

The Republic of the Union of Myanmar
Ministry of Health and Sports



45th MYANMAR HEALTH RESEARCH CONGRESS

Programme and Abstracts

9-13 January 2017

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FOREWORD

The Ministry of Health and Sports will conduct the 45th Myanmar Health Research Congress this year, with the main theme “Improving the Nutrition Status and Reduction of Stunting in Myanmar Children”. In the world today, 161 million children less than 5 years old are stunted and at least 51 million are severely or moderately wasted, while another 42 million children are overweight or obese. In addition, there are several billion children and adults who are deficient in vitamins or minerals which can lead to anaemia, blindness, cognitive impairment, greater susceptibility to many diseases, resulting in higher mortality. These conditions are linked to a loss in national productivity.

This is indeed an opportune time to focus towards nutrition, as action is urgently required towards nutrition, in the path moving forward in achieving the sustainable development goals (SDGs). SDG 2 clearly states "End hunger, achieve food security, improved nutrition and sustainable agriculture". Nutrition must be understood as both the input and outcome of the SDGs. Good nutrition leads to higher earnings and mental acuity which in turn supports macroeconomic and societal growth. Poor nutrition impairs productivity, which has a huge negative impact on national growth. Without appropriate investments, poor nutrition persists, contributing to the global burden of disease and impaired quality of life. In this sense, malnutrition poses an often invisible, impediment to achieving all SDG targets. A collective effort is required to promote best practices across the food system focused on the needs of the most nutritionally vulnerable population. This combined effort must include all stakeholders and sustain progress for future generations. It is thought that the SDGs will be attainable if nutrition is put front and centre of the sustainable development agenda.

The program this year, for five whole days include 103 research paper presentations, 56 poster presentations, eleven scientific symposia and one scientific talk. The topics not only include nutrition but also touch upon important topics such as molecular diagnostics in point-of-care testing, accreditation of laboratories for international recognition, updates on various cancers, travel medicine, hospital waste management and in the area of infectious diseases, the globally prominent topics such as multiple drug resistant tuberculosis and its control and malaria elimination. The immense effort which have been put into these research papers, posters and symposia are to be highly congratulated. We sincerely hope that the Myanmar Health Research Congress, a common research platform which allows researchers and academicians to share knowledge, views and updated information, ultimately leads to the formulation of strategies, plans and policies required to make Myanmar, a healthier and more prosperous nation.

Chairman
Organizing Committee
45th Myanmar Health Research Congress

PROGRAMME

45th MYANMAR HEALTH RESEARCH CONGRESS
 Department of Medical Research
 No. 5, Ziwaka Road, Dagon Township, Yangon, Myanmar

INAUGURAL SESSION

9th January, 2017

Auditorium (2) Advanced Molecular Research Centre

08:30hr Inaugural speech by
 H.E. Dr. Myint Htwe
 Union Minister
 Ministry of Health and Sports

09:00hr Refreshments

ACADEMIC SESSION

Department of Medical Research
 No. 5, Ziwaka Road, Dagon Township, Yangon

Day 1

Auditorium -1

Day (1)- Morning Session

Chairpersons:	H.E. Dr. Myint Htwe Union Minister Ministry of Health and Sports	Dr. Kyaw Zin Thant Director General Department of Medical Research
10:00-10:20 <i>Paper-1</i>	Diet consumption pattern of primary school children from four geographical regions of Myanmar <i>Moh Moh Hlaing, Mya Ohnmar, Sandar Tun, Myat Myat Thu, Thidar Khine, Wah Wah Win, Su Su Hlaing, Hla Phyo Linn and Yin Yin Aye</i>	
10:20:10:40 <i>Paper-2</i>	Heterogeneous prevalence of subclinical malaria measured by ultrasensitive PCR in Myanmar <i>Myaing Myaing Nyunt, Kay Thwe Han, Poe Poe Aung, Tin Maung Hlaing, Si Thura, Myo Min, Hnin Su Su Khin, Win Han Oo and Huang Fang</i>	
10:40-11:00 <i>Paper-3</i>	Assessment of utilization of Urban Health Centers in Yangon and Mandalay Regions <i>Kyaw Oo, Khin Thet Wai, Yin Thet Nu Oo, Saw Saw, Yadanar Aung, Kyaw Thu Soe, Su Latt Tun Myint and Wai Wai Han</i>	
11:00-11:20 <i>Paper-4</i>	Pilot study on newly developed botanical larvicides and repellents against Aedes mosquitoes in Myanmar <i>Htin Zaw Soe, Sein Min, Maung Maung Mya, Khine Khine Lwin, Aye Win Oo and Myat Khine</i>	

11:20-11:40
Paper-5 The distribution of HLA-A alleles frequencies in (8) major ethnic groups of Myanmar
Zin Zin Thu, Win Shwe Zin, Than Hteik, Thandar Tun, Myat Myat Hnin, Kyinlannar, Yu Yu Kyaw, Ko Ko Zaw and Hiroh Saji

Auditorium -1

Day (1) - Afternoon Session (1)

Chairpersons: **Professor Dr. Thet Khaing Win** **Professor Dr. Myint Han**
Permanent Secretary **Director General**
Ministry of Health and Sports **Department of Medical Services**

1:00-1:20
Paper-6 Determination of insecticide resistance in dengue vector upon selection pressure with malathion
Mya Nilar Chawsu, Yi Yi Mya, Naw Hnin Myint, Tun Tun Win, Si Si Aung and Than Than Htwe

1:20-1:40
Paper-7 Molecular characterization of dengue 1 virus affecting adults admitted to Yangon General Hospital, Myanmar
Hlaing Myat Thu, Theingi Win Myat, Aung Zaw Latt, Khin Saw Than, Hlaing Mya Win, Zaw Than Tun, Thida Kyaw and Kyaw Zin Thant

1:40-2:00
Paper-8 Clinical characteristics of dengue haemorrhagic fever in the adults and adolescents
Ne Myo Aung, Myo Lwin Nyein, Mar Mar Kyi and Cho Cho Khine

2:00-2:20
Paper-9 Knowledge on dengue haemorrhagic fever and larva survey in urban area of Thanbyuzayat Township, Mon State
Phyo Aung Naing, Yan Naung Maung Maung, Thae Maung Maung, Mya Thandar, Maung Maung Mya, Aung Pyae Phyo and Cho Thet Khine

2:20-2:40
Paper-10 *MSP1* and *MSP2* allelic distribution among *falciparum* malaria patients at No. (1) Defence Services General Hospital
Khine Zaw Oo, Myo Thant, Thet Maung Oo, Khine Khine Su, Khin San San, Khin Phyu Pyar, Thein Zaw and Tin Maung Hlaing

Auditorium -1

Day (1) - Afternoon Session (2)

Chairpersons: **Professor Dr. Soe Lwin Nyein** **Professor Dr. Khaymar Mya**
Director General **Pro-Rector**
Department of Public Health **University of Public Health**

3:00-3:20
Paper-11 Towards water safety plan and prevention of non-communicable diseases: Multiple risk behaviors as challenges for strengthening primary health care in township health systems
Khin Thet Wai, Thae Maung Maung, Phyo Aung Naing, Kyaw Lwin Show, Kyaw Min Htut, Moe Thida and Young Hee Min

3:20-3:40 Paper-12	Factors influencing the choice of place of delivery and attendants in selected remote area of Myanmar <i>Nay Chi Htet Htet Lin Aung, Hla Hla Win, Khaing Nwe Tin, Pa Pa Soe and Thae Maung Maung</i>
3:40-4:00 Paper-13	Out of pocket expenditure on maternal and child health care services among rural households in a selected township, Myanmar <i>Wai Wai Han, Saw Saw, Hla Mya Thway Einda, Nyi Nyi Zayar, Phyu Phyu Aye, Hnin Lae Yi Khaing and Myo Thurein Latt</i>
4:00-4:20 Paper-14	How social norms limited health services for rape survivors: Why health services for rape survivors still unmet need? <i>Su Su Yin, Philippe Doneys, Donna L.Doane and Grunbuhel Clemens</i>
4:20-4:40 Paper-15	Optimizing the role of auxiliary midwives in Myanmar: feasibility and acceptability of task shifting essential maternal and newborn health interventions <i>Kyu Kyu Than, Thazin La, Thandar Aye, Tin Tin Wai, Theingi Myint, Saw Saw, Alison Morgan and Stanley Luchters</i>
4:40-5:00 Paper-16	Understanding the public health system in Rakhine State, Myanmar: Towards inclusive health service provision <i>Thaung Hlaing, Allison Gocotano, Jorge Mario Luna, Maung Maung Ye Zin Zin, Thiha Aung and Aung Thurein</i>

Day 2

Auditorium -1

Day (2) - Morning Session (1)

Chairpersons:	Dr. Tin Tin Lay Director General Department of Human Resources for Health	Professor Dr. Aye Tun Rector University of Medicine, Magway
8:30-8:50 Paper-17	Screening of microalbuminuria and estimated glomerular filtration rate in type 2 diabetes mellitus for early detection of renal dysfunction <i>Khin Aye Thin, Aye Aye Khin, Win Kalayar Kyaw, Myat Su Mon Zaw and Ei Ei Mon Aung</i>	
8:50-9:10 Paper-18	Metabolic risk factors and associated morbidities among adult urban people in Pyin Oo Lwin Township <i>Khin Moe Aung, Myint Myint Khaing, Nyein Nyein Thaung, Nanda Ko, Aye Min Maw, Myitzu Tin Oung, Kyaw Thu and Win Aung</i>	
9:10-9:30 Paper-19	Selective non-communicable diseases risk factors status of female school teachers from Dagon Myothit (North) Township in Yangon, Myanmar <i>Khin Mittar Moe San, Umi Fahmida, Fiastuti Wijaksono, Htin Lin, Ko Ko Zaw and Min Kyaw Htet</i>	

- 9:30-9:50
Paper-20 Awareness and practice of type 2 diabetic patients on healthy diabetic diet: A preliminary study in selected general practitioners' clinics in Yangon
Mya Win Hnit, Wanna Tun, Tin Myo Han, Lwin May Oo, Tin Tin Hla, Win Zaw and Khine Soe Win
- 9:50-10:10
Paper-21 Potential risk factors of cardiovascular diseases among adolescent students at two selected schools in Yangon
Sandar Kyi, Win Lai May, Han Win, Aye Tha, Aung Aung Maw, Kyu Kyu San, Ni Ni Aye, Dam Lian Pau and Khin Thet Mon

Auditorium - 1

Day (2) - Morning Session (2)

- Chairpersons:** **Dr. Than Htut**
Director General
Food and Drug
Administration
- Professor Dr. Zaw Lin Aung**
Professor/Head
Department of Medicine,
University of Medicine 1, Yangon
- 10:25-10:45
Paper-22 Monitoring of water quality in Inle Lake, Myanmar
Mayuko Yagishita, Mya Thandar, Takehiro Suzuki, Tin Tin Win Shwe, Daisuke Nakajima and Nay Soe Maung
- 10:45-11:05
Paper-23 Quantification of heavy metals in white rice and brown rice from Tha-baung Township
Phyo Wai Zin, Khin Phyu Phyu, San San Htwe, Mya Malar, Tin Tin Han, Khin Moe Latt, Ohnmar Win, Aye Thida Tun and Thet Htet Aung
- 11:05-11:25
Paper-24 Trend of acute poisoning cases admitted to Poison Treatment Centre, New Yangon General Hospital (2011 to 2015)
Min Wun, Saw Aung Moe Aye, Nyunt Thein, Zaw Lynn Aung, Moe Moe Aye, Thiri Aung, Kyi Kyi Myint, Phyu Phyu Aye and Thin Thin Hlaing
- 11:25-11:45
Paper-25 Plasma malondialdehyde level and vibration perception threshold in non-exposed subjects and lead-exposed battery workers
Thura Tun Oo, Zaw Linn Thein, Zarli Thant and Ohnmar
- 11:45-12:05
Paper-26 The effect of mirror therapy in stroke patients with left visual hemineglect
Phyu Phyu Aung, Khin Saw Oo and Khin Myo Hla

