year would have been laborious, if not for the guidance, assistance and most of all the freedom given to me by the Vice Chancellor, Rear Admiral JJ Ranasinghe to mould and shape this conference to present-day requirements.

The generous assistance received from the Ministry of Science Technology and Research and the National Science Foundation is also praise worthy.

I hope both local and international participants will actively contribute in discussions, make new connections and have a productive and memorable time during the two days of the conference at KDU. I wish you all the very best.

DR PRASANNA PREMADASA PhD(UK) MSc(UK) BSc Hons. (Perad.) Chairperson 10th International Research Conference - 2017

#### Message from the Session President



I take pride and honour to write this message to the 10th International Research Conference of the General Sir John Kotelawala Defence University. The conference theme "Changing Dynamics in the Global Environment: Challenges and Opportunities in Medicine" will underpin the need for exploring the opportunities while facing the challenges in new developments in medicine globally.

As in previous years, conference provides an excellent forum to refresh your knowledge base and explore the innovations in medicine and research. The overwhelming response to our call-for-papers indicates the popularity of this conference and confirms that it has become the world-wide forum for all aspects of medicine and technology.

The Conference will strive to offer plenty of networking opportunities, providing you with the opportunity to meet and interact with the leading scientists and researchers, friends and colleagues as well as sponsors and exhibitors.

The conference itself starts with the plenary session where keynote speeches will be given by distinguished experts. The second day of the conference is allocated for 4 technical sessions for oral presentations. Posters will be displayed throughout conference days. Special attention should be given to the interactive poster presentation on Friday evening. A Best Paper Award and the Best Poster Award will be awarded at the closing session on the last day of the conference. I would like to express my thanks to all authors for their outstanding contributions and the members of the program board for their competent evaluation of the large number of submissions. Likewise, I would also like to express my appreciation to the program and awards committee, as well as to the invited chairs for their careful preparation of the invited sessions.

We hope that you will join us for a symphony of outstanding science, and take a little extra time to enjoy the spectacular and unique beauty of this region.

PROF MH JAYANTHA ARIYARATNE Dean of the Faculty of Medicine President Medicine Session



#### PURPOSE DRIVEN EDUCATION

#### Dr Bandula Wijay

Ambassador, Science Technology and Innovation Sri Lanka E mail: b.wijay@yahoo.com

Nations that developed rapidly had their population working in unison to achieve economic prosperity. The most important resource of any nation for such economic opulence is the determination and the education skills of its people. People's ability to advance their quality of life, depends on their skills to practice their knowledge and not just knowledge. Purpose Driven Education focuses on the development of these skills. There are many elements that contribute to the development of the purpose driven education culture. Empowering the concept of learning, adopting a horizontal or broad based curriculum, early introduction to practice of research, training for innovation and entrepreneurship are among major contributors. has shown that these elements Research significantly contribute to development of a workforce which would help advance the economic progress of a nation and in advancing its quality of life.

#### THE FUTURE OF RESOLVING THE HUMAN ELEPHANT CONFLICT (HEC.) THROUGH HUMAN ELEPHANT CO-EXISTENCE (HEC.)

#### Sarath Wimalabandara Kotagama

Vidya Jothi, Emeritus Professor, DSc (Honoris Causa) E mail: sarathkotagama@gmail.com

The current situation of the Human Elephant Conflict (HEC) require a deeper inquiry to ensure its prevention and mitigation. Some very fundamental facts are been currently ignored in the pursuit of trying to resolve the problem. The actions taken so far at an exorbitant cost with no regard to the large volume of scientific information generated, appear not to be bringing a resolution but increasing the conflict. A few back ground information will make this clear.

- As part of the strategy to curtail the movement of elephants close to 2000km of electric fences have been erected. What is the cost of this? the cost of erection of 01 km of fencing is at the lower end Rs 500,000.00 per km. Accordingly for the 2000 km of fencing we have spent Rs 1,000,000,000.00 or **one billion**.
- Despite the erection of 2000km of fencing the HEC intensity has not reduced over the past years. In fact the events have become more riotous and unmanageable.
- Further to the fencing troublesome elephants have been translocated, despite radiocollared scientific information clearly show that it is not a successful strategy. In fact it has resulted in the transfer of the problem to new areas, death of animals and or return to original location.
- The other strategy of large scale drives have also, on post drive inquiry and study shown that none of the drives conducted in the recent years since monitoring have got rid of the problem. Once again it has clearly shown an increase.
- The Department has spent millions (at least Rs 90million in 2014) every year to provide Thunder flashes to keep away elephants with no positive change.
- The overall cost of these action in monetary terms though diffused, collectively would easily come close to Rs 2 billion over the last five years. Not taking in account the maintenance cost

of fences, compensation and social costs.

The Department of Wild Conservation (DWC) strategy to confine elephants to PA system has resulted in, many places bifurcating the elephant populations thus exacerbating the problem.

It is a known fact of the distribution of elephants in the country that around 70% of the elephant population is found **outside** the DWC PA system. Yet much of the 2000 km fences are along the DWC Pennsylvanias, thus keeping out much of the animals to continue to raid and cause havoc.

- The fenced area ecological capacities **does not** equate with the scientific evidence of elephant densities in diverse habitats. It is know from the science that good tall forests harbour an elephant density of less than 01 per sq km. The main reason why the elephants are outside the DWC PA system is this. **the forest reserves** been tampered have much richer secondary vegetation in which the density is around 2-4 per sq km.
- The evidence of malnourished starved elephants within fenced areas has been recorded and substantiated in the recent studies of the South East and Udawalwe populations. This is again exacerbated by driving some animals from outside in to PAs, increasing the density and thus resulting in habitat destruction and starvation.

THE **FACTORS** ARE CLEARLY ALLINDICATIVE OF THAT, THE PRESENT STRATAGY ARE NOT WORKING EITHER INTEREST OF ELEPHANTS OR IN THE HUMANS.

In the light of the following background, inquiry into the information available of the elephant ecology, background to the conflict, analysis of present strategies, will be discussed. Concluding with some radical future directions if the country with the highest human density, largest conservation land scape and the highest wild elephant density is to remain without CONFLICT in COEXISTENCE.

#### EMERGING INFECTIOUS DISEASES: THE NEGLECTED DIMENSION OF GLOBAL SECURITY

#### Malik Peiris

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Novel emerging infectious diseases continue to arise in this 21st Century, posing unexpected threats. Recent examples include SARS, influenza, Ebola and most recently, Zika. Such epidemics often spread with great rapidity and across geographical boundaries leading to major social, economic, and political, as well as human or animal health impact. Many of these epidemics arise from viruses in domestic animals or wildlife. Recent changes in human behavior and travel, food production systems, deforestation and environmental change facilitate such disease emergence. Understanding the drivers of such events may allow measures for "containment at source", i.e. generic measures for risk reduction. These include improved infection control measures in hospitals and evidence based measures for reducing zoonotic transmission. Enhancing surveillance and response systems for infectious diseases are crucial for early detection and containment. The delayed recognition of the Ebola outbreak in Guinea in 2013 resulted in the outbreak spreading across borders leading to

>28,000 human cases and >11,000 deaths with cases being exported to multiple continents. In 2015, one returning traveler initiated an outbreak of MERS in South Korea that led to >186 human cases and a negative economic impact of approx. USD 1billion Recent outbreaks of dengue and influenza in Sri Lanka illustrate the ongoing impact of endemic infectious diseases. The "Commission on a Global Health Risk Framework for the Future" hosted by the US National Academy of Medicine estimates the annualized expected economic loss from potential pandemics is > USD 60 billion Given the complex and multifactorial factors contributing to such events, an integrated, multidisciplinary approach is needed in our response. The concept of "One Health" envisages a multidisciplinary, holistic and integrated approach to optimize health of humans, animals and the environment. This requires the collaboration of expertise in public health, animal health, environmental science and the seamless integration of laboratory, epidemiology, behavioral, and anthropological expertise.

#### WARS BETWEEN STATES AND GLOBAL HEALTH: THE SDG THE INTERNATIONAL COMMUNITY CHOSE TO IGNORE

#### Prof Saroj Jayasinghe

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Since the beginning of the Second World War (1939), wars between countries have killed and injured above a billion. Some wars decimated millions within minutes (e.g. nuclear bombs in Hiroshima and Nagasaki), and others continue to destroy the very fabric of societies (e.g. Iraq). They have displaced millions and permanently crippled billions, mentally and physically. Furthermore, they destroy natural ecologies, contaminate environments, and contribute to climate change. In summary, wars between states have the ability to destroy all the development agendas listed in

the UN's Sustainable Development Goals-2015, overnight. The SDGs offered a historic opportunity for individuals, civil society groups, nation-states and humanity to demand and pledge towards a globe free from wars and continue its march towards global peace. Though global peace is a prerequisite for any form of development, the SDGs ignore it and instead focus on conflicts, violence and human rights within countries. This gives inadequate attention to wars between countries and global peace. We need a fresh goal for the globe. This may be the last chance for the millions of innocent victims destined to die from wars in future...



## CLINICAL AUDIT ON EFFECTIVE USAGE OF PARTOGRAMIN OBSTETRIC UNIT B OF DGH-KALUTHARA FROM 01ST OF MARCH TO 31<sup>ST</sup> OF MAY 2016

#### DS Jayaweera

Nilmini, Balakawala, Akuressa, Sri Lanka dhanushkaj4@gmail.com

WHO recommend spartogram for universal use during labour as a necessary tool. Continuous monitoring during labour provides safe care. Further it prevents adverse outcomes relating to child birth. The tool helps to identify deviations early and intervene timely. Annually a huge sum of money is spent on maternal health by the government of Sri Lanka to deliver free health care to the public. Maternal mortality is reported to be low despite Sri Lanka been a developing country. Hence, it is the duty and responsibility to keep the statistic low and maintain excellent quality of care with the available resources.

Since partogram can detect obstructed labour early, it helps to reduce maternal deaths by preventing uterine rupture, post partum haemorrhage and puperial infections. Perinatal mortality reduces when traumatic deliveries are less. It is a tool as that is simple, inexpensive and freely available. The goal of this audit is to assess the effective use of partogram in the local setting.

A descriptive study was conducted in obstetric unit B of DGH-Kalutara. The total of 571 of deliveries in March, April and May 2016 were selected for the audit. Effective usage of partogram was assessed by executing partograms of relevant BHTs. Data collection and analysis was done by the auditor.

Client information is included in majority of partograms. Position, caput, moulding, cervical dilatation, contraction free interval, duration of contraction and abdominally descent were not marked in the majority and the technical errors were noted during marking.

Practical issues in monitoring and documenting of contraction free interval and duration of contraction should be addressed. Maternal monitoring and second stage foetal monitoring should be encouraged. A proper training programme of National Partogram should be arranged.

Keywords-national partogram of Sri Lanka, labour management, clinical audit

#### KNOWLEDGE AND PRACTICES ON BIRTH PREPAREDNESS AND COMPLICATION READINESS AMONG ANTENATAL MOTHERS; A STUDY FROM SOUTHERN PROVINCE

## DLW Dasanayaka<sup>1</sup> SMT Ganewatte<sup>2</sup> N Rathnayaka<sup>3</sup>

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Birth preparedness (BP) and complication readiness (CR) is a concept introduced by World Health Organization (WHO) for reduction of maternal and neonatal mortality rate of a country. This study was aimed to evaluate the level of knowledge and practices on BP and CR and associated factors among antenatal mothers attending antenatal clinic (ANC) of Teaching Hospital Mahamodara (THM).

A self-administered questionnaire was applied among 200 consecutive antenatal mothers who were in third trimester, attending ANCs in THM in a descriptive cross- sectional study. Binary logistic regression was applied to detect the factors associated with level of knowledge and practice on BP and CR.

Mean age of the study participants was 28.61 (5.34). BP and CR were known concept by 88.5% (177) participants. Knowledge on BP and CR were reported as above average in 92.5% (185) and 78.0% (156) mothers respectively. Mothers who practiced BP and CR were 83.5% (167). Higher maternal age (p=0.02, OR=3.77, CI=1.16; 12.24) was negatively associated with level of knowledge on BP. None of the factors was associated with level of knowledge on CR. There was statistically significant positive association with education (p=0.03, OR=0.31, CI=0.11; 0.91) and current expected pregnancy (p=0.008,OR = 0.26, CI=0.10; 0.70) with level of practice on BP and CR.

BP and CR is a well-known concept among third trimester mothers. Level of knowledge and practices on BP and CR were satisfactory among the study sample. Women with higher maternal age had poor knowledge on BP.

Keywords-Birth Preparedness, Complication Readiness

#### PREVALENCE AND RISK FACTORS OF SELECTED OCCUPATIONAL HEALTH PROBLEMS OF TEACHERS WORKING IN BIYAGAMA EDUCATIONAL DIVISION SRI LANKA

#### P.H Lakmani<sup>1#</sup>, MWK Gamage<sup>1</sup>, PV de Silva<sup>2</sup>

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Teaching is considered as a carrier which has many physical health problems that caused or worsened with the occupation. Hence, this study was aimed to assess prevalence and risk factors of selected occupational health problems [Musculo Skeletal Disorders (MSD), voice disorders, asthma detection and presence of varicose symptoms] among school teachers working in Biyagama educational division Sri Lanka. This was a descriptive cross sectional study, which was conducted with a conveniently selected sample of 405 teachers. Information was collected using a pretested interviewer administered questionnaire. Data analysis was performed using SPSS 20 version. Study shows a prevalence of 93.1% of MSDs, 33.6 % of voice problems, 56% of varicose veins symptoms and 28.6% of asthmatic attacks.

Study concluded that the most prevalent disorder among the teachers was MSDs. Standing for longer period increased varicose vein symptoms. Working with blackboard for a longer time caused asthmatic attacks in teachers. Voice disorders increased with talkativeness. Younger teachers had more voice disorders. Financial burden occurred with voice disorders of teachers. Teachers were being upset about their own voice. Upper back, lower back and knee problems increased with weight and lower back problems increased with height according to study. MSD increased with age and length of employment. Teachers with lesser teaching experience had reported overall complaints of MSD mostly.

Key words: Occupational health, Teachers

#### NON-COMMUNICABLE DISEASE (NCD) BURDEN IN WOMEN DURING MENOPAUSE TRANSITION AND EARLY POST-MENOPAUSAL PERIOD PRESENTING FOR NCD SCREENING IN A NCD CLINIC IN SRI LANKA

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Prevalence of NCDs, the leading cause of death worldwide, increases after menopause. Identifying modifiable NCD risk factors will assist in prevention and management of NCDs.

The aim of this study was to evaluate the NCD burden and its' risk factors in women during menopause transition and early post-menopausal period.

A preliminary cross-sectional descriptive study was conducted among 63 women≥40 years of age, attending the NCD clinic at Wijaya Kumaranatunga Memorial Hospital, Seeduwa. Data was collected via an interviewer-administered questionnaire, clinical examination and laboratory investigations. Comparison of variables was made using Pearson Chi square test.

Participants' mean age was 52.33±7.11 years (mean±SD; n=63). 71.4% had reached menopause (mean age at menopause= $47.45\pm5.76$  years¬). Mean body mass index (BMI) was 27.26±5.12kg/ m2, 19.7% were overweight (BMI 23-24.9kg/ m2) and 65.6% were obese (BMI≥25kg/m2). Mean waist circumference was 88.78±13.9cm with 73.9% having a high waist circumference (≥80cm). 77.8% had no regular exercise. 58.7% had a family history of NCDs. Prevalence of NCD's (selfreported) were as follows: hypertension-22.6%; diabetes 19.4%; hyperlipidaemia-33.9%; ischaemic heart disease (IHD)-8.1% stroke-3.2%. On examination, 45.6% were prehypertensive, and 36.8% were hypertensive. On investigation, 22% had impaired fasting glucose (100-124.9mg/dl), 20% had diabetes (≥125mg/ dl), 80% had high LDL (>100mg/dl) and 33.9% had high triglycerides (>150mg/dl). There was no significant difference in the self-reported prevalence of NCDs [hypertension (p=0.913), diabetes (p=0.609), hyperlipidaemia (p=0.455) and IHD (p=0.511)] between the post and premenopausal women, except a higher prevalence of stroke (p=0.019) after menopause.