Auditorium -1

Day (2) - Afternoon Session (1)

Chairpersons:	Brig. Gen. Tin Maung Hlaing Commandant Officer Defence Services Medical Research Centre	Dr. Khin Lin Deputy Director General (Retired/Expert) Department of Medical Research
1:00-1:20 Paper-27	Antibody kinetic of <i>falciparum</i> and <i>vivax</i> malaria merozoite surface protein 1 among the local residents in Myanmar Artemisinin Resistance Containment Zone I <i>Myat Htut Nyunt, Myat Phone Kyaw, Thinzar Shein, Soe Soe Han, Ni Ni Zaw, Kyaw Zin Thant and Eun-Taek Han</i>	
1:20-1:40 Paper-28	Determination of <i>in vitro</i> artesunate sensitivity against <i>Plasmodium falciparum</i> in Shwe Kyin Township, Bago Region <i>Myo Win Htun, Kay Thwe Han, Khin May Oo, Wah Win Htike, Than Than Su, Thi Thi Htoon and Kyin Hla Aye</i>	
1:40-2:00 Paper-29	Therapeutic efficacies of two different ACT and their relation to K13 mutations in sentinel sites of Myanmar <i>Kay Thwe Han, Khin Lin, Moe Kyaw Myint, Aung Thi, Kyin Hla Aye, Zay Yar Han, Maria Dorina Bustos, Pascal Ringwald and Myaing Myaing Nyunt</i>	
2:00-2:20 Paper-30	Efficacy of chloroquine in vivax malaria in adults in Homalin <i>Khin Phyu Pyar, Sai Aik Hla, Soe Win Hlaing, Chan Aye Aung, Aung Phyo Kyaw and Tin Maung Hlaing</i>	
2:20-2:40 Paper-31	Compliance of service providers from private and NGO sectors in prescribing Primaquine according to National anti-malarial treatment guideline in selected townships in Myanmar <i>Myo Kyaw Lwin, Kyaw Zay Ya, Su Yee Mon, Wai Hlaing Soe, Sai San Moon Lu and Aung Thi</i>	

Auditorium -1

Day (2) Afternoon Session (2)

Chairpersons:	Dr. Myat Phone Kyaw Deputy Director General (Retired) Department of Medical Research	Col. Professor Khin Phyu Pyar Senior Head Defense Services General Hospital
3:00-3:20 Paper-32	Study on panorama of border malaria in Ta-mu Township <i>Khin Lin, Moe Kyaw Myint, Aung Thu, Mya Moe, Win Aung and Kyaw Zin Thant</i>	

3:20-3:40 <i>Paper-33</i>	Evaluation of targeted mass treatment of malaria in Tanintharyi Region, Myanmar: Preliminary results <i>Si Thura, Aung Thi, Myat Phone Kyaw, Kay Thwe Han, Phyo Maung Maung, Christopher V. Plowe, Adam Richard, Tom Lee and Myaing Myaing Nyunt</i>
3:40-4:00 <i>Paper-34</i>	Efficacy and safety of three artemisinin-based combination therapies for <i>Plasmodium falciparum</i> along the Myanmar-China and Myanmar-India border areas <i>Moe Kyaw Myint, Tin Oo, Aung Thi, Khin Thet Wai, Dorina Bustos, Pascal Ringwald, Charlotte Rasmussen and Khin Lin</i>
4:00-4:20 <i>Paper-35</i>	Ownership and utilization of insecticide-treated bednets among migrant population in the Myanmar Artemisinin Resistance Containment (MARC) areas <i>Thae Maung Maung, Jaya Prasad Tripathy, Tin Oo, Khin Thet Wai, Than Naing Soe, Swai Mon Oo and Aung Thi</i>
4:20-4:40 <i>Paper-36</i>	Real-time quality assurance of malaria surveillance data in Myanmar and its border with China <i>Poe Poe Aung, Zaw Win Thein, Hnin Wai Lwin, Kay Thwe Han, Huang Fang, Janie Anne Zuber, Christopher V Plowe, Kayvan Zainabadi and Myaing Myaing Nyunt</i>

Day 2 (SRC Parallel Session)

SRC Conference Hall

Day (2) Morning Session (1)

Chairpersons:	<p>Professor Dr. Mya Thida Professor/Head(Retired/Advisor) Department of Obstetrics and Gynaecology University of Medicine 1, Yangon</p>	<p>Professor Dr. San San Myint Professor/Head Department of Obstetrics and Gynaecology University of Medicine 1, Yangon</p>
08:30-08:50 <i>Paper-37</i>	Different types of anaemia in pregnancy <i>Ei Myat Nwe, Zaw Myint Thein, Mya Thida and San San Myint</i>	
08:50-09:10 <i>Paper-38</i>	Effectiveness and safety of postplacental and early postpartum insertion of intrauterine contraceptive device <i>Thiri Htun, Aye Aye Than, Myint Thet Mon, Mya Thida and San San Myint</i>	
09:10-09:30 <i>Paper-39</i>	Cervical cytological patterns of women living in suburban area of Magway Township <i>Myat Pyone, Phyu Phyu Myint Tun and San San Myint</i>	
09:30-9:50 <i>Paper-40</i>	A comparative study on effect of sublingual <i>versus</i> vaginal misoprostol in management of first trimester miscarriage in Magway Teaching Hospital <i>Thin Thin Aye, Khin Latyar Aung and San San Myint</i>	

9:50-10:10
Paper-41
Determinants of utilization of antenatal care services among women in Kungyangone Township, Myanmar
May Myo Kywe, Saw Saw, Mya Thida, Win Win Mya and San San Myint

SRC Conference Hall

Day (2) Morning Session (2)

Chairpersons: Professor Dr. Aye Aung Rector (Retired/Expert) University of Medicine 2, Yangon
Dr. Kyaw Oo Deputy Director General Department of Human Resources for Health

10:25-10:45
Paper-42
Baseline practices and coverage of maternal newborn and child health care in Kanpetlet Township, Southern Chin State, Myanmar
Thida, Nyein Nyein Thaug, Kyaw Oo, Kyaw Ko Ko Htet, Phyu Phyu Thin Zaw and Win Aung

10:45-11:05
Paper-43
Maternal, newborn and child health care practices among mothers from Paletwa Township in Southern Chin State, Myanmar
Kyaw Thu Soe, Yadanar Aung and Kyaw Oo

11:05-11:25
Paper-44
Mindfulness-integrated reproductive health package for adolescents with parental HIV infection: A group randomized-controlled trial
Myo Myo Mon, Kyaw Min Htut, Htun Nyunt Oo, Wai Wai Myint, Lwin Lwin Ni, Aung Soe Min and Ni Ni Htay Aung

11:25-11:45
Paper-45
Promoting key family practices of common childhood illnesses among mothers with under-five children in selected military communities
Ni Ni Aung and Kay Thi Tun

11:45-12:05
Paper-46
Women's pathways to postabortion care in three regions of Myanmar
Ni Ni, Cheri Poss, Tin Lei Lei Aung, Thwe Thwe Win, Myint Thu Lwin, Sally Dijkerman, Jamie Menzel and Kathryn Andersen

SRC Conference Hall

Day (2) Afternoon Session (1)

Chairpersons: Professor Dr. Soe Aung President Oncology Society, Myanmar Medical Association
Professor Dr. Htun Lwin Nyein Professor Department of Clinical Haematology, University of Medicine 1, Yangon

1:00-1:20
Paper-47
Genotypic analysis of Epstein-Barr virus (EBV) in nasopharyngeal carcinoma patients in Myanmar
Moh Moh Htun, Chaw Su Hlaing, Myat Mon Oo, Kay Thi Aye, Aung Zaw Latt, Soe Aung, Hlaing Myat Thu, Khin Pyone Kyi and Kyaw Zin Thant

1:20-1:40 <i>Paper-48</i>	Population-based cervical cancer prevention in Myanmar: Evaluation of a pilot program <i>Cynthia Tinoo, Ohnmar Thin, Mon Mon, Theingi Myint, Khin Tar Tar and Daniel B. Fishbein</i>
1:40-2:00 <i>Paper-49</i>	Alcohol drinking as a major risk factor for gastric malignancies in Chin State <i>Swe Zin Linn, Soe Oo, Hnin Pa Pa Khine and Kyaw Oo</i>
2:00-2:20 <i>Paper-50</i>	Role of flow cytometric immunophenotyping in diagnosis of multiple myeloma <i>San San Htwe, Htun Lwin Nyein, Aye Mya Khine, Khin La Pyae Tun, Win Pa Pa Naing, Ni Ni Win, Moe Thuzar Min, Sein Win and Khin Saw Aye</i>
2:20-2:40 <i>Paper-51</i>	Knowledge and practices on leukemia disease among caregivers of childhood leukemia patients attending Hemato-Oncology follow-up clinic at Yangon Children Hospital <i>Aye Mya Khine, Win Pa Pa Naing, Khin La Pyae Tun, Wai Wai Han, Aye Aye Khaing, Htaik Tint Tun, Ni Ni Win and Moe Thuzar Min</i>

SRC Conference Hall

Day (2) Afternoon Session (2)

Chairpersons:	Professor Dr. Rai Mra President Myanmar Medical Association	Professor Dr. Htin Aung Saw Professor/Head (Retired) Department of Tropical Medicine, University of Medicine 2, Yangon
03:00-03:20 <i>Paper-52</i>	Contribution and constraints for the involvement of people living with HIV in HIV prevention and control activities: A qualitative study at Mandalay Region <i>Kyaw Thu Soe, Than Win, Zaw Zaw Aung, Yadanar Aung, Thida Aung and Thura Ko Ko</i>	
03:20-03:40 <i>Paper-53</i>	Anemia, immunologic status and rate of mortality among HIV infected children on Antiretroviral Therapy <i>Khaing Lay Mon</i>	
03:40-04:00 <i>Paper-54</i>	Determinants of treatment adherence in patient with HIV/AIDS taking Antiretroviral Therapy at Insein General Hospital <i>Aung Ko Lwin, Aye Thida Htun and Thidar Aung</i>	
04:00-04:20 <i>Paper-55</i>	Preliminary study of mutations within Enhancer II and BCP regions of hepatitis B virus in hepatocellular carcinoma patients <i>Yi Yi Kyaw, Hnin Ohmar Soe, Naing Naing Htun, Ohmar Lwin, So Young Kim, Wai Myat Thwe, Win Naing and Jae Hun Cheong</i>	
04:20-04:40 <i>Paper-56</i>	Sero-prevalence of hepatitis B and C viral infections among hemodialysis patients in 500 bedded Yangon Specialty Hospital <i>Aye Aye Lwin, Kyi May Htwe, Nan Cho Nwe Mon, Khin Than Maw, Khaing Zar Win, Chuu Pwint Phyu, Moh Moh Hlaing, Khin Thidar Thwin and Khin Saw Aye</i>	

Day 3

Auditorium - 1

Day (3) - Morning Session (1)

Chairpersons:	Professor Dr. Myat Thandar Rector University of Nursing, Yangon	Professor Dr. Ye Myint Kyaw Professor/Head Department of Child Health, University of Medicine 1, Yangon
08:30-08:50 <i>Paper-57</i>	Phylogenetic analysis of Myanmar human respiratory syncytial virus from under five children with acute respiratory infection admitted to Yangon Children Hospital <i>Kay Thi Aye, Aung Zaw Latt, Theingi Win Myat, Sandar Aung, Wah Wah Aung, Ye Myint Kyaw, Hlaing Myat Thu and Kyaw Zin Thant</i>	
08:50-09:10 <i>Paper-58</i>	Molecular detection of human rhinoviruses in children with influenza-like illness attending Yangon Children Hospital, 2016 <i>Htin Lin, Hlaing Myat Thu, Theingi Win Myat, Win Mar, Khaing Moe Aung, Khin Khin Oo, Khin Sandar Aye, Thida Kyaw and Ye Myint Kyaw</i>	
09:10-09:30 <i>Paper-59</i>	Common bacterial pathogens among Myanmar children with acute respiratory tract infection <i>Thi Thi Htoon, Nan Aye Thida Oo, Wah Wah Aung, Hlaing Myat Thu, Mon Mon, Wah Win Htike, Htay Htay Tin and Kyaw Zin Thant</i>	
09:30-09:50 <i>Paper-60</i>	Influence of electrical ionic field exposure on red cell deformability, resting metabolic rate and insulin sensitivity in obese adult females <i>Khin Mi Mi Lay, Ohnmar, Nway Htike Maw, Pyae Phyo Kyaw, Sandar Win, Htike Htike Soe, Htet Htet Lwin, Kyi Kyi Htwe and Theingi Thwin</i>	
09:50-10:10 <i>Paper-61</i>	Nurturing experiences of care providers of institutionalized children at training school for boys, Thanlyin <i>Thae Hnin Soe, Naw Clara and Khin Sandar Tun</i>	