The preliminary findings reveal that there is an abundance of NCDs in both pre and postmenopausal groups, along with the underdiagnosis of certain NCDs, especially hypertension and hyperlipidaemia. It also illustrates the overwhelming presence of modifiable risk factors for NCDs in this group, namely obesity, high waist circumference and sedentary life style. Therefore remedial interventions to modify above risk factors would aid in prevention of NCDs in Sri Lankan women.

Keywords:menopause, NCD, Sri Lanka, noncommunicable diseases

#### VALIDITY OF SRI LANKAN DIABETES RISK SCORE (SLDRISK) AS A DIABETES-SCREENING TOOL FOR REAL LIFE DIABETES SCREENING IN A HIGH-RISK **POPULATION**

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Screening for diabetes is not widely undertaken due to the cost and invasiveness of blood sampling. Simple non-invasive tools to identify high-risk individuals can facilitate screening. The objective of this study was to find the performance of SLDRISK scorein a high-risk Sri Lankan adult population.

Data were collected from a consecutive sample of 1000 previously undiagnosed semi-urban Sri Lankan adults aged 40-70. The SLDRISK score was calculated as previously published. Glycosylated haemoglobin (HbA1c), fasting plasma glucose (FPG) and 2-hr post oral glucose tolerance test (2-hr OGTT) were used to diagnose diabetes according to American Diabetes Association cutoffs (FPG>126mg/dl, 2-hr OGTT >200mg/dl or HBA1c >6.5%). The data were analyzed using SPSS version 24. The SLDRISK score cut-off for high risk of diabetes had been  $\geq 31$ .

In this sample 31.1% were newly diagnosed with diabetes. Percentage above the cut-off of 31 were 82.1%. A risk score  $\geq$  31 gave a sensitivity, specificity, positive predictivevalue and negative predictive value of 86.26, 19.74, 32.71 and 76.07 % respectively. The area under the ROC curve of the risk score for incident diabetes was 0.588.

SLDRISK tool when applied to real life diabetes screening, showed high sensitivity but low specificity compared to its original values (86.26 vs 77.9%) and (19.74 vs 65.6%) respectively. This suggests that use of non-invasive diabetes risk scores would not have much added value in screening high-risk populations for diabetes, due to the high false positive rate (80.26%).

Keywords: Diabetes, Screening, Risk score, Sri Lanka, South Asian

#### RESEARCH IN TO HISTORY: FORENSIC ASPECT OF THE DEATH OF KING SEETHAWAKA RAJASINGHE - CIRCUMSTANCES AND CAUSE OF DEATH

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Seethawaka kingdom existed for a relatively short period of 72 years, 1521-1593 AD. Mayadunne was the first king of Seethawaka and King Rajasinghe succeeded him in 1581. His sudden demise in 1592 is surrounded with a lot of speculations and most consider it to be an act of intentional poisoning. It appears that there are many false documentations about probably the greatest king in Sri Lankan history. In this research we looked into the information with regard to intentional harm, circumstances and cause of death.

Research into many primary sources of information including ola leaves dating back late 16th century was made and many other secondary sources were referred. All information obtain from various references were carefully considered and analysed in a forensic view point.

According to many sources King Rajasinghe sustained a bamboo thorn prick at Pethangoda on his return after a loosing battle with king Vimaladharmasuriya. Many historical accounts and a particular ola leaf letter indicates that kings wound

was applied with poisonous substance. Recently a few researchers have put forward a theory that king died of tetanus after considering the features of the illness described.

However, it is our view that tetanus is an unlikely condition in this situation. Presence of cyanide in the bamboo stem could be the lethal substance. It is also noted that constituents of the wound dressing are known to possess antimicrobial, antiseptic and many other medicinal properties. Recent discovery of potent antibiotic in horse dung raise a question whether physicians in that era knew about the presence of such antimicrobial substance.

In conclusion though we do not totally discard the occurrence of tetanus, it is our view that the king probably died of cyanide poisoning and alleged poisonous substances could in fact have been used as a treatment method in good faith.

Keywords: Cyanide, intentional poisoning, good faith

#### DENTAL FLUOROSIS, DRINKING WATER AND PARTICIPANT PERSPECTIVES: A CROSS-SECTIONAL STUDY AMONG STUDENTS OF A NATIONAL SCHOOL IN ANURADHAPURA

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Dental fluorosis is caused by excessive fluoride intake mainly via drinking water during the development stage of teeth. Anuradhapura is a region where fluoride levels in drinking water is high. Thambuttegama divisional secretariat of Anuradhapura is considered to be one of the hotspots for high fluoride concentration. The latest available study at Anuradhapura (2004) revealed a prevalence of 90% for very mild to severe form of dental fluorosis. This study aims at finding knowledge, attitude and prevalence of dental fluorosis among students of a National School in Thambuttegama. A descriptive cross sectional study was performed using a selfadministered questionnaire at National Schools of Thambuttegama. Dean's index was used to rate severity of dental fluorosis. Participation rate was good (83% - 248/300). Most were females (53%), 12 years old (44%) and from Thalawa division (54%). Mean age of participants was 12.8

± 0.76 years. Majority of the participants didn't know about dental fluorosis (64%). Parents were the commonest source of knowledge on dental fluorosis (32%). Most of the participants (73%) were satisfied with the appearance of their teeth. 09% of participants have never visited a dentist. According to the Dean's index 37.5% belonged to very mild to severe form of dental fluorosis. Well water was used by most (44%). Among the well water users, 41% (45/109) had very mild to severe form of dental fluorosis in comparison to 35% (48/139) in other water users. There was no significant difference (X2 = 1.1884; P = 0.28) between the two groups. Prevalence of very mild to severe form of dental fluorosis is still high among the school children of Thambuttegama. However their knowledge on dental fluorosis seems to be poor.

Keywords: Dental fluorosis, Dean's index, Drinking water, School children

#### SERUM CALCIUM & BONE SPECIFIC ALKALINE PHOSPHATASE IN LUMBAR DISC HERNIATION AND DEGENERATION

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Calcium and serum bone specific alkaline phosphatase (BAP) have been studied as prognostic markersin calcification and degeneration in lumbar disc herniation and degeneration (LDHD). Objective of the study was to identify the impact of serum calcium and BAP in LDHD. Volunteer subjects (106) with confirmed lumbar disc herniation and undergoing lumbar discectomy from a selected hospital in Colombo were recruited. Test group were categorized into subject with degeneration and herniation (n=38) and herniation only (n=68). Controls were age and sex matched individuals without previous history of back pain and had not received medication for back pain during the past one month (n = 106). Venous blood was obtained from all the participants and serum was analysed using KONE 20 XT clinical analyser and Enzyme Linked Immunosorbent Assay for serum calcium and BAP respectively. There was an equal distribution of gender in the degenerated and herniated patients and further analysis was done separately for subjects (both females and males)

above and below 50 years of age. Majority (64 %) of the test patients presented with disc herniation only. Similar pattern of distribution was observed in degenerated and herniated subjects with age below and above 50 years in both sexes suggesting that degeneration does not associate with age as indicated in previous studies. Mean serum calcium levels were innormal reference range (8.5 -10.5 mg/dL) in all three groups (Herniated, Herniated & Degenerated and Control) it was significantly different among females below 50 years and males above 50 years. Herniated subjects had the lowest value for serum calcium. However, serum BAP level was significantly different only in males above 50 years of age ( $\chi$ 2 (2), 6.26; p=.044). Hence serum Calcium and BAP does not play a major role in LDHD. Further investigations are needed to reestablish the normal reference range and to use calcium as prognostic marker in LDHD.

words: Lumbar disc herniation degeneration, Serum calcium, Serum Bone specific AlkalinePhosphatase

#### A STUDY TO COMPARE THE PREVALENCE OF ANAEMIA IN CHRONIC KIDNEY DISEASE OF UNCERTAIN ETIOLOGY (CKD-U)PATIENTS IN GIRANDURUKOTTE AND WILGAMUWA WITH CHRONIC KIDNEY DISEASE (CKD) PATIENTS IN KANDY

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Chronic Kidney Disease (CKD) is a Public Health problem in worldwide. The severity of anaemia is directly related to severity of Chronic Renal Insufficiency. Chronic Kidney Disease of uncertain etiology (CKD-u) has become a serious public health crisis in SriLanka. CKD-u is slowly progressive, irreversible and asymptomatic until late stages and it is not attributable to hypertension, diabetes or other known etiologies. The goal of the study is to compare the prevalence of anaemia in CKD-u patients and CKD patients. Subjects were selected from Girandurukotte and Wilgamuwa which are highly prevalent areas for CKD-u. CKD patients were selected from Kandy as non-endemic area for CKD-u. Biopsy proven, non-dialysis 119 CKD-u patients were selected for the study. For non-endemic control group, 119 age and sex matched, CKD patients were selected. Detailed history was obtained at the first visit of patients using a questionnaire. Blood samples for Full blood count and serum creatinine were taken.

Prevalence of anaemia in CKD-u and CKD patients was 72.3% (86/119) and 77.3% (92/119) respectively. When comparing anaemia in both groups, there is no significant association between CKD-u patients in endemic area and CKD patients in non-endemic area (p=0.37). In CKD patients, chi square test shows, a significant association between stage of renal disease and anaemia (p value =0.002). However, in CKD-u, according to Chi square test, there is no significant association between the stage of renal disease and the percentage of anaemic patients (p=0.695). When the haemoglobin in stage 5 in both groups are compared, the percentage of anaemia in CKD-u and CKD were 83.3% and 100% respectively. Anaemia in CKD is more prevalent than CKD-u. In CKD, percentage of anaemic patients steadily increases with the progression of the disease while such association is not seen in CKD-u patients.

Key Words: Chronic Kidney Disease, Chronic Kidney Disease of uncertain etiology, Anaemia

### URINARY BIOMARKERS KIM -1 AND NGAL MAY PREDICT CHRONIC KIDNEY DISEASE OF UNCERTAIN ETIOLOGY (CKDU) AMONG SUGARCANE FARMERS IN SRI LANKA

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Chronic kidney disease of uncertain etiology has become a major health problem among farming communities in rural Sri Lanka. This study determined the prevalence of CKDu following WHO case definition of CKDu in two disease emerging locations of Monaragala District [Warunagama (EMW) and Rahathangama (EMR)] and two non-endemic locations Matara (CM) and Nuwara Eliya (CN) in Sri Lanka. Further, the study aimed to determine the levels of tubular injury markers, Kidney Injury Molecule (KIM-1) and Neutrophil Gelatinase-associated Lipocalin (NGAL) in the same study populations to assess potential early renal injury among CKDu subjects and healthy individuals from the recruited male farmers (Warunagama: n= 46, Rahathangama: n= 31, Matara: n= 47, Nuwara Eliya: n=30). Early morning first urine samples and blood samples were collected form the subjects and Creatinine normalized urinary KIM-1 and NGAL were measured using ELISA. Albuminuria (ACR ≥ 30mg/g); serum creatinine based estimation of glomerular filtration rate (eGFR) were also assessed for kidney function. Twenty-five new CKDu cases were identified (EMW: n= 14 and EMR: n=11) for the first time in Monaragala District, Sri Lanka regardless no previous CKDu has been reported. Persistent albuminuria (ACR ≥ 30mg/g Cr) was also reported in new cases. No CKDu cases were identified in non-endemic study locations in CM and CN. Urinary KIM-1 and NGAL levels were significantly higher in CKDu cases in EMW and EMR. Early tubular damage as seen by higher urinary KIM-1 and NGAL was also observed in healthy farmers despite normal ACR levels. Tubular damage predicted by urinary KIM-1 and NGAL were also significantly correlated with higher urinary ACR levels. We conclude that novel urinary biomarkers KIM-1 and NGAL may predict CKDu among sugarcane farmers and its applicability over the conventional markers warrant for further studies.

Keyword: albuminuria, CKDu, eGFR, sugarcane farmers, urinary biomarkers

#### HEALTH SEEKING BEHAVIOUR AND NON-COMMUNICABLE DISEASES: MEN OVER 40 YEARS OF AGE IN COLOMBO DISTRICT

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Life expectancy trends have resulted in a substantial male - female gap in Sri Lanka, one of the largest in the world. Even though country has improved life expectancy of its population, non-communicable diseases (NCDs)could be observed as a leading cause of mortality. This affects more for the men over 40 years of age. The main objective of this study is to investigate the health seeking behaviour of men with NCDs who are over 40 years of age in Sri Lanka. In the process of data collection, a questionnaire is administrated where a researcher filled the necessary information. Additionally, in depth interviews were conducted wherever it is necessary to obtain in-depth information. Targeted population was men over 40 years of age who suffer from any kind of NCDs in the study area which is Colombo district. Through the study it has been identified that some of respondents found to be suffering from more than one NCD. The study concludes that majority has commenced treatments as soon as they have been identified with a NCD.

But their compliance for medicine was not accurate. It has been discovered that individuals tend to take the medicines according to their opinions and decisions. Most of the respondents are selfmotivated in taking medicine. Respondent and the spouse seem to collaborate in making health related decisions of the family. This study also considered the attitude of the respondents towards the risk behavioural risk factors where it revealed that the attitudes on the consumption of vegetables, fruits and water, proper diet are positive and the attitudes towards tobacco and alcohol use, physical inactivity and stress are negative. There is a necessity to emphasize on the health seeking behaviour of men with NCDs in order to reduce the gap between life expectancies.

Key words: Non-communicable diseases, health seeking behaviour, life expectancy

#### FACTORS CONTRIBUTING TO THE STRESS IN SCHOOL ENVIRONMENT AMONG ADOLESCENTS IN COLOMBO DISTRICT SRI LANKA

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Adolescents are often subjected to stress associated with psychosocial adversities at home and at school. The Adolescent Stress Questionnaire (ASQ; Byrne et al., 2007) has been used to assess the stress level in adolescents in many countries in the world. For the first time, this tool was used in government schools in Colombo District in this study to determine the stress among adolescents in school environment. A descriptive cross-sectional study was conducted on students aged 14 to 16 years (n=104; mean age 15.3 years  $\pm$  0.50 SD; 53% female). ASQ was validated into Sinhala Language using the Delphi technique. Baseline data was obtained and ASQ was self-administered. Stress related to school performance was assessed by assessing the perception of having to study things that adolescent does not understand, expectations of teachers from adolescents, having to keep up with school work, difficulty of some subjects, having to concentrate for long during school hours, having to study of things that adolescents not interested in and the pressure of study. Stress due to school attendance was assessed with factors

related to waking up early morning, compulsory school attendance and stress of going to school. Subjects were divided into stressed (ASQ≥150) and non-stressed (ASQ<150) groups. Case control comparisons were made between the groups to determine stress factors. Factors relating to school performance; having to study things that adolescent does not understand p=0.007), expectations of teachers (p=0.000), difficulty of some subjects (p=0.000), having to concentrate for long during school hours(p=0.000), having to study of things that adolescents not interested in(p=0.000) and the pressure of study(p=0.000) showed significant association. Waking up early morning (p = 0.021) showed a significance association to stress. Nearly 37 % was stressed in relation to school performance and school attendance. School performance and school attendance significantly contributed to stress among adolescents at school. It is recommended that the implementation of intervention is timely to address the identified stress factors.

Keywords: adolescent, school performance, school attendance, stress

#### KNOWLEDGE AND ATTITUDE ON CHILD PSYCHIATRIC DISORDERS IN SRI LANKAN PARENTS ATTENDED TO OUTPATIENT DEPARTMENT OF A TERTIARY CARE CENTER

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Evidence is sparse on assessing the knowledge and attitude of Sri Lankan parents about highly prevalent child psychiatric morbidity. Therefore main objective of the study is to identify the awareness and attitude of parents about the existence of different child psychiatric diagnoses and common abnormal behavioral manifestations that favors the above diagnoses. This is a descriptive cross sectional study done with participation of randomly selected 128 parents in the outpatient department of Lady Ridgway Hospital for Children. Out of 128 questionnaires 97 were completed and 76%

have identified poor anger control as a psychiatric symptom where only 38% of parents identified excessive video game playing as an abnormality. However 70% preferred to be followed up at Children's hospital. Parental education programs to raise awareness on psychiatric disorders in children are recommended to reduce the treatment gap and stigma.