Auditorium - 1

Day (3) - Morning Session (2)

Chairpersons:	Professor Dr. Htin Zaw Soe Rector University of Community Health	Professor Dr. Than Win Nyunt Professor Department of Geriatrics, University of Medicine 1, Yangon
10:25-10:45 <i>Paper-62</i>	Awareness on symptoms, complications and preventive health behaviours of menopause among women in Insein Township <i>May Lei Lei Oo, Cho Mar Kaung Myint, Su Htar Lwin and Khaing Lay Mon</i>	

10:45-11:05 <i>Paper-63</i>	What, how and why they drink? : Drinking of alcoholic beverages among youths in Twantay Township <i>Aung Pyae Phyo, Pa Pa Soe, Saw Saw and Phyo Aung Naing</i>
11:05-11:25 <i>Paper-64</i>	Physical fitness of the elderly at the Home for the Aged (Hninzigone), Yangon <i>Khin Mi Mi Lay, Nway Htike Maw, Pyae Phyo Kyaw, Sandar Win, Khin San Lwin, Htet Htet Lwin, Yi Yi Mon, Lei Lei Win Hlaing and Theingi Thwin</i>
11:25-11:45 <i>Paper-65</i>	Lived experiences of senior citizens attending at Day Care Center for the Aged in Yangon: A Phenomenological approach <i>Khin Aye Aye Mon, Nyein Nyein Kyawt Aung and Hla Hla Aye</i>
11:45-12:05 <i>Paper-66</i>	Detection of metabolic-based resistance against pyrethroids in <i>Aedes aegypti</i> from selected areas in Mandalay <i>Yi Yi Mya, Mya Nilar Chaw Su, Naw Hnin Myint, Than Myat Soe, Tun Tun Win, Than Than Htwe, Si Si Aung, Nwe Nwe Aye and Mie Mie Sein</i>

Auditorium - 1

Day (3) - Afternoon Session (1)

Chairpersons:	Professor Dr. Ne Win Director (Retired) National Health Laboratory	Professor Dr. Myint Myint Nyein Professor/Head Department of Pathology, University of Medicine 1, Yangon
1:00-1:20 <i>Paper-67</i>	Urinary albumin to creatinine ratio and the degree of coronary artery narrowing in patients undergoing coronary angiography <i>Khine Wai Mon, Saw Wut Hmone, Myint Myint Nyein and Myat Mon</i>	
1:20-1:40 <i>Paper-68</i>	Ki-67 immunoexpression in gestational trophoblastic diseases <i>Nyein Nyein Soe, Saw Wut Hmone, Myint Myint Nyein and Myat Mon</i>	
1:40-2:00 <i>Paper-69</i>	Immunodetection of human epidermal growth factor receptor 2 (HER2) overexpression in carcinoma breast <i>Aye Myat Mon, Aye Aye Khin and May Than Naing</i>	
2:00-2:20 <i>Paper-70</i>	Immunoexpression of Pan-cytokeratin and leucocyte common antigen in common malignant nasopharyngeal tumors <i>Phyo Thu San, Htay Hla, San San Hlaing, Khin Khin Phyu, Thandar Khing and Saw Nu Nu Hlaing</i>	

Auditorium - 1

Day (3) - Afternoon session (2)

Chairpersons:	Professor Dr. Zaw Wai Soe Rector University of Medicine 1, Yangon	Professor Dr. Myint San Nwe Professor/Head Department of Anatomy, University of Medicine 1, Yangon
2:40-3:00 Paper-71	Immunohistochemical expression of C-Kit (CD117) in interstitial cells of cajal in the myenteric plexus of fundus and pyloric antrum of human fetal stomach <i>Hnin Ei Hlaing, Myint San Nwe and Suu Sanda Aye</i>	
3:00-3:20 Paper-72	Satellite cells of adult human skeletal muscle with M-Cadherin immunohistochemical expression in autopsy cases <i>Thu Thu Ohn Myint, Myint San Nwe and Zaw Zaw Latt</i>	
3:20-3:40 Paper-73	CD117 immunohistochemical expression in telocytes within the cholelithiasis and stone-free human adult gall bladders <i>Zaw Ye Myint, Myint San Nwe and Saw Sandar Thane</i>	
3:40-4:00 Paper-74	Immunohistochemical expression of Ki-67 proliferation associated nuclear antigen in the ductal cells of human fetal pancreas <i>Aye Aye Mon, Myint San Nwe and Soe Soe Thein</i>	

Day 4

Auditorium - 1

Day (4) - Morning Session (1)

Chairpersons:	Dr. Yi Yi Myint Director General Department of Traditional Medicine	Professor Dr. Nu Nu Aye Professor/Head Department of Pharmacology, University of Medicine 2, Yangon
08:30-08:50 Paper-75	Hepatoprotective activity of <i>Tinospora cordifolia</i> Miers. stem on Carbon tetrachloride (CCl ₄) induced hepatotoxicity in albino rats <i>Khine Khine Lwin, Mu Mu Sein Myint, Moh Moh Htun, Khin Phyu Phyu, Win Win Maw, Phyu Phyu Win, Nu Nu Win, Myint Myint Khine and San San Myint</i>	
08:50-09:10 Paper-76	Hypoglycemic effect of <i>Terminalia chebula</i> Retz. (Phan-kha-thee) on diabetic albino rat models <i>Ei Pyae Phyo Aung, Shin Hnaung Lwin, Nu Nu Aye and Khin Phyu Phyu</i>	
09:10-09:30 Paper-77	Hepatoprotective effect of ethanolic extract of <i>Andrographis paniculata</i> Nees. (say-gha-gyi) leaves on paracetamol-induced hepatotoxicity in albino rats <i>Ei Mon Mon Hlaing, Myint Myint Than, Khin Phyu Phyu and Nu Nu Aye</i>	

09:30-09:50 <i>Paper-78</i>	Effect of omeprazole on pharmacokinetics of metformin in healthy volunteers <i>Ei Ei Aung, Khine Khine Lwin, Nu Nu Aye and Thein May Saw</i>
09:50-10:10 <i>Paper-79</i>	Antimicrobial activity of <i>Justicia adhatoda</i> L. leaf extracts <i>Khin May Thi, Saw Myat Thwe, Soe Myint Aye, Aye Thida Htun, Ei Ei Htway, Moh Moh Lwin, Rai Kit, Aye Aye Phyu and Win Aung</i>

Auditorium - 1

Day (4) - Morning Session (2)

Chairpersons:	Professor Dr. San San Nwet Rector University of Pharmacy, Yangon	Professor Dr. Nang Hla Hla Win Professor/Head Department of Pharmacology, University of Medicine 1, Yangon
10:25-10:45 <i>Paper-80</i>	Effect of Cephalexin on pharmacokinetics of Metformin in healthy volunteers <i>Myo Nanda Aung, Nu Nu Aye, Shin Hnaung Lwin, Khine Khine Lwin, Ei Ei Soe and Aye Zarni</i>	
10:45-11:05 <i>Paper-81</i>	Standardization, safety evaluation and anti-diarrhoeal activity of unripe fruit of <i>Aegle marmelos</i> L. (Rutaceae) (ဥသျှစ်သီး) <i>Khin Tar Yar Myint, Khine Khine Lwin, Mu Mu Sein Myint, Mi Mi Htwe, Myint Myint Khine, Phyu Phyu Win, Mar Mar Myint, San San Myint and Khin Phyu Phyu</i>	
11:05-11:25 <i>Paper-82</i>	Determination of effect of Omega- 3 fatty acid with atorvastatin treatment on combined hyperlipidaemic patients <i>Zaw Hlaing Oo, Zaw Min Htun, Aung Zay Hein and Tin Maung Hlaing</i>	
11:25-11:45 <i>Paper-83</i>	Effect of erythromycin on pharmacokinetics of cyclosporine in healthy Myanmar volunteers <i>Su Mon Thwe, Yin Mon Thwe, Nang Hla Hla Win and Aye Pwint Phyu</i>	
11:45-12:05 <i>Paper-84</i>	Effects of dry Calyx of <i>Hibiscus sabdariffa</i> Linn. (Chin-baung-ni) on serum lipid profile and serum uric acid in hyperlipidemic subjects <i>May June Hsann, Lwin Moe May and Nang Hla Hla Win</i>	

Auditorium - 1

Day (4) Afternoon Session (1)

Chairpersons:	Professor Dr. Thein May Saw Professor/Head Department of Pharmacology University of Medicine, Mandalay	Professor Dr. Yee Yee Tin Professor/Head Department of Pharmacology University of Medicine, Magway
1:00-1:20 <i>Paper-85</i>	Quantitative analysis of paracetamol and orphenadrine citrate from new product, market samples and in human serum <i>Khaing Mon Aye, Khin Thane Oo, Myo Myint, Aung Kyaw Moe and Aung Zaw</i>	

1:20-1:40 Paper-86	Blood glucose lowering effect of seed of <i>Luffa acutangula</i> (Linn.) Roxb. (Kha-we) on adrenaline induced acute hyperglycemic albino rats Swe Swe, Win Myint, Ei Ei Htway, Kyi Kyi Oo, Swe Zin Aung, Aye Aye Phyu, May Thandar Htun, Rai Kit and Win Aung
1:40-2:00 Paper-87	Lipid lowering effect of <i>Ziziphus jujuba</i> Lam. (Zee-Chin) fruit in borderline hypercholesterolemic human volunteers Nyein Chan Pyae, Myat Min and Yee Yee Tin
2:00-2:20 Paper-88	Effect of different room temperature conditions on breeding performance of icr strain mouse Sandar Lin, Aye Win Oo, Htay Yee, Kyaw Kyaw Wai, Nyunt Nyunt, Than Tint, Aye Aye Shwe, Thida and Win Aung
2:20-2:40 Paper-89	Comparative study on the growth of weaning laboratory rats (Wistar strain) using different formulated diet feed Htay Yee, Aye Win Oo, Sandar Lin, San San Aye, Nyunt Nyunt, Thet Htar Hlaing, Kyawt Kyawt Khaing, Thida and Win Aung

Auditorium - 1

Day (4) Afternoon Session (2)

Chairpersons:	Dr. Win Aung Deputy Director General (Retired) Department of Medical Research	Professor Dr. Theingi Myint Pro-Rector University of Medicine 1, Yangon
3:00-3:20 Paper-90	Determination of antioxidant activities, bioactive components and minerals content of <i>Foeniculum vulgare</i> (fennel) (ဖုန်ဖုန်) seeds Lei Lei Win, Ei Ei Htway, Aye Min Maw, Kyawt Kyawt Khaing, Aung Thura, Aye Aye Phyu, Thandar Myint Thaw, Swe Swe and Win Aung	
3:20-3:40 Paper-91	Serum zinc level and erythrocyte superoxide dismutase activity in patients with type 2 diabetes mellitus complicated with nephropathy Ye Win Htun, May Pyone Kyaw, Kyu Kyu Maung and Aye Thidar	
3:40-4:00 Paper-92	Serum zinc and retinol levels in apparently healthy adolescents Phyu Phyu Khin, Kyu Kyu Maung and Than Than Soe	
4:00-4:20 Paper-93	Detection of Russell's viper (<i>Daboia siamensis</i>) venom concentration in experimental envenomation animals' blood by ELISA method Thet Thet Mar, Win Aung, Zaw Myint, Aye Win Oo, Tin Ko Ko Oo, Lwin Zar Maw and Nwe Ni Aung	