Key Words-Child Psychiatry Disorders, Attitude, Knowledge, Parental awareness

#### EVALUATION OF STRUCTURE AND CONTENT OF FORENSIC PSYCHIATRIC REPORTSAT FORENSIC PSYCHIATRY UNIT, NATIONAL INSTITUTE OF MENTAL HEALTH, SRI LANKA

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Preparing forensic psychiatry reports is important in assisting courts on sentencing. To serve the purpose, the forensic psychiatry reports should be relevant, thorough, objective, clear, and well reasoned. Forensic psychiatry unit at National Institute of Mental Health produces around thousand reports annually. There were no objective assessment of content and structure of the reports. There are evidence based accredited guidelines available to ensure quality and content of forensic psychiatry reports. Aim of the study was to evaluate the structure and the content of reports, before and after subspecialty of forensic medicine been introduced into psychiatry in Sri Lanka. This is a cross sectional descriptive study. Data was collected using a checklist prepared according to Good Practice Guidelines published by Ministry of Justice; United Kingdom. Checklist was filled by referring every report in the last year of each era (before and after subspecialty been introduced). Final reports were included in the study which were

produced to high courts, magistrate courts and visitors board. Analysis was done using Microsoft Excel-2007 and SPSS-17.0. Almost all 558 reports contained date, subject's name, author's name, qualifications, work place, source of referral and mental state examination section. Emergence of sub-speciality was contributed to statistically significant difference in recordings of sources of information, statement of consent, report divided under headings, separated opinion section, category of disorder, technical terms been defined, subject's age, charge, risk analysis. Establishment of sub-speciality has shown major improvements in many aspects of the reports. Despite statistically significant improvement in some areas, the percentages was still not satisfactory. All the components given in the guideline were not included in the reports. Hence, it is recommended that the guideline developments for local setting is a timely requirement.

Keywords- Forensic psychiatric reports, content

#### AN UNUSUAL FORM OF COMPLEX SUICIDE

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Suicides are divided into simple and complex. The term "complex suicide" refers to suicides in which more than one suicidal method is applied. The second or the alternative method may be employed once the victim realizes that the first method has failed to work or is unduly delayed. In planned complex suicides, two or more methods are employed simultaneously in order to make sure that death becomes inevitable even if one method fails. Frequently encountered combinations are the ingestion of pesticides in combination with hanging, wrist cuts and firearm injuries in combination with hanging, extreme intoxication with alcohol and jumping in to a waterway or in front of a moving train and etc.

In this particular case under discussion, the use of combination methods of hanging, gagging and self-incineration were evident. This was highly unusual and extremely rare. These initially mislead the investigator regarding the manner of death. A57 year old man found inside a partially burnt room which was locked from inside. His mouth was gagged and a ligature around his neck was evident. Findings of the scene visit, the autopsy results, a brief discussion about the methods used to induce death and a short overview of complex suicides will be discussed.

Keywords: complex suicide, planed complex suicide, manner of death, self-incineration

#### KNOWLEDGE AND CURRENT PRACTICES OF JUNIOR DOCTORS OF BREAKING BAD NEWS IN A GROUP OF HOSPITALS IN COLOMBO

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Breaking Bad News (BBN) is an essential skill to be learnt and practiced by a good medical professional. In Sri Lanka, it is a common encounter for junior doctors. Hence, it is important to assess the knowledge, current practices and commonly encountered limitations in BBN with an intention of further developing the undergraduate curriculum and hospital protocols.

The objective of the study is to determine the knowledge and current practices of Breaking Bad News among junior doctors in a group of hospitals in Colombo.

A cross sectional descriptive and analytical study was conducted among 105 junior doctors, selected by convenient cluster sampling, in National Hospital of Sri Lanka, Lady Ridgeway Hospital and De Soysa Maternity Hospital.

Information on duration of medical service, the knowledge and practices of the basic principles of BBN, awareness of the protocols, learning method, and limitations for BBN were collected by a self-administered questionnaire. The level of knowledge, the factors associated with knowledge of BBN and the limitations were analyzed.

Fifty two percent of doctors were categorized as having good knowledge. There was a significant improvement of knowledge in post intern(84.6%) doctors than intern doctors(47.8%) P=0.013 and with the duration of intern period. Nearly seventy percent of doctors were aware of a protocol and 98.7% of them have learnt it during the undergraduate period. Ninety percent of doctors who graduated from the Colombo Faculty and 48.3% of doctors who graduated from other faculties were aware of the protocol. Ninety four percent believed following a protocol is beneficial. "Lack of time" perceived as a limitation for BBN in 83.8% of doctors.

Doctors have good knowledge on BBN despite not knowing the protocol. There is an improvement in knowledge on BBN with the duration of medical service probably due to repeated exposure and experience. The protocols of BBN need to be included in undergraduate curriculum in all medical faculties.

Key words: Breaking bad news, doctors, protocol

#### ANTIBIOTIC SUSCEPTIBILITY PATTERN OF THE S. AUREUS ISOLATES AT A TERTIARY CARE HOSPITAL

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The importance of Staphylococcus aureus (S. aureus) as a persistent nosocomial and community acquired pathogen has become a global health concern. It has a remarkable capability of evolving different mechanisms of resistance to most antimicrobial agents.

The aim of the present study was to determine the Methicillin Sensitive S. aureus (MSSA) and Methicillin Resistant S. aureus (MRSA) and the antibiotic susceptibility pattern of these isolates.

A total of 60 isolates of S. aureus, obtained from clinical samples received at the Department of Microbiology, Colombo South Teaching Hospital (CSTH) from 01st January to 01st April 2017 were included in the study. S. aureus isolates were identified by standard laboratory procedures (Gram Stain, Catalase, slide/tube coagulase tests). The antibiotic susceptibility tests were carried out as per Clinical Laboratory Standards Institute (CLSI) guidelines.

Of the 60 S. aureus isolates, 33 (55%) were Methicillin Sensitive S. aureus (MSSA) and 27 (45%) were Methicillin Resistant S. aureus (MRSA). The antibiotic susceptibility pattern of the MRSA isolates showed to be compatible with hospital acquired MRSA infections, which were resistant to most anti- staphylococcal antibiotics. The resistant rates to Erythromycin, Clindamycin, Ciprofloxacin, Gentamycin and Cotrimoxazole, were 85.19%, 77.78%, 48.15%, 40.74% and 37.04% respectively.

As majority of MRSA isolates showed hospital acquired MRSA pattern, this study emphasizes the need for continuous monitoring of the antimicrobial susceptibility pattern of S. aureus isolates for the selection of appropriate antibiotic therapy and implementation of proper infection control measures.

Keywords: Staphylococcus aureus, MRSA, ABST

#### ANTIFUNGAL SENSITIVITY PROFILE OF Fusarium SPP. RESULTING KERATITITS

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Fungal keratitis is an important cause of visual impairment and blindness. Genus Fusarium is a leading cause for fungal keratitis and it has a higher degree of resistance to antifungal agents.

Our objectives were to identify Fusarium spp. isolated from corneal specimens (received at Dept. of Mycology - MRI from 2013-2016) up to species level and to determine antifungal susceptibility pattern of them.

All Fusarium isolates (51) obtained from specimens of patients with keratitis were included in the study. Speciation was done using morphological characteristics of fungi. Antifungal sensitivity testing was done according to CLSI M 51- A guideline, against amphotericin B (10 µg), itraconazole (1µg) and voriconazole (1 µg).

Majority of the isolates were F. solani complex

(n=24). Three isolates were difficult to speciate morphologically. Significant number of Fusarium isolates had inhibitory zone diameters (IZD) less than tentative zone diameter epidemiological cut off values (TZD ECVs) for both itraconazole and amphotericin B, indicating emergence of resistant strains against these drugs. Forty five isolates (97.82%) had IZD more than corresponding TZD ECV for voriconazole. All F. solani complexes had IZD less than TZD ECVs for itraconazole.

Morphological identification cannot be used as the only method for speciation of Fusarium isolates. Antifungal sensitivity testing should be done for all Fusarium isolates from keratitis patients as emergence of resistance strains is not uncommon against commonly used antifungal agents.