Day 5

Auditorium - 1

Day (5) - Morning Session (1)

Chairpersons:	Professor Dr. Wah Win Htike Professor/Head Department of Microbiology, University of Medicine 1, Yangon	Professor Dr. Win Win Maw Professor/Head Department of Microbiology, University of Medicine 2, Yangon
08:30-08:50 <i>Paper-94</i>	Fluoroquinolone resistance among drug resistant <i>Mycobacterium tuberculosis</i> isolates from Yangon and Mandalay Region, Myanmar <i>Phyu Win Ei, Wah Wah Aung, Jong Seok Lee, Wint Wint Nyunt, Thyn Lei Swe, Mi Mi Htwe, Su Mon Win, Hyeyoung Lee and Chulhun L Chang</i>	
08:50-09:10 <i>Paper-95</i>	Urinary lateral flow lipoarabinomannan (LF-LAM) test in prediction of TB in HIV infection <i>Ne Myo Aung, Mar Mar Kyi, Swe Swe Thit, Josh Hanson, Mark Boyd and Htin Aung Saw</i>	
09:10-09:30 <i>Paper-96</i>	Antimicrobial resistance of <i>vibrio cholerae</i> among patients admitted for acute watery diarrhea in hospitals of Mandalay City <i>Saw Myat Thwe, Kay Thwe Thwe Maung, Moe Kyaw Myint, Cherry Kyaw Win, Yi Yi, Aye Aye Myint and Yi Yi Myint</i>	
09:30-09:50 <i>Paper-97</i>	Bacteriological profile of diabetic wound infections in Yangon General Hospital and New Yangon General Hospital <i>Yu Wah Lwin, Mya Mya Aye, Wah Win Htike, Thin Thin Mar, Khine Mar Oo, Than Mya and Thuzar Myint</i>	
09:50-10:10 <i>Paper-98</i>	Phenotypic and genotypic characteristics of Carbapenem-Resistant <i>Enterobacteriaceae</i> among clinical samples from Yangon General Hospital <i>Mya Mya Aye, Khwar Nyo Zin, Hpoo Pwint Myo Win, Yu Wah Lwin, Hideharu Hagiya, Shigeyuki Hamada and Moh Moh Htun</i>	

Auditorium - 1

Day (5) - Morning Session (2)

Chairpersons:	Dr. Hlaing Myat Thu Deputy Director General Department of Medical Research	Professor Dr. Khin Nyo Thein Professor/Head Department of Child Health, University of Medicine 2, Yangon
10:25 -10:45 <i>Paper-99</i>	Molecular detection of group A rotavirus in under five children with acute diarrhea admitted to Yangon Children Hospital <i>Nang Sarm Hom, Theingi Win Myat, Wah Win Htike, Cho Cho Oo, Khin May Oo, Thinn Thinn Shwe, Win Mar, Thida Kyaw and Khin Khin Oo</i>	

- 10:45-11:05
Paper-100 Viral pathogens associated with acute lower respiratory infections among hospitalized children in Yangon Children Hospital
Han Win, Htin Lin, Mo Mo Win, Lay-Myint Yoshida, Wah Wah Aung, Ssu Wynn Mon, Hlaing Myat Thu and Ye Myint Kyaw
- 11:05-11:25
Paper-101 Rapid diagnosis of high-risk human papillomavirus (HR-HPV) genotypes using new point of care (POC) GeneXpert HPV assay in cervical cancer patients
Mu Mu Shwe, San San Myint, Yin Yin Soe, Khin Lay Kywe, Sandar Win, Lin Pa Pa Aye, Htwe Htwe Nyunt, Win Maw Tun and Kyaw Zin Thant
- 11:25-11:45
Paper-102 Clinical severity of rotavirus diarrhoea in relation to molecular characterization of different strains
Kyin Hlaing, Kyaw Zin Wai, Khin Nyo Thein, Ye Myint Kyaw, Myint Myint Than, Ei Ei Shwe, Hlaing Myat Thu, Mo Mo Win and Theingi Win Myat
- 11:45-12:05
Paper-103 Comparison of clinical and virological characteristics among infants, children and adults with dengue infection during 2015 dengue outbreak
Theingi Win Myat, Hlaing Myat Thu, Ye Myint Kyaw, Khin Saw Than, Hlaing Mya Win, Zaw Than Tun, Htin Lin, Win Kay Khine and Kyaw Zin Thant

Auditorium (1)

Day (5) - Closing Session

- 12:15hr Closing Speech by Director General,
Department of Medical Research

BEST PAPERS AND BEST POSTER AWARDING CEREMONY

Department of Medical Research
Advanced Molecular Research Centre
No. 5, Ziwaka Road, Dagon Township, Yangon

- 3:00hr Speech by:
 H.E. Dr. Myint Htwe
 Union Minister
 Ministry of Health and Sports
- 3:15hr Speech by:
 Chairman
 Best Paper and Poster Selection Sub-committee
- 3:30hr Awarding:
 ♦ Best Paper for Basic Research
 ♦ Best Paper for Applied Research
 ♦ Best Paper for Health Systems Research
 ♦ Best Poster
 ♦ Young Researcher Award for Basic Research
 ♦ Young Researcher Award for Applied Research
 ♦ Young Researcher Award for Health Systems Research



List of the Posters Displayed

- Poster - 1* Postprandial hypotension in elderly obese and elderly diabetic women
Zarli Thant, Zaw Lin Thein, OhnmarMyint Thein, Myat Thandar and Ohnmar
- Poster - 2* Assessment of erythrocyte magnesium and serum calcium level in postmenopausal women
Nway Htike Maw, Khin Mi Mi Lay, Pyae Phyo Kyaw, Thet Thet Mar, Sandar Win, Khin San Lwin, Htike Htike Soe, Yi Yi Mon and Htet Htet Lwin
- Poster - 3* Social behavior and related gene expressions in fragile X mental retardation 1 (Fmr1) gene knockout and valproic acid (VPA)-induced autism rat models
Tin Tin Win Shwe and Hidehiro Watanabe
- Poster - 4* Hepatitis B infection in Human Immunodeficiency Virus infected individuals at Specialist Hospital, Waibagi: Preliminary report on HBV and its markers
Ohmar Lwin, Yi Yi Kyaw, Hnin Ohnmar Soe, Wai Myat Thwe, Myint Myint Mu, Htin Aung Saw, Htun Nyunt Oo and WahWah Aung
- Poster - 5* Prevalence of abnormal cervical cytology and associated factors among women attending Cervical Cancer Screening Clinic at Department of Medical Research
Nan Cho Nwe Mon, Ohnmar Kyaw, Tin Tin Han, Thazin Myint, May Thazin Hlaing, Khin Sandar Aye, Yin Min Htun, Mu Mu Shwe and Khin Saw Aye
- Poster - 6* Detection of Aflatoxin B1 in black pepper
Thin Thin Wah, Kyi Kyi Nyein Win, Tin Tin Htwe, May Than Htay, Zin Mi Thein, Nilar, Myo Myo Kyaw and Tin Htet Htet Aung
- Poster - 7* Relationship between coagulation parameters and disease severity in patients with primary lung cancer
Khin La Pyae Tun, Win Pa Pa Naing, Myo Myint Maw, Aye Mya Khaing, Wai Wai Han, Ni Ni Win, Win Win Mar and Khin Saw Aye
- Poster - 8* DNA microarray analysis of the hepatocyte of the F1 and F2 generation in C3H mice by gestational arsenite exposure
Takehiro Suzuki and Keiko Nohara
- Poster - 9* Adolescent exposure to intermediate-frequency magnetic fields affects neurological and immunological biomarkers in young adult male mice
Tin Tin Win Shwe, Shin Ohtani, Naoki Kunugita and Akira Ushiyama
- Poster - 10* What does not make work and why?: Challenges and possible ways for engaging voluntary health workers into health care systems in Myanmar
Saw Saw, Wai Wai Han, Nyi Nyi Zayar, Lin Yadanar Ko, Pyae Sone Thar, Aye Thida, Myo Myo Mon and Theingi Myint

- Poster- 11* Salivary alpha amylase activity in normotensive centrally obese adult males and females
Myat Theingi Swe, Mya Thanda Sein and Mya Mya Thwin
- Poster- 12* Focusing pyrazinamide resistance in rifampicin resistant *Mycobacterium tuberculosis* isolates in Myanmar: A hidden issue to be tackled
Wah Wah Aung, Phyu Win Ei, Jong Seok Lee, Wint Wint Nyunt, Thyn Lei Swe, Mi Mi Htwe, Jiim Lee, Si Thu Aung and Chulhun L. Chang
- Poster- 13* Establishment of in-house production of Phytohaemagglutinin (PHA) reagents for detection of chromosomal disorders
Myat Mon Oo, Zin Mar Soe, Nu Nu Lwin, Hnin Nu Htwe, Kay Thwe Win, Khin Zar Chi Aung, Kyaw Soe, Win Pa Pa Naing and Moh Moh Htun
- Poster-14* Quality and quantity assessment of saliva from dental patients with and without oral habits
Thein Tun, Khin Mya Tun, Kyi Pyar Lwin, Kumudra Kyaw, Win Pa Pa Aung, Nandar Aung, Sann Win, Sein Shwe and Zaw Moe Thein
- Poster-15* Effect of smoking and alcohol drinking on quality of semen parameters in male partners of subfertile couples
Yee Mon, Cho Cho Myint, Khin Htar Yi and Kyi Kyi Nyunt
- Poster-16* Diagnostic role of reprocessing transmission electron microscopy in amelanotic melanoma
Saw Wut Hmone, Takashi Suematsu, Takehiko Koji and Myint Myint Nyein
- Poster-17* Anxiety and depression among a group of cancer patients in Myanmar
Myo Khin, Khin May Oo, San Shwe, Le Le Win, Win Pa Pa Naing, Swe Swe Win, Tun Lwin Nyein, Yin Yin Htun and Soe Aung
- Poster-18* Soil-transmitted helminthiasis among Myanmar elementary school children residing in Yangon Region
Thi Thi Htoon, Su San Oo, Saw Mitchell, Poe Ei Phyu, Win Thein, Htay Htay Tin, Jong-Yil Chai, Sung-Jong Hong and Woon-Mok Sohn
- Poster-19* Molecular diagnosis of occult hepatitis B viral infection among chronic hepatitis C patients attending the Hepatitis Carrier Clinic, Department of Medical Research
Aye Aye Win, Yi Yi Kyaw, Myat Tin Htwe Kyaw, Ohnmar Lwin, Baby Hla, Zin Mar Soe, Wai Myat Thwe and Mya Yi Nyo
- Poster-20* Antenatal care pattern and maternal and perinatal outcomes
Mya Moe Thandar, May Myo Kywe, Khin Htar Yi and Kyi Kyi Nyunt
- Poster-21* Nutritive values (macronutrients) of newly identified foods beyond 2000 in Yangon City
Sandar Tun, Thidar Khine, Lei Lei Myint, Wah Wah Win, Su Su Hlaing, Khin Hnin Wint Phyu, Yin Yin Aye, Hla Phyo Linn and Nyein Nyein Win
- Poster-22* Serum high sensitivity C-reactive protein levels in centrally obese normotensive dippers and non-dippers
Thit Thit Aung, Aye Aye Thein, Phyu Phyu Khin and Mya Mya Thwin