Keywords— Fungal keratitis, Fusarium Antifungal resistance, Sri Lanka

## INDUCIBLE CLINDAMYCIN RESISTANCE IN STAPHYLOCOCCI: SHOULD CLINICIANS AND MICROBIOLOGISTS BE CONCERNED?

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Clinical failure of Clindamycin therapy can occur due to the expression of Macrolide-Lincosamide-Streptogramin B resistance (MLSB).

The objective of this study was to detect the presence of inducible Clindamycin (MLSB i) resistance among the isolates of Staphylococcus aureus (S.aureus).

A total of 60 isolates of S. aureus, received at the Department of Microbiology, Colombo South Teaching Hospital(CSTH) from 01st January to 01st April 2017 were included in the study. The isolates were initially identified by Gram stain, catalase and slide/tube coagulase tests. The isolates were screened for Erythromycin resistance by Clinical Laboratory Standards Institute (CLSI) guidelines. The isolates resistant to Erythromycin were further studied for inducible Clindamycin resistance(MLSB i) by the disk approximation(D test) test. The Isolates resistant to both Erythromycin and Clindamycin were defined as constitutive MLSB(MLSB c) phenotype and isolates that were resistant to Erythromycin and sensitive to Clindamycin were defined as MSB phenotype.

Of the 60 S. aureus isolates, 33(55.0%) were methicillin sensitive (MSSA) and 27(45.0%) were methicillin resistant S. aureus(MRS A).Of the 60 isolates of S. aureus, 45(75.0%) showed Erythromycin resistance. Of the 45 Erythromycin resistant isolates 10(22.2%) showed inducible Clindamycin resistance and belonged to the inducible MLSB(MLSB i) phenotype. Of the MLSB i phenotype, 5 isolates were MRSA (18.5% of the total MRSA) and 5 were MSSA (15.1% of the total MSSA).Of the 45 Erythromycin resistant isolates 22(48.8%) showed constitutive clindamycin resistance (MLSB c) and 13(28.8%) showed MSB phenotype.

Clindamycin has been used successfully to treat pneumonia/soft-tissue and musculoskeletal infections due to MRSA. However, concern over the possibility of emergence of clindamycin resistance during therapy has discouraged some clinicians from prescribing that agent. The D test is a simple, reliable and effective method of detecting inducible resistance to Clindamycin in Erythromycin resistant isolates of S.aureus.

Keywords: Inducible resistance, Erythromycin, Clindamycin, Staphylococcus aureus

## IDENTIFICATION OF PEPTIDE MARKERS FOR SPECIFIC DIAGNOSIS OF **JAPANESE ENCEPHALITIS**

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Japanese encephalitis (JE) is one of the major viral diseases in Asian countries, and there are more than 70,000 JE cases reported annually. JE virus (JEV) belongs to the same family as the dengue virus and they both coexist geographically. Because of the cross reactivity between these two viruses, the detection of a past JEV infection has been difficult in a background of immunity to dengue virus. The currently available diagnostic kits for JEV show cross reactivity towards antibodies against dengue virus. The current study, therefore, aimed to develop an assay for the detection of preexisting immunity specifically against JEV in a background of immunity to dengue. Bioinformatic analyses was conducted to identify short peptides from JEV proteins, which are conserved in JEV. Thirty six peptides are highly unique to JEV. The synthesis of 22 of the 36 peptides were successful in commercial synthesis and they were subjected to Enzyme Linked ImmunoSorbent Assay (ELISA), to identify peptides that respond to antibodies generated specifically against JEV. Sera were collected from healthy volunteers who have been JE vaccinated and non-vaccinated, with or without a past dengue infection. Seven of these peptides gave responses only to sera of individuals who had been vaccinated with JE and there were no antibody responses to sera of those who had not been vaccinated for JE but had past dengue infection. When those 7 peptides were assayed together as a pool, the specificity and sensitivity of detecting an individual with pre-existing immunity was 100% and 85% respectively. Therefore, those peptides can be utilized as a marker for the diagnosis of a JEV infection in the background of dengue infection.

Keywords: JEV, Diagnosing marker, Dengue

# KNOWLEDGE, ATTITUDE AND PRACTICE TOWARDS COMMON ADULT EYE DISORDERS AMONG PATIENTSOVER 40 YEARS OF AGE ATTENDING GENERAL MEDICAL AND SURGICAL CLINICS OF THE NATIONAL HOSPITAL, SRI LANKA.

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The incidence of age related eye disorders in adult population is increasing. Recent epidemiological studies have identified visual impairment among adult population as a major health issue. This descriptive crosssectional study has focused on establishing insight regarding knowledge, attitude and practice about common adult eye disorders which will be important in order to carry out health promotion activities among the vulnerable population. The study was carried out in eight different general medical and general surgical clinics at the National Hospital of Sri Lanka ( NHSL), which were selected by simple random sampling of all general medical and general surgical clinics of the NHSL separately. Patients of 40 years or above attended the selected clinics were enrolled to the study by using clinic registry as a sampling frame and data was collected by using an interviewer administered questionnaire. Questions were asked to ascertain each participant's socio-demographic data, knowledge on common eye disorders (refractory errors, cataract, glaucoma and diabetic retinopathy) and to determine their attitudes towards eye care practices and treatment. A total of 106 participants were assessed. Among the research subjects 71.7% had some form of eye disorders,

out of which cataract was the commonest (21.7%). From the results 96.2% have heard of "cataract", 50.9% heard of "glaucoma" and 74.5% heard of "diabetic retinopathy". There was a considerable unawareness regarding glaucoma compared to cataract and diabetic retinopathy. Age (40 - 58 years), higher level of education up to G.C.E O/L or above, higher income level and being employed appeared to be positively associated with regards to knowledge which is statistically significant. People who have gained information from medical personal and mass media had statistically significant higher knowledge score. Presence of good knowledge has shown positive association with attitudes towards eye care. In conclusion knowledge on common adult eye disorders has a direct correlation with certain socio demographic factors and it should be improved from the current level in order to have good eye care practices. Enhancing public awareness can be successfully achieved through mass media and medical personnel.

Keywords: eye disorders, knowledge, attitude, practice.

## ASSOCIATION OF BIO-IMPEDANCE ANALYSIS AND SOMATOTYPING AMONG HEALTHY RURAL MALE AND FEMALE POPULATIONS

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Body composition measures are considered as risk assessment tools of future development of non-communicable diseases (NCDs). Among these methods Anthropometric indices and body fat analysis are mostly used. "Somatotyping" is another method used to assess body composition.

The objective of current study was to compare the body fat assessment and somatotyping measures among a selected population to determine the association of these parameters and to identify the applicability of somatotypes in risk evaluation of NCDs in Sri Lankan populations.

Thirty female [39  $(\pm 5)$  years] and 20 male [44 (±3) years] subjects, without history of diabetes or other NCDs, living in a rural area of the Polonnaruwa district were recruited for the study. The somatotype was calculated using the "anthropometric method" following the heathcarter anthropometric somatotype instruction manual. Body fat assessment was done using bio-impedance analyser. Statistical analysis was performed using SPSS statistical software package.

Mean somatotypes of females and males were 6.0-4.6-1.4 (endomorphy-mesomorphy-ectomorphy) and 3.6-4.2-1.4 respectively. Among measured parameters, BMI, endomorphy, body fat percentage (BF%) and subcutaneous fat percentage (SF%) were significantly higher in the female group compared to male group and Ectomorphy and skeletal muscle percentage (SM%) were significantly higher in the male group.

Endomorphy (r=0.779, p=0.000), mesomorphy (r=0.858, p=0.000), ectomorphy (r=-0.958,p=0.000) and SF % (r=0.606, p=0.000) showed strong correlations with BMI. Endomorphy showed strong correlations with BF% (r=0.782, p=0.000), SF% (r=0.861, p=0.000) and SM% (r=-0.702, p=0.000). Ectomorphy showed moderate to strong correlations with SM% (r=0.491, p=0.000), BF% (r=-0.579, p=0.000) and SF% (r=-0.727, p=0.000). Mesomorphy showed moderate correlations with BF% (r=0.383, p=0.007), SF% (r=0.480, p=0.001) and SM% (r=-0.307, p=0.034).