- Poster-23 The effect of aqueous and ethanolic extracts of *Gynura Procumbens* (Lour.) Merr. leaves on membrane Glucose Transporter - 4 (GLUT-4), Akt/PkB, and AMPK levels in 3T3-L1 adipocytes
Cho Lwin Aung, Fumitaka Kawakami, Motoki Imai, Thet Thet Lwin, Hiroko Maruyama, Ohnmar, Khin Phyu Phyu and Mya Mya Thwin
- Poster-24 Hepatitis B and C viral infections among multi-transfused patients in Department of Clinical Hematology, Yangon General Hospital
Aye Aye Lwin, Kyi May Htwe, Nan Cho Nwe Mon, Khin Than Maw, Kay Khine Soe, Moh Moh Hlaing, Sein Win, Htun Lwin Nyein and Khin Saw Aye
- Poster-25 Tumor visualization using three-dimensional phase-contrast X-ray computed tomograph
Thet Thet Lwin, Hiroko Maruyama and Tohoru Takeda
- Poster-26 Determination of monosodium glutamate content in different brands of chicken seasoning powder
Nyein Chan Aung, Moe Kyaw Thu, Aung Win Htun, Moe Kyaw and Tin Maung Hlaing
- Poster-27 The surveillance of malaria transmission in South-East Myanmar
Win Han Oo, Katherine O'Flaherty, Kyaw Zayar Aung, Myat Mon Thein, Aung Thi, Wai Yan Min Htay, Aung Paing Soe, Paul A. Agius and Freya Fowkes
- Poster-28 Can we prevent newborns from HIV infection?: Situation of mother-to-child transmission of HIV in Myanmar
Kyaw Min Htut, Myo Myo Mon, Htun Nyunt Oo and Su Myat Lwin
- Poster-29 Effective implementation of the WHO framework convention on tobacco control in Japan
Naoki Kunugita, Yohei Inaba, Kanae Bekki and Shigehisa Uchiyama
- Poster-30 Larvicidal and repellent properties of *Citrus hystrix* DC fruit (တောရှောက်ခါးသီး) extracts against *Aedes aegypti* mosquitoes
Maung Maung Mya, Zar Zar Aung, Khin Phyu Phyu, Khine Khine Lwin, Chit That Nwe, Aye Win Oo, Than Myat Htay, Sein Thaung and Yan Naung Maung Maung
- Poster-31 Maternal health in a remote setting: are there any knowledge gaps for timely help-seeking during pregnancy?
Su LattTun Myint, Khin Thet Wai, Myat Phone Kyaw, Thae Maung Maung and Khin Wuit Ye Hla
- Poster-32 Red cell deformability in type 2 diabetic patients with nephropathy
Haymar Soe Win, Thae Nu Htwe and Ohnmar
- Poster-33 Plasma malondialdehyde level, serum high sensitivity C-reactive protein level and cognitive ability in elderly people
Nay Chi Oo, Moe Phyu Phyu Aung and Ohnmar

- Poster-34* Glucose intolerance effect on high-fat diet intake mice by *Undaria pinnatifida*; Wakame
Motoki Imai, Fumitaka Kawakami, Thet Thet Lwin, Yuichi Kadoya and Hiroko Maruyama
- Poster-35* Antibody status of children under 3.5 years of age after immunization with Pentavalent Vaccine according to EPI Schedule
Lynn Pa Pa Aye, Khin Nyo Thein, Kyaw Zin Wai, Thazin Mon, Kay Khine Soe, Mu Mu Shwe, Win Maw Tun, Win Aung and Kyaw Zin Thant
- Poster-36* Breakfast habits, body weight and nutritional status of home and hostel students in University of Medicine, Mandalay
Sanda Kyaw, Win Yu Aung, Moh Moh Hlaing, Aye Aye Thein and Ohnmar
- Poster-37* Transvaginal and colour Doppler ultrasound in pregnant women with previous caesarean scar with placenta previa
May Thu Htun, Mar Mar Wynn, Mya Thida and San San Myint
- Poster-38* Effects of Aflatoxin B1 induced toxicity on rat liver
Than Than Swe, Moh Moh Htun, Aye Win Oo, Zay Yar Chit, Kyaw Soe, Mo Mo Win, Khin Myo Sett, Mya Thandar Win and Nilar Tun
- Poster-39* Differentiation of *Aedes aegypti* and *Aedes albopictus* eggs using scanning electron microscope
Min Min Win, Than Than Swe, Khin Kant Kaw Oo, Maung Maung Mya, Kyaw Soe, Win Pa Pa Naing, Moh Moh Htun, Khin Saw Aye and Kyaw Zin Thant
- Poster-40* Application of Loop mediated isothermal amplification (LAMP) and Polymerase Chain Reaction (PCR) methods in diagnosis of Pulmonary Tuberculosis
Mu Mu Shwe, Khin Saw Aye, Kyi May Htwe, Khin Than Maw, Ohnmar Kyaw, Khine Zar Win, Tin Mi Mi Khine, Chie Nakajima and Yasuhiko Suzuki
- Poster-41* Relationship between serum leptin level and insulin resistance in persistent obese and current obese people
Thin Thin Yu, Sanda Kyaw and Ohnmar
- Poster-42* Entomological Surveillance at high malaria prevalence villages under cover of fixed and mobile clinic of quality diagnosis and standard treatment project, Myanmar Medical Association
Maung Maung Mya, Aye Than, Thura Htay, Tun Nay Myo Aung, Pyay Lin Aung, Aung Thi, Myo Min and Myat Phone Kyaw
- Poster-43* Effects of perinatal exposure to a phosphate ester flame retardant on novel object recognition ability and memory function-related gene expression in adult mice
Tin Tin Win Shwe, Kazuhiro Sano, Tomohiko Isobe, Takaharu Kawashima, Go Suzuki, Shunji Hashimoto, Shoji F Nakayama and Fumihiko Maekawa
- Poster-44* Drinking, dependency and diseases: Alcohol drinking pattern, dependency and diseases among male in-patients at Medical Units of Yangon General Hospital
Min Zaw Oo, Aung Pyae Phyoo, Saw Saw and Nang Khin Phone Tint



- Poster-45** Assessment of non-communicable diseases (NCDs) risk factors among the selected military personnel in Bago Region
Aung Kyaw Khant, Poe Poe Aung, Thant Zin Oo, Saw Min, Chan Pyae Aung, Aung Kyaw Thu, Thein Than Tun, Aung Zaw Tun and Kyaw Than Oo
- Poster-46** Identification of the potential radiation risk of indoor radon in old buildings of Pabedan Township, Yangon Region
Win Thaw Tar Lwin, Khin Hnin Pwint, Myat Myat Ko, Moe Moe Han, Htet Nandar Aung, Su Mon, Ni Ni Than, Si Thu Soe Naing and Ni Ni Maw
- Poster-47** Assessment of body composition in children by using stable isotope method
Aye Aye Maw, Yin Yin Win, Khin Thida Wai, Sandar Aung, Naw Myat Su Mon, Moh Moh Hlaing, Ko Ko Zaw and Theingi Thwin
- Poster-48** Effect of some estrus synchronization techniques on reproductive ability of laboratory rats (*Rattus norvegicus*) in DMR
Aye Win Oo, Mu Mu Win, Than Myat Htay, Khin Hnin Yi, Mya Mya Sein, Tint Zaw Maung, San San Myint and Win Maw Tun
- Poster-49** Community participation of malaria research in Myanmar
Janie Anne Zuber, Zaw Win Thein, Poe Poe Aung and Myaing Myaing Nyunt
- Poster-50** Ultrasensitive detection of asymptomatic malaria using dried blood spots
Kayvan Zainabadi, Matthew Adams, Zay Yar Han, Hnin Wai Lwin, Kay Thwe Han, Christopher V. Plowe and Myaing Myaing Nyunt
- Poster-51** Assessment of risk of malnutrition of elderly people living in the Yangon Region
Mya Ohnmar, Moh Moh Hlaing, Sandar Tun, Khin Mittar Moe San, Myat Myat Thu, Wah Wah Win, Khin Hnin Wint Phyu, Yin Yin Aye and Hla Phyo Lin
- Poster-52** Barriers to accessing harm reduction services by people who inject drugs in Kachin State: Experiences, perspectives and opinions
Yin Thet Nu Oo, Aung Naing Soe, San Hone, Khin San Tint, Nanda Myo Aung Win, Soe Moe Myat and Aye Win Khine
- Poster-53** Effect of traditional drug “Eve (၆၀)” on wound healing in laboratory rat model
Nyi Nyi Win, Khin Phyu Phyu, Aye Win Oo, Mi Mi Htwe, Khine Khine Lwin, Wah Wah Aung, Mu Mu Sein Myint, Zaw Myo Tint and Phyo Wai Zin
- Poster-54** The ordering and utilization of blood in Central Women Hospital, Yangon, Myanmar
Zin Zin Thu, Thidar Aung, Khin Shwe Mar, Nyein Ei Khine, Aye Myint Oo, Hla Hla Win, Zaw Min Latt, Myo Myo Mon and Kyaw Zin Thant
- Poster-55** The requisition and utilization of blood in Yangon General Hospital, Yangon, Myanmar
Nyein Ei Khine, Thidar Aung, Cho Cho Nyunt, Aye Myint Oo, Hla Hla Win, Zaw Min Latt, Myo Myo Mon, Khin Saw Aye and Zin Zin Thu
- Poster-56** Serological surveillance for malaria in 2015 malaria indicator survey
Kay Thwe Han, Aung Thi, Tom Hall, Myo Win Htun, Ni Ni Zaw, Hnin Ohnmar Soe, Chris Drakeley, Hannah Edwards and Kyaw Zin Thant

45th MYANMAR HEALTH RESEARCH CONGRESS
PROGRAMME FOR SYMPOSIA AND TALK
Department of Medical Research
No. 5, Ziwaka Road, Dagon Township, Yangon, Myanmar

Day 1

9.1.2017(Monday) 13:30-16:30hr
Auditorium (2) Advanced Molecular Research Centre (AMRC)

Building National Nutrition Agenda- Where Are We and What To Focus?

Chairperson: Dr. Than Tun Sein
Director (Rtd), Socio-Medical Research, Department of Medical Research
Part-time Professor, Anthropology Department, Yangon University
Honorary Professor, University of Public Health, Yangon

- Speakers:**
- (1) **Building National Nutrition Agenda- The Progress**
Dr. May Khin Than
Director (Nutrition),
Department of Public Health, Ministry of Health and Sports
 - (2) **Demographic Health Survey (2016)**
Dr. Thet Thet Mu
DHS Programme, Myanmar
Director,
Department of Public Health, Ministry of Health and Sports
 - (3) **Food and Rural Development Sectors-Contribution to National Nutrition Agenda**
U Kyaw Lwin / Dr. Hla Hla Myint
Department of Agriculture Planning, Department of Agriculture
Dr. Khin Myat Nwe/Dr. Khin Htay Myint
Department of Livestock and Animal Husbandry
 - (4) **Civil Society - Contribution to National Nutrition Agenda**
Dr. Saw Eden
Save the Children, Host of Civil Society Alliance
 - (5) **Making an Investment Case for Nutrition**
Dr. Sundar Gopalan
Operations Advisor, World Bank
 - (6) **Nutrition Information - Timely and Effective Use**
Dr. Aye Thwin
Nutrition Advisor, Ministry of Health and Sports

Day 2

10.1.2017(Tuesday) 09:00-12:30hr - Auditorium (2), AMRC

Myanmar-Korea Joint Symposium (2017)

Chairpersons: (1) Dr. Kyaw Zin Thant

Director General

Department of Medical Research

(2) Dr. Sun Dae Song

Chairman of the Board

International Tuberculosis Research Center, Korea

Speakers:

(1) **TB Biomarker Discovery by Using Extracellular Vesicles Derived from *Mycobacterium tuberculosis****Professor Chulhun L. Chang*Department of Laboratory Medicine, Pusan National University,
Yongsan Hospital, Korea(2) **National Response to TB Control in Myanmar***Dr. Si Thu Aung*

Program Manager/ Deputy Director (TB),

National TB Program, Department of Public Health, Myanmar

(3) **Descriptive Epidemiology of Tuberculosis***Ms. Hyun Mee Lee*

Research Coordinator,

International Tuberculosis Research Centre, Korea

(4) **Clinical Review of MDR-TB Patients who Treated with Bedaquiline in a National TB Hospital***Dr. Dae Yeon Kim*

Director, National Masan Tuberculosis Hospital, Korea

(5) **Introduction of Delamanid and Otsuka's Efforts to Tackle TB***Dr. Kiwan Ha*

TB Projects Leader, Korea OIAA (Otsuka International Asia Arab Co., Ltd.)