According to the outcomes of the current study, endomorphy and mesomorphy are significantly correlated with components of body fat analysis. This indicates the possibility of using somatotypes as an indicator to determine the risk of development of non-communicable diseases.

Keywords: somatotype, bio impedance analysis,

## ASSOCIATION OF PARENTING STYLES AND EATING BEHAVIOURS OF PRESCHOOLERS IN NUGEGODA HEALTH UNIT AREA

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Problematic eating behaviours are a major problem behavior observed in early childhood. Unhealthy/ problem eating behaviours in childhood are known to contribute to nutrition related noncommunicable diseases in adult life. Addressing problem eating behaviours through effective parenting could provide practical solutions for this common problem. This study was designed with the objective of assessing the association between parenting styles and eating behaviours of preschool children aged three to five years, attending preschools in Nugegoda Health Unit area.

A cross sectional study was conducted among 432 parents/principal care givers of preschool children aged three to five years, attending 26 randomly selected preschools in Nugegoda Health Unit area. A pre-tested, intervieweradministered questionnaire was used for data collection. Parenting styles were assessed using a locally adapted version of Parenting Styles and Dimensions Questionnaire. Eight selected eating behaviors were assessed using a questionnaire developed by the researcher based on existing literature and expert opinion. The association of parenting styles and eating behaviours were evaluated using Pearson correlation.

The majority (98.8%) of the sample had a predominantly authoritative parenting style. Authoritative parenting was positively correlated with enjoyment of food (p<0.001) and negatively correlated with slowness in eating (p=0.03), food fussiness (p= 0.03) and irregular eating (p=0.01). In contrast, Authoritarian parenting was negatively correlated with children's enjoyment of food (p=0.001), but positively correlated with emotional undereating (p =0.003), satiety responsiveness (p=0.17),irregular (p<0.001) and inappropriate snacking (p<0.001). Permissive parenting style was correlated positively with emotional under eating (p=0.031), satiety responsiveness (p=0.001),irregular eating (p=0.005), inappropriate snacking (p=0.025) and negatively with food fussiness (p=0.025).

Authoritative parenting is associated with children's healthy eating behaviour in comparison to other parenting styles. Thus, authoritative parenting should be promoted through parenting programmes as a practical strategy to tackle problem eating in preschoolers.

Key words: Parenting Styles, Eating Behaviours, Preschool Children

### ASSOCIATION OF KNOWLEDGE AND PRACTICES TOWARDS PREVENTION OF NOSOCOMIAL INFECTIONS AMONG NURSES AT NATIONAL HOSPITALOF SRI LANKA

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Nosocomial Infection (NI) is one of the common disease condition around the world. Since nurses are part of the health care team that plays a unique role in the control of nosocomial infection, this study aims to find an association of knowledge and practices towards prevention of nosocomial infection among nurses in National Hospital of Sri

Descriptive cross sectional study was conducted with nurses (n=160) employed at medical, surgical and ICUs of National Hospital. Pre testedself administered questionnaire was used to assess knowledge and practices. Data was analyzed bySPSS software version 23 and significant level was kept as p < 0.05.

Majority of the nurses (87.5%) were females and 41.3%, 32.5% and 26.3% were employed

in surgical, medical and ICUs respectively. Furthermore 88.8% of the participantshad good knowledge and 52.5% had good practicestowards the NIs. Moreover, there were no significant mean differences in the knowledge and practices level of medical, surgical and ICUs nurses (p>0.05) but positively associated significant correlation betweenknowledge and practices level towards the NIs (r=0.275 p<0.05). However, gender, workplace, education, service experiences and special training on NIsweren't statistically significant with knowledge and practices levels

Most of the nurses had good knowledge and good practices towards the prevention of nosocomial infection.

Keywords: Knowledge, Practice, Nosocomial Infection, Nurses

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## AVAILABILITY OF EQUIPMENT AND OTHER FACILITIES NEEDED TO PERFORM RECTAL EXAMINATION IN TEACHING HOSPITAL, KARAPITIYA

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extermination is a very important procedure which provides vital information on several pathological conditions in lower bowel and surroundings structures in pelvis. Necessary equipment and facilities for rectal examination should be made available. All surgical wards and theaters in a Teaching Hospital should be provided these equipment.

Objective of this was to describe the availability of equipment and other facilities needed to perform rectal examination in Teaching Hospital, Karapitiya.

A check list was prepared based on Delmar's guide to laboratory and diagnostic tests. It was further modified after receiving comments from 2 Consultant Surgeons. List was pretested in Base Hospital, Balapiitya and further modification was done. Research team themselves visited wards and theaters to collect information.

Fifteen surgical units (including general, oncosurgical and short stay) and 7 surgical theaters were subjected for observation.Running water and soap were available in every unit. Gloves (at least in 2 different sizes) were available in all units except one. But lubricants were not found in 2 units (13%). Suitable lighting could be found in 73% (n=11) and proctoscopes were available only in 67% (n=10) units. In theaters rectoscopes were seen in 57% (n=4) while anoscopes were available only in 28% (n=3). Though rectal biopsy needles were found in 57% (n=4) theaters, fixation and specimen containers were available only in 43% (n=3).

Basic necessities for digital rectal examination were seen in many surgical wards, but adequacy of proctoscopesin some units was not satisfactory. Availability of basic instruments for rectal examination and obtaining biopsies in theatres also found to be unsatisfactory. More attention and priority should be paid on providing adequate facilities for rectal examination.

Key words - Rectal examination, Teaching Hospital Karapitiya

## A STUDY ON THE PREVALENCE OF HIGH CHOLESTEROL AMONG AIRCREW MEMBERS OF SRI LANKA AIR FORCE

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Flying involves a complex interaction between the aviator and a sophisticated machine in a highly challenging environment. Thus, the physical fitness of aircrew should be maintained at the highest level when flying an aircraft. Physical health of the aviators can be challenged by group of diseases known as noncommunicable diseases which is highly prevalent in Sri Lanka. The focus of this research is to study the occurrence of dyslipidemia and associated risk factors among the air crew members of Sri Lanka Air Force (SLAF). Data collection was carried out byself-administered questionnaire among 100 volunteered air crew members and using the records available on their

medical folders at their consent. Study finds that among the population under study, 38% having high total cholesterol, 70% having high LDL levels and 16% having low HDL levels. Prevalence of high LDL level is found to be at an alarming high level in this sample and the only statistically proven contributing risk factor (P=0.048) was deduced to be the consumption of food with high lipid content. The results of this research will be useful for planning and implementing relevant programs in SLAF in maintaining the proper health conditions in air crew members.

Keywords-Dyslipidemia, High Cholesterol, Air Crew, SLAF

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#### PREVALENCE OF ANAEMIA IN CKD-U PATIENTS IN GIRANDURUKOTTE ANDWILGAMUWA

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Anaemia is amajor complication of Chronic Kidney Disease (CKD) once the glomerular filtration rate (GFR) drops below 60 mL/min. Chronic Kidney Disease of uncertain etiology (CKD-u) has become a serious public health crisis in SriLanka. The goal of the study is to determine the prevalence of anaemia in CKD-u patients and detect proportion of CKD-u patients with IDA (Iron Deficiency Anaemia) in Girandurukotte and Wilgamuwa. Subjects were selected from above highly prevalent areas for CKD-u. Biopsy proven, non dialysis119 CKD-u patients were selected for the study. For endemic control group, 119 age and sex matched, healthy subjects were selected. Detailed history was obtained at the first visit of patients using a questionnaire. Blood samples for creatinine, iron studies, Full blood count, ESR and blood pictures were taken.

The percentage of anaemia among CKD-u patients were 72.3%. In endemic control group, anaemia was detected in 34.5%. According to odds ratio, anaemia in CKD-u patients is five (5) times higher than the endemic control people. The percentage of patients with anaemia increases with the stage of the renal failure. According to Chi square test, there is no significant correlation between the progression of renal failure and the proportion of patients with anaemia(p=0.695). IDA is diagnosed in 40% of CKD-u patients who had low transferrin saturation (< 20%).

Although percentage of anaemic patients increased with the progression of the disease, there was no significant correlation between stage and the proportion of patients with anaemia in CKD-u patients. Anaemia is five (5) times higher in CKD-u patients than the anaemia in endemic control group. IDA is one of the major causes of anaemia in CKD-u which can be treated with iron supplements to correct anaemia to improve the quality of life of CKD-u patients.