(6) **Cancer Prevention with Promising Natural Products: Mechanisms of Action and Molecular Targets***Professor Jong Suk Kim*Department of Biochemistry, Chonbuk National University Medical
School, Jeonju, Jeonbuk, Korea(7) **Research on Human Oncogenic Viruses Related Common Cancers in Myanmar***Dr. Moh Moh Htun*Director (Research), Department of Medical Research,
Ministry of Health and Sports, Myanmar

Day 2

10.1.2017(Tuesday) 13:30-16:30hr - Auditorium (2), AMRC

Panel Discussion on Hospital Waste Management

Chairperson: Professor Dr. Khin Maung Lwin
Advisor for Public Health Domain, Ministry of Health and Sports
Steering Committee Member,
Water Supply and Sanitation Collaborative Council, Geneva

- Speakers:**
- (1) **Waste Management in Private Hospitals**
Dr. Kyi Shin
Vice-President, Myanmar Private Hospitals Association
 - (2) **Waste Management in Public Hospitals and Blood Bank**
Professor Dr. Thida Aung
Deputy Director General, National Blood Centre,
Department of Medical Services
 - (3) **Waste Management in a Research Laboratory**
Dr. Thaung Hla
Director (Rtd), Department of Medical Research
 - (4) **Capacity Building of Operators for Waste Management**
Mr. Thibaut LELOC'H
Project Officer,
Water, Sanitation and Solid Waste Management Program, GRET
France
 - (5) **Hospital Water Supply and Waste Water Management in Hospitals of Yangon**
Professor Dr. Aung Myint Maw
Assistant Chief Engineer
 - (6) **Installation of Hospital Waste Treatment Plants**
U Khin Maung Win
Managing Director, Myanmar Water Group

Day 2

10.1.2017(Tuesday) 13:30-16:30hr - Auditorium (3), Central Biomedical Library

Principles and Practice of Travel Medicine

Chairperson: Professor Dr. Nay Soe Maung
Rector, University of Public Health, Yangon

- Speakers:**
- (1) **Introduction to Travel Medicine and the Asia Pacific Travel Health Society**
Professor Pornthep Chanthavanich
Thailand
 - (2) **Travel Medicine in Global Perspective and the International Society of Travel Medicine**
Professor Eli Schwartz
Israel

(3) Overview: The Pre-travel Consultation, Travel Medicine Resources & Vaccine Preventable Diseases*Dr. Jenny Visser*

New Zealand

(4) Overview: Vector Borne & Food & Water Disease, Advising Special Populations and the Post-travel Consultation*Dr. Mike Starr*

Australia

Day 3

11.1.2017(Wednesday) 09:30-12:30hr - Auditorium (2), AMRC

ISO 17025 Accreditation: The Road to International Recognition for Analytical Laboratory in Department of Food and Drug Administration

- Chairpersons:**
- (1) Dr. Than Htut**
Director General,
Department of Food and Drug Administration
 - (2) Dr. Souly Phanouvong**
Regional Manager
US Pharmacopeial Convention (USP),
Promoting the Quality of Medicines Program(PQM)
 - (3) Dr. Khin Chit**
Deputy Director General
Department of Food and Drug Administration

- Speakers:**
- (1) Overview of ISO 17025 Accreditation**
Dr. Yanga K. Dijiba
Program Manager, Asia Programs
US Pharmacopeial Convention (USP)
Promoting the Quality of Medicines Program (PQM)
 - (2) Importance of ISO 17025 Accreditation in Analytical Laboratory**
Mr. Stephen Roberts
Senior SPS Expert
Trade Development Programme, GIZ, EU
 - (3) ISO 17025 Accreditation Process of National Quality Control Pharmaceutical Chemistry Laboratory in Department of Food and Drug Administration**
Daw Tin Myo Khine
Assistant Director - Pharmaceutical Chemistry Laboratory
Department of FDA, Ministry of Health and Sports

(4) ISO 17025 Accreditation Process of National Quality Control Food Testing Laboratory in Department of Food and Drug Administration

Dr. Khin Nyein Aye

Deputy Director - Food Control Laboratory

Department of FDA, Ministry of Health and Sports

Day 3

11.1.2017(Wednesday) 13:30-16:30hr - Auditorium (2), AMRC

Setting the Future by Grasping the Window of Opportunity

Chairpersons:

(1) Professor Dr. Pe Thet Khin

Professor Emeritus, University of Medicine 1, Yangon

(2) Professor Dr. Khin Nyo Thein

Department of Paediatrics, University of Medicine 2, Yangon

Speakers:

(1) Importance of First 1000 Days

Dr. Jacques Bindels

Scientific Director, Danone Nutricia, Early Life Nutrition

(2) Optimizing Newborn Nutrition

Professor Dr. Nant San San Aye

Professor (Neonatology), Central Women Hospital, Yangon

(3) The Relevance of the Gut Microbiota in First 1000 Days

Dr. Christophe LAY

Senior Scientist Gut Microbiology,

Life Science Innovation-Early Life Nutrition

(4) The South East Asia Nutrition Surveys (SEANUTS): Findings on Children's Dietary Intakes and Nutritional Status

Dr. Ilse MSL Khouw

Global Development Nutrition

Friesland Campina Development Centre, Netherlands

(5) Building Healthier Nation by Promoting Lifelong Healthful Eating Habit among Primary School Children

Dr. Moh Moh Hlaing

Deputy Director, Nutrition Research Division,

Department of Medical Research

(6) Challenges in Changing Behavior on Breastfeeding and Infant and Young Child Feeding

Professor Dr. Chomar Kaung Myint

Professor/ Head

Health Behavior & Communication Department

University of Public Health



Day 4

12.1.2017(Thursday) 09:30-12:30hr - Auditorium (2), AMRC

Bringing Molecular Diagnostics to Point-of-Care Testing (POCT)

Chairperson: (1) **Dr. Khin Pyone Kyi**
Director General (Retired),
Department of Medical Research

- Speakers:
- (1) **Molecular Diagnostics: Situation and Challenges in Myanmar**
Professor Dr. Htay Htay Tin
Deputy Director General, National Health Laboratory
 - (2) **An Implementation Research Study to Assess Impact, Feasibility and Acceptability of a POC Diagnostic for Early Infant Diagnosis of HIV**
Associate Professor Stanley Luchters
Principal of Sexual and Reproductive Health;
Team Leader, Women's and Children's Health,
Burnet Institute
 - (3) **Opportunities and Challenges in Unlocking the Hepatitis C Diagnostics Market**
Dr. Francesco Marinucci
Head of HIV and HCV unit, FIND
 - (4) **Point-of-Care Tests In Development to Address Unmet Medical Needs**
Associate Professor David Anderson
Deputy Director, Burnet Institute;
Head,
Diagnostic Development Laboratory
 - (5) **Panel Discussion**
Panel members:
 - (1) *Professor Dr. Htay Htay Tin*
 - (2) *Associate Professor David Anderson*
 - (3) *Associate Professor Stanley Luchters*
 - (4) *Dr. Francesco Marinucci*

Moderator: **Dr. Khin Pyone Kyi**

Day 4

12.1.2017(Thursday) 13:30-16:30hr - Auditorium (2), AMRC

Life Style Related Disease

Chairperson: Dr. Myint Shwe
Director, Non-Communicable Disease Program,
Department of Public Health

- Speakers:**
- (1) Double Burden of Obesity and Undernutrition in South East Asia – Mechanism, Prevention, and Therapy**
Professor Dr. Jun WADA,
Professor/ Head
Department of Nephrology, Rheumatology, Endocrinology and Metabolism
Okayama University Graduate School of Medicine,
Dentistry and Pharmaceutical Sciences, Okayama University, Japan
 - (2) Diet of Metabolic Syndrome**
Yachiyo Sakamoto
Dietitian, Department of Clinical Nutrition,
Okayama University Hospital, Okayama, Japan
 - (3) Life Styles Changes in Myanmar: Evidence to Practice and Policy**
Professor Dr. Ko Ko
Professor, Department of Medicine
North Okkalapa General Hospital, Department of Medical Services
 - (4) Tobacco use in Myanmar: Comparison of 2007 and 2014**
Dr. Ko Ko Zaw
Deputy Director, Epidemiology Research Division,
Department of Medical Research

Day 4

12.1.2017(Thursday) 13:30-16:30hr - Auditorium (3), Central Biomedical Library

Oral Cancer: Scenario and Treatment Strategies

Chairperson: Professor Dr. Ba Myint
Rector (Retired)
University of Dental Medicine, Yangon

- Speakers:**
- (1) Oral Cancer: Epidemiology and Prevention**
Professor Dr. Ko Ko Soe
Professor/ Head, Preventive and Community Dentistry Department
University of Dental Medicine, Yangon
 - (2) Oral Cancer: Risk Factors, Diagnosis and Management**
Professor Dr. Win Naing
Professor/ Head, Oral and Maxillofacial Surgery Department
University of Dental Medicine, Yangon

- (3) **Oral Cancer: Aetiopathogenesis; Past, Present and Future**
Professor Dr. Zaw Moe Thein
 Professor/ Head, Oral Medicine Department
 University of Dental Medicine, Yangon
- (4) **Oral Rehabilitation of Patients with Jaw Defects after Cancer Surgery**
Associate Professor Dr. Shwe Hlaing
 Associate Professor, Prosthodontic Department
 University of Dental Medicine, Yangon

Day 5

13.1.2017(Friday) 09:30-12:30hr - Auditorium (2), AMRC

Malaria Elimination in Myanmar: Research to Accelerate Progress towards Malaria Elimination

- Chairpersons:**
- (1) **Dr. Thandar Lwin**
 Director, Disease Control, Department of Public Health
- (2) **Dr. Aung Thi**
 Deputy Director, National Malaria Control Programme,
 Department of Public Health
- Speakers:**
- (1) **Malaria Elimination in Myanmar: Research to Accelerate Progress towards Elimination**
Dr. Aung Thi
 Deputy Director (Malaria),
 Programme Manager, National Malaria Control Programme
- (2) **Therapeutic Efficacy Studies for Antimalarials in Myanmar, 2009-2015**
Dr. Kay Thwe Han
 Deputy Director/ Head, Parasitology Research Division,
 Department of Medical Research
- (3) **Utilization of Personal Protection against Malaria among Migrant Rubber Tappers in Thanbyuzayat Township, Mon State, Myanmar**
Dr. Than Naing Soe
 Assistant Director, Central VBDC,
 National Malaria Control Programme
- (4) **Knowledge, Attitude and Practice of Malaria among Mobile Migrant Populations in Bago Region, Myanmar**
Dr. Wint Phyo Than
 Assistant Director, BagoVBDC, National Malaria Control Programme

- (5) **Entomological Surveillance Findings in Myanmar 2011-2015**
Daw Mar Mar Win
 Assistant Director, Central VBDC,
 National Malaria Control Programme
- (6) **Knowledge and Practice of Village Health Volunteers on Malaria Prevention and Case Management in Selected Townships of Bago Region**
Dr. San Kyawt Khaing
 Assistant Director, Rakhine VBDC,
 National Malaria Control Programme, Myanmar
- (7) **Key Findings of the Migrant Mapping in All Townships of Mon State (2015)**
Dr. Nyan Sint
 Deputy State Public Health Director, Mon State

Day 5

13.1.2017(Friday) 09:30-12:30hr - Auditorium (3), Central Biomedical Library

Symposium on Medical Education

Chairperson: Dr. Tin Tun
 Deputy Director General
 Department of Human Resources for Health