Key words: Chronic Kidney Disease, Chronic Kidney Disease of uncertain etiology, Anaemia, Glomerular Filtration Rate

# PROLONGED COMPUTER USEAND ITS EFFECTS ON VISION AMONG UNDERGRADUATES IN UNIVERSITY OF COLOMBO, SCHOOL OF COMPUTING

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Computer Vision Syndrome (CVS) is a group of visual symptoms experienced in relation to the use of computers. Nearly 60 million people suffer from CVS globally, ranging from 64% to 90%, resulting in reduced productivity at work and reduced quality of life of the computer worker. The present study aims to describe the prevalence of CVS and its associated factors among undergraduates in University of Colombo, School of Computing.

A cross sectional study was carried out in the University premises on 2nd, 3rd and 4th year students of University of Colombo, School of Computing. Pattern of computer use, prevalence and extent of visual symptoms and some associated factors were analysed. Statistical data is provided about the prevalence of visual symptoms and its co-relationship with the duration of exposure and associated other factors that have been identified. For the categorical variables chi-square test was used and for continuous variables Students T Test was used.

Sample size was 112 (response rate – 74.6%). Mean age was 21.9±1.2 years (range 19-25 years) and 73 (65.2%) of the sample were males. Only 39 (34.8%) of the sample were females. Percentage of individuals with visual symptoms in the study population was 79 (70.5%). 33 (29.5%) students were asymptomatic. The most commonly reported complaint was headache (54.5%), followed by pain (33.9%), whereas the least common complaint was double vision (3.6%).

High prevalence of visual symptoms was observed (70.5%) among the study group. Technology professionals who have nearly similar exposure to the computer screens have shown similar percentage of prevalence of visual symptoms but findings are much more less than the researches which were done on students. There is no association between prevalence of visual symptoms and duration of continued gaze upon the monitor and the duration of the course. But there is a significant association with the distance from the monitor and duration of daily computer usage.

Keywords- vision, computer, visual symptoms, computer vision syndrome

# PREVALENCE OF INCIDENTALLY DETECTED ABNORMALITIES OF THYROID, LIVER, PITUITARY, ADRENALS, PANCREAS AND OVARIES IN A SRI LANKAN POPULATION: PRELIMINARY RESULTS OF A POST-MORTEM STUDY

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Lack of data and clinical guidelines on incidental lesions in endocrine glands is the reason for much ambiguity surrounding the management of incidentally found tumours in Sri Lanka.

This descriptive cross-sectionalautopsy study in those deceased due to accidents or unknown acute illnesses was carried out at the Institute of Forensic Medicine and Toxicology, Colombo from June 2014 to May 2016. Macroscopic and microscopic examinations were performed in pituitary, thyroid, liver, pancreas, adrenals and ovaries by a histopathologist.

The mean age (n=248) 52.6 years (SD=16.9) 174 (70.2%) were males; females 74(29.8%). At least one microscopic abnormality was seen in 136(56.7%) thyroid;Papillary microcarcinoma 25(10.4%), colloid nodules 18(29%), hyperplastic nodules 6(2.5%) and chronic autoimmune thyroiditis 52(21.7%). Papillary microcarcinoma did not show any association with gender (males 10.5% females 10% p=ns) or with age(p>0.05). Thyroiditis was present in 33(63.4%) females and 19(36.6%) males (p<0.01). Fatty change, cirrhosis, chronic portal inflammation, granulomatous inflammation, focal fibrosis and ductal malformationwere present 145(59.2%), 21(8.6%), 7(2.8%), 5(2%),

1(0.5%)respectively. Pituitary microadenoma and fibrosis with calcification were present in 2(0.8%) and 1(0.4%) cases respectively. Pancreatic fat infiltration and fibrosis was present in 35(14.9%) 17(6.8%)respectively. Four(1.6%) had adrenal nodular hyperplasia and 2(0.8%)had granulomatous inflammation with caseous necrosis suggestive of tuberculosis without previous history of tuberculosis. In 74 female autopsies, 16(21.6%) had multiple ovarian cystic follicles and 2 (2.7%) had haemorrhagic cysts.

Commonest microscopic abnormality in thyroid was Colloid nodule. The prevalence of papillary microcarcinomaand chronic autoimmune thyroiditis (21.7%) was considerably high. Like other literature, chronic autoimmune thyroiditis was significantly higher among females. Fatty change of the liver was the commonest pathology with no significant correlation between alcohol consumption. The prevalence of incidental tumours in pituitary, adrenal, pancreas and ovaries were very low which is comparable to global prevalence. However, pancreatic fat infiltration and fibrosis was present in a considerable number.

Key words:Post-mortem,Thyroid,Liver

## ROLE OF Darvee Guduchyadee Gandusha IN MUKHAPAKA - A PRELIMINARY STUDY

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Mukha Swasthya (oral hygiene) has gained importance now adays, because Mukha(oral cavity) is known as Anga, which is exposed to many risk factors in day-to-day life. Mukhapaka is one such disease which causes a lot of discomfort to the sufferer and seen in all classes of the society. It is also called as Sarvasara Mukharoga. The aggravated Doshas move through the oral cavity and produces thepaka(suppuration). The symptoms Mukhapaka can be correlated to a clinical entity "Aphthous ulcer" explained in the contemporary medical science, which is also characterized by painful superficial ulcers in the movable mucosa of the mouth with recurrent episodes. Currently, the treatment for the aphthous ulcer being very limited, the present clinical study was designed to evaluate the efficacy of Darvee Guduchyadee *Gandusha* in the same. Patients with Mukhapaka who reported to the ENT clinic at Gampaha Wickramarachchi Ayurveda Hospital were enrolled on the basis of inclusion and exclusion criteria and they were divided randomly in to two groups. Group A was treated with *Patolakatukabhiru* Panta, Kaishora Gugguluinternally and Darvee Guduchyadi Gandoosha locally. Group Bwas treated with only the Patolakatukabhiru Pantaand Kaishora Gugguluinternally. comparing the p value; group A has shown significant results than group B for oral mucosal blisters, oral mucosal ulceration, oral mucosal swelling and burning sensation respectively. Group A was found to be more efficacious in hastening the healing of Mukhapaka.

Keywords: Mukhapaka, Gandusha, Aphthous ulcer

## MOLECULAR DIAGNOSIS OF TRICHOMONAS VAGINALIS INFECTION USING VAGINAL SWABS

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Trichomonas vaginalis is a motile pathogenic protozoan which causes trichomoniasis, a sexually transmitted disease (STD) in humans. Clinical diagnosis of trichomoniasis is not reliable due nonspecific clinical presentation, which overlaps with the clinical features of other sexually transmitted diseases. Therefore, confirmation of suspected clinical cases by laboratory tests is essential. The diagnosis is usually based on wet mount. The sensitivity of this method is lower than polymerase chain reaction (PCR). Therefore, in the present study we evaluated PCR as a diagnostic tool for diagnosis of trichomoniasis in Sri Lanka. Female patients attending the sexually transmitted disease and acquired immune deficiency syndrome (STD/AIDS) control program, teaching hospital, Kandy were included in the study. Ethical clearance was obtained from the ethics review committee. Faculty of Allied Health Sciences, University Peradeniya. Written informed consent was obtained. Two vaginal swabs were obtained from each patient. One vaginal swab was used for wet mount. Another vaginal swab was used to isolate genomic DNA. PCRs were performed using the genus and species-specific primers targeting internal transcribed spacer (ITS-1/5.8S/ITS-2) genomic region of the genus Trichomonas and T. vaginalis ribosomal DNA (rDNA) respectively. One hundred and sixty patients were studied during the period from May to December 2015. Out of 160 samples, four were positive for trichomoniasis by wet mount. Nine samples were positive for PCR, done using both genus and species-specific primer sets confirming the etiological diagnosis as T. vaginalis. Interestingly, 5 cases which were negative for wet mount were detected by PCR. The findings of the study suggest that PCR can be used to diagnose clinically suspected trichomoniasis patients in STD clinics in Sri Lanka.

Keywords:

Trichomoniasis, diagnosis, polymerase chain reaction, Sri Lanka