- Speakers:**
- (1) **Pharmacist Education in Japan**
Professor Toshiaki SENDO
 Professor, Department of Clinical Pharmacy,
 Okayama University Hospital, Okayama, Japan
 - (2) **Education Program of Medical Staff**
Assistant Professor Yasuhiro MANDAI
 Assistant Professor, Center for the Development of Medical and Health
 Care Education, Okayama University
 - (3) **Clinical Engineer: Role and Education Program in Japan**
Associate Professor Kenichi KOKUBO
 Associate Professor, Department of Medical Engineering and
 Technology, Kitasato University School of Allied Health Sciences
 - (4) **Experiencing Curriculum Revision of the Undergraduate Nursing Programs**
Professor Dr. Myat Thandar
 Rector, University of Nursing, Yangon
 - (5) **Public Health and Research in Medical Education**
Professor Dr. Htin Zaw Soe
 Rector, University of Community Health, Magway

Day 5

13.1.2017(Friday) 10:00-11:30hr - SRC Lecture Theatre

Cytological Screening of Cervical Cancer

Chairperson: Professor Dr. San San Myint
Professor/Head, Obstetrics and Gynaecology Department,
University of Medicine 1, Yangon

Speaker: *Professor Dr. Hiroyuki Yanai*
Professor, Department of Pathology
Okayama University Hospital, Okayama, Japan



***ABSTRACTS OF
THE PAPERS PRESENTED***

Paper Reading Session : Day 1

Morning Session, Auditorium (1)

Paper-1

**Diet consumption pattern of primary school children
from four geographical regions of Myanmar*****Moh Moh Hlaing, Mya Ohnmar, Sandar Tun, Myat Myat Thu, Thidar Khine,
Wah Wah Win, Su Su Hlaing, Hla Phyo Linn and Yin Yin Aye*****Department of Medical Research**

The school based descriptive study was conducted in basic primary schools, middle schools and basic high schools in urban and rural areas of Yangon, Mandalay, Taungyi and Mawlamyaing during November 2014 to February 2015. The study was aimed to assess the diet consumption pattern among primary school children. A total of 835 Grade IV and Grade V students (Boys 53.4% and Girls 46.4%) were interviewed using structured questionnaire including socio-demographic background, meal consumption, consumption of snack food, fruit and vegetable consumption. Nearly 84% of the students consumed main meal 3 times per day (72.6% in Yangon, 79.6% in Mandalay, 89.4% in Taungyi and 90.4% Mawlamyaing). Only 5.5% of children consumed main meal 4 times and above per day and 11.5% of children consumed 1-2 times per day. The most frequently missed meal is breakfast (3.4%) followed by lunch (1.9%) and dinner (1.4%). About 63% of children consumed fish 1- 2 days per week and 47.1 % and 47.8 % of children consumed meat 1-2 days per week and 3-5 days per week respectively. Only 29.1% and 14.8% % of children consumed vegetables and fruits 6-7days per week respectively and only 13% of children consumed milk daily. Nearly 40%, 27.3% and 22.6% of children consumes snack food 1-2 times per day, 3 times per day and 4-7 times per day respectively. More than 50% of children consumed soft drink 1-2 days per week, 47.1% and 43.7% of children consumed package snack food and instant noodle 1-2 days per week respectively. Fried meat/fish balls were consumed by 27.4% of children 1-2 days per week. About 4%, 4.7%, 2.0%, 2.5% of children consumed soft drink, package snack food, instant noodle and fried meat/fish ball 6-7 days per week respectively. In conclusion, about 50% of children consumed the junk foods such as soft drink, package fried snack food and instant noodle at least 1-2 days per week. But, daily consumption of fruits, vegetables and milk was low among primary school children. The findings highlighted the nutrition education about food choices between healthy food and unhealthy food is still needed among primary school children.

Morning Session, Auditorium (1)

Paper-2

Heterogeneous prevalence of subclinical malaria measured by ultrasensitive PCR in Myanmar

*Myaing Myaing Nyunt*¹, *Kay Thwe Han*², *Poe Poe Aung*¹, *Tin Maung Hlaing*³,
*Si Thura*⁴, *Myo Min*⁵, *Hnin Su Su Khin*⁶, *Win Han Oo*⁷ and *Huang Fang*⁸

¹Institute for Global Health, University of Maryland School of Medicine, Baltimore, Maryland, USA

²Department of Medical Research

³Defence Services Medical Research Centre

⁴Community Partners International

⁵Myanmar Medical Association

⁶Population Services International

⁷Burnet Institute

⁸National Institute of Parasitic Diseases, China CDC, Shanghai, China

A malaria elimination campaign underway in the Greater Mekong Sub-region (GMS) aims to prevent the spread of artemisinin-resistant falciparum malaria beyond the region. Elimination may require drug treatment of all malaria infections, including low density, subclinical infections that may represent a previously unrecognized transmission reservoir. In Myanmar, targeted mass drug treatment is being evaluated using ultrasensitive PCR-based testing that is thousands-fold more sensitive than rapid diagnostic tests (RDT) and hundreds-fold more sensitive than standard PCR. In collaboration with seven governmental and non-governmental malaria elimination partners, we conducted cross-sectional surveys of malaria prevalence in 43 villages located in 13 malaria endemic rural townships of nine State and Regions of Myanmar. Finger-prick blood was collected for rapid diagnostic testing and for standard PCR and ultrasensitive multiplex reverse transcription real-time PCR (usPCR) analyses. In preliminary analyses, *P. falciparum* prevalence (both mono-infection and mixed with *P. vivax*) ranged from 0-10% by RDT, and 0-30% by usPCR; and *P. vivax* (both mono- and mixed with *P. falciparum*) 0-3% by RDT and 0-28% by usPCR. Subclinical malaria at very low densities can be reliably detected by a new, DNA and RNA-based, fingerstick usPCR method. The prevalence of malaria in Myanmar is highly heterogeneous from village to village, even within the same township, highlighting the need for microstratification of malaria risk to target interventions. Prospective longitudinal studies assessing the clinical and transmission risks posed by this subclinical malaria reservoir are being planned. Results are expected to guide decisions about whether, when, where and how to implement targeted mass treatment and other interventions to eliminate this reservoir.

Morning Session, Auditorium (1)

Paper-3

Assessment of utilization of Urban Health Centers in Yangon and Mandalay Regions*Kyaw Oo, Khin Thet Wai, Yin Thet Nu Oo, Saw Saw, Yadanar Aung,
Kyaw Thu Soe, Su Latt Tun Myint and Wai Wai Han***Department of Medical Research**

Low utilization of Urban Health Centers (UHC) leads unnecessary overload at tertiary referral hospitals by clinic attendance. This study is conducted to reveal the reasons behind low utilization of UHCs in Yangon (YGN) and Mandalay (MDY) Cities and to recommend ways to revert the situation with scientific evidences. The study covers the distribution and functionality of the UHCs, patterns of infrastructure, availability of health human resources, health services, and equipment. Both quantitative and qualitative approaches were used. One-third of UHCs was observed as poor physical condition and it was more marked at MDY. Dental health care services were lack in many UHCs at both regions. Most of referrals for clients of UHCs were to public hospitals for specialist opinion, hospitalization and treatment. Some UHCs referred clients for laboratory and investigation services. In general, UHCs in both YGN and MDY need to improve their diagnostic capacities than other services. UHCs need to be provided for some guidebooks that are lacking. Lack of equipment for dental care facilities and emergency kits were more common than other basic equipment. Basic essential drug especially antibiotics and anti-hypertensives insufficiency was also noted. Main factors to improve utilization were to improve physical image and infrastructure, to improve service package (including investigations for commonly needed) as much as possible, to strengthen referral system and to increase community awareness.

Morning Session, Auditorium (1)

Paper-4

**Pilot study on newly developed botanical larvicides and repellents against
Aedes mosquitoes in Myanmar***Htin Zaw Soe¹, Sein Min², Maung Maung Mya², Khine Khine Lwin²,
Aye Win Oo² and Myat Khine³*¹University of Community Health, Magway²Department of Medical Research³Traditional Medicine Research Division, Defence Services Medical Research Centre

Dengue Haemorrhagic Fever (DHF) is one of the major public health problems in Myanmar. There are no effective vaccine and specific drug for DHF and its containment is totally based on vector *Aedes* mosquito control. Thus the present study was conducted with the general objective of developing innovative environment-friendly vector control tools mainly focusing on the plant sources. The test plants – *Caesalpinia pulcherrima* Linn. and *Ervatamiacoronaria* (Jacq) Stapf. were locally searched in Magway – Central Myanmar, extracted, screened and tested against *Ae. Aegypti* larvae and adults under the laboratory

conditions, and in field trials preceded by animal acute toxicity and skin irritation tests in line with standard procedures and guidelines of WHO and OECD from August through September, 2015. In-depth interviews were undertaken among local residents to evaluate the public acceptance on new control tools. Test plant leaves contained some phytochemicals with larvicidal and repellent properties. LC₅₀ values (95% FCI) of crude ethyl acetate leaf extract larvicides of *C. pulcherrima* and *E. coronaria* against *Ae. Aegypti* larvae were 3.21 (2.95 – 3.48) and 4.46 (3.16 – 6.05) mg/l respectively. Their repellent ED₅₀ values (95% FCI) against *Ae. Aegypti* adults were 0.02 (0.01 – 0.03) and 0.01 (0.005 – 0.02) mg/cm² respectively. Their repellent percentage protection (mean ± SD) was 88.4±13.3 (dose, 1.6 mg/cm²) and 82.1± 6.4 (dose, 0.4 mg/cm²) at 90 min post application respectively. The results of animal acute toxicity and skin irritation tests using test extract/repellents showed the safe use of new control tools by human trials. In field trials it was found that larval mortality was 100% in minor water containers treated with *C. pulcherrima* larvicide (dose, 7.2 - 14.4 mg/l) and *E. coronaria* larvicide (dose, 12.7 – 25.4 mg/l) separately in 24 hr. Their repellent percentage protection (mean ± SD) was 98.3±1.4 (dose, 1.6 mg/cm²) and 97.8± 2.3 (dose, 0.4 mg/cm²) in 90 min respectively. The local residents were interested in, accepted and demanded the new control tools. In conclusion, the present study highlighted that new larvicides and repellents were found to be very promising to be safely and effectively used to control *Aedes* mosquitoes.

Morning Session, Auditorium (1)

Paper-5

The distribution of HLA-A alleles frequencies in 8 Major ethnic groups of Myanmar

Zin Zin Thu¹, Win Shwe Zin¹, Than Htiak¹, Thandar Tun¹, Myat Myat Hnin¹, Kyinlannar¹,
Yu Yu Kyaw¹, Ko Ko Zaw¹ and Hiroh Saji²

¹Ministry of Health and Sports, Myanmar

²HLA Laboratory, Japan

Aim: To investigate the distribution of HLA-A alleles frequencies in 8 Major ethnic groups of Myanmar. Method: Ethnicities of the sampled individual were confirmed prior to collection, i.e. the participant must be at least three generations of each ethnic. Samples were only taken from subjects after obtaining written informed consent and ethical clearance for this study was approved by the Research and Ethics Review Committee of University of Medicine 1, the Ethics Review Committee of Department of Medical Research, Ministry of Health and sports, Myanmar. HLA typing by PCR-SSOP Luminex method and the HLA alleles were assigned by analysis of the reaction (hybridization) pattern of the target samples using WAKFlow® HLA typing software. Result: Total study population was 429 healthy persons; 63 Kachins, 55 Kayahs, 44 Kayins, 55 Chins, 55 Mons, 46 Bamars, 48 Rakhines and 54 Shans. There were four types HLA-A alleles; A*02:03, A*11:01, A*24:02, A*33:03 found in all eight Myanmar major ethnic groups. The HLA-A allele with the highest frequency was A*11:01 in all groups; 63.49% in Kachins, 65.45 % in Kayahs, 47.73 % in Kayins, 36.36% in Chins, 21.09% in Mons, 43.4 % in Bamars, 42.71% in Rakhines and 43.52 % in Shans, respectively. Conclusion: In conclusion, all eight Myanmar major ethnic groups have similar HLA-A alleles to the Southeast Asia group

and close relationship among Thai, Vietnam and Southwest Chinese populations; Dai, Jinuo, Wa, Han and Bulang. Although all eight Myanmar major ethnic groups descendent from Mongoloid origin, there is little different with HLA-A alleles data. These findings give useful information regarding the question about the origin of Myanmar and neighboring populations. Further analysis of HLA patterns in Asian and Pacific population would be helpful.

Afternoon Session (1), Auditorium (1)

Paper-6

Determination of insecticide resistance in dengue vector upon selection pressure with malathion

Mya Nilar Chawsu, Yi Yi Mya, Naw Hnin Myint, Tun Tun Win, Si Si Aung and Than Than Htwe

Department of Medical Research

Dengue is a major public health problem globally and *Aedes aegypti* play a major role of dengue transmission. Chemical control is an effective way to reduce vector population. Frequent usage of the same insecticide will select for those individuals in a population, which will favor to survive in the presence of recommended dose of the compounds. Over time this selection pressure will lead to a resistant population becoming established. This study was performed to investigate insecticide resistance of dengue vector against malathion. Field strains of *Aedes aegypti* were collected from five different townships in Mandalay Region. Bioassays were conducted in both larval and adult stages following WHO standard procedures. Pyin Oo Lwin strain was selected to treat malathion every generation at larval stages. Result revealed that Chan Mya Thar Se strain was most susceptible and Pyin Oo Lwin strain was least susceptible in the baseline susceptibility test of larval and adult stage. High resistance development was observed after subjection of malathion to *Aedes aegypti* generation 17 at larval stage, however, the resistance development was not prominent in the adult stage.

Afternoon Session (1), Auditorium (1)

Paper-7

Molecular characterization of dengue 1 virus affecting adults admitted to Yangon General Hospital, Myanmar

Hlaing Myat Thu¹, Theingi Win Myat¹, Aung Zaw Latt¹, Khin Saw Than², Hlaing Mya Win², Zaw Than Tun², Thida Kyaw¹ and Kyaw Zin Thant¹

¹Department of Medical Research

²Yangon General Hospital

In 2015, Myanmar experienced a huge outbreak of dengue with 43,845 reported dengue/dengue haemorrhagic fever (DHF) cases including adults. To determine the characteristics of the currently circulating strain of dengue virus in adults, sera samples were collected from patients with a clinical diagnosis of dengue/DHF attending the medical wards of Yangon

General Hospital from July to October, 2015. Thirty three samples from patients aged between 12-48 years were found to be positive by the SD Bioline Dengue duo NS1, IgM and IgG test. RNA was extracted from these samples and they were typed with serotype specific primers by using the reverse transcriptase polymerase chain reaction (RT-PCR). Of the 33 adult samples tested, 7 isolates were found to be Dengue 1. The dengue 1 isolates were from patients with different clinical grades of disease severity. Of the 7 virus isolates, 5 were from primary dengue patients and 2 were from secondary dengue patients. One dengue isolate which was from a 23 year old male patient from Inlay, Shan State who was diagnosed as secondary dengue and DHF grade II (with bleeding signs such as Coffee Ground Vomiting and epistaxis) was further subjected to direct genetic sequencing of the dengue NS5 gene by ABI 3500 XL Genetic Analyzer in the Advanced Molecular Research Centre (AMRC) at the Department of Medical Research. A phylogenetic tree was constructed and the DNA sequence was compared to other dengue 1 sequences worldwide to reveal that the currently circulating virus from Myanmar belonged to the genotype I of dengue 1 viruses and had close relationship to viruses isolated from Vietnam. This is the first case of a Myanmar adult dengue 1 patient sequenced at the Department of Medical Research in Yangon.

Afternoon Session (1), Auditorium (1)**Paper-8****Clinical characteristics of dengue haemorrhagic fever
in the adults and adolescents*****Ne Myo Aung¹, Myo Lwin Nyein², Mar Mar Kyi¹ and Cho Cho Khine¹*****¹Department of Medicine, Insein General Hospital, University of Medicine 2, Yangon****²Department of Medicine, University of Medicine 2, Yangon**

Myanmar is endemic to dengue hemorrhagic fever. The disease outbreak affects not only children but also adults and adolescents. The study was conducted in Insein General Hospital from January to December, 2015. The study population was those over 13 years. All cases with acute fever (< 7 days) with clinically suspected dengue hemorrhagic fever were selected. The diagnosis was confirmed by either positive dengue IgM antibody or positive NS1 antigen. The clinical presentations and their outcomes were observed until they were fully recovered. A total of 118 cases were confirmed as dengue hemorrhagic fever. The peak incidence was observed in July. Mean age of the dengue hemorrhagic fever cases was 19 (years range 13–63). Eighty-four percent of the cases were residence of urban areas mainly from Hlaing-Thar-Yar Township. Dengue shock syndrome was recognised in 32%. Fever with abdominal complaints such as nausea, abdominal pain and vomiting were common presentations. Positive tourniquet test had 90% sensitivity and pulse temperature dissociation had 82% specificity. Dengue expanded syndrome is rare. Case fatality rate was 0.08% (one adolescent) and no death was observed in adult dengue. On recovery platelet count continued to decline and no bleeding was noted despite thrombocytopenia. Dengue can present as acute abdomen in adults. In conclusion, in adults with fever with acute abdomen dengue should be a diagnosis. Shock is a common presentation for severe dengue in adults.

Afternoon Session (1), Auditorium (1)

Paper-9

**Knowledge on dengue haemorrhagic fever and larva survey
in urban area of Thanbyuzayat Township, Mon State*****Phyo Aung Naing¹, Yan Naung Maung Maung¹, Thae Maung Maung¹, Mya Thandar²,
Maung Maung Mya¹, Aung Pyae Phyo¹ and Cho Thet Khine²***¹Department of Medical Research²Department of Occupational and Environmental Health, University of Public Health

A community based cross sectional study of knowledge on Dengue Haemorrhagic Fever (DHF) and larva survey in selected 2 urban wards (Aung Chan Thar and Aung Khu Tho) of Thanbyuzayat Township, Mon State was carried out during September 2015. A total of 150 respondents were interviewed with structured interview questionnaire and larva survey was performed at their houses. According to socio-demographic characteristics of respondents, majority of them were married female between 18 to 29 and 40 to 49 years old. Most of respondents had passed primary school level and can read and write only. Nearly all of the respondents were dependent. Per capita income of respondents was 36452 kyats (Mean), 8333.33 kyats (Minimum) and 125000 kyats (Maximum) per month. There was statistically significant association between education, income of the respondents, history of DHF in their children, family members and neighbors with knowledge on DHF in univariate analysis. But there was 73 of the respondents still had poor knowledge about DHF. Although most of the respondents had good knowledge, they could not sustain larva control measure and high larval indices were seen. Out of 150 houses, 68 houses were larva infested Household Index (HI). There were total 1468 containers, 602 containers located inside and 866 containers located outside of the households. Among these containers, 157 containers were larva infested Container Index (CI). There was 104.67 positive containers per 100 houses inspected Breteau Index (BI) and Pupae per Person Index (PPI) was 0.086. Education level of respondents significantly influenced the knowledge. The highest knowledge score was obtained by young age. It was also found that the presence of history of DHF among the family members had higher knowledge. The results of our study point out that promoting socio-economic status of respondents and enhancing health education is necessary to sustain proper knowledge for preventive activities and practicable methods for removal. Household members still required adequate support to perform destruction of larva without wasting domestic water. It is necessary to encourage and motivate communities, especially ladies, to participate actively in the preventive activities.

Afternoon Session (1), Auditorium (1)

Paper-10

MSP1 and MSP2 allelic distribution among *falciparum* malaria patients at No. (1) Defence Services General Hospital**Khine Zaw Oo¹, Myo Thant¹, Thet Maung Oo¹, Khine Khine Su², Khin San San²,
Khin Phyu Pyar³, Thein Zaw¹ and Tin Maung Hlaing¹**¹Defence Services Medical Research Centre²Defence Services Medical Academy³No. (1) Defence Services General Hospital

World has done dramatic improvement in control of malaria as the cases are declining within last 15 years. Seven countries can be declared malaria-free in a decade including malaria elimination in Sri Lanka. Yet, there were 214 million cases of malaria in 2015 and 438 000 deaths and half of the world's population is still at risk of malaria and the same in Myanmar. Among five species that can infect human, *P. falciparum* is the most virulent. MSP1 and MSP2 are the major antigens involved in invasion of parasite into host's red blood cells and are target antigens of the protective antibodies. They are highly polymorphic enabling the parasite to evade the host's immune response. Most attention is given to them for the asexual blood-stage vaccine. They are most effectively used for genotyping to differentiate between recrudescence and re-infection. So, this study was done with the objectives to detect different *msp1* and *msp2* alleles of *Plasmodium falciparum* from confirmed falciparum malaria patients at No. (1) DSGH by nested PCR and to find out association with different complications. Within 2012 and 2013, 44 blood samples from microscopically confirmed *P. falciparum* mono-infections attending to No. (1) DSGH were genotyped using nested PCR and agarose gel electrophoresis. The parasitaemia ranges from 23 to 260,000 parasites/uL with nine (20.5%) severe malaria: jaundice (9.1%) and hyperparasitaemia (9.1%). Among *msp1* allelic family, MAD20 allele was most prevalent (25/56 = 44.6%) and among *msp2* allelic families, FC27 was most prevalent (30/48 = 62.5%). Majority of patients were infected with monoclonal infection. Multiplicity of infection (MOI) was 1.27 based on *msp1* and 1.09 based on *msp2*. Impaired consciousness and jaundice were associated with FC27 allele (p=1 and 0.29 respectively) and severe anaemia with MAD20 (p=0.247) and IC/3D7 (p=0.558) alleles. Outcomes from genotyping the *P. falciparum* populations using polymorphic genes, *msp1* and *msp2*, in this study would reveal the whole picture of allelic variability within parasite populations and thereafter pave a path to distinguish recrudescence from new infections of *P. falciparum* malaria and to reveal target antigen of future vaccine specific for the region.

Afternoon Session (2), Auditorium (1)

Paper-11

**Towards water safety plan and prevention of non-communicable diseases:
Multiple risk behaviors as challenges for strengthening primary health care
in township health systems**

*Khin Thet Wai¹, Thae Maung Maung¹, Phyo Aung Naing¹, Kyaw Lwin Show¹,
Kyaw Min Htut¹, Moe Thida¹ and Young Hee Min²*

¹Department of Medical Research

²Korea Foundation for International Health Care (KOFIH) Country Office, Myanmar

Strengthening primary health care in township health-systems is crucial to achieving the rapid and equitable scale up for the delivery of essential, cost-effective, evidence-based interventions to prevent communicable as well as non-communicable diseases (NCDs). This paper specifically aimed to provide the evidence of disparities in access to safe drinking water and sanitation and the potential risk behaviours for NCDs in surveyed households. A cross-sectional survey conducted between December 2015 and January 2016 covered 235 households from 5 urban wards and 473 households from 16 villages in Hlegu Township. Trained interviewers introduced the structured questionnaire to one eligible respondent per household. The contextual information was also collected from the ward/village authorities. Rural households were more likely to keep drinking water in traditional earthen pots compared to urban sites (85% vs. 42%). Around 46% of urban households reported boiling and 86% of rural households used cloth filter. Nearly 24% of the combined sample reported the excreta disposal of under-five children into nearby water bodies together with hazardous solid waste that provoked contamination of water sources. Rural households were less likely than their urban counterparts to perform two desirable actions in water storage practices (regular cleaning and changing water once a week). Both rural and urban households currently reported more or less similar prevalence rates of alcohol drinking (around 20%), smoking (<25%), and beetle-chewing (<40%). Intensive awareness-raising campaigns by innovative approaches integrated into support of water safety plan and reducing NCDs are highly desirable to tackle the multiple risk behaviours in vulnerable sites.

Afternoon Session (2), Auditorium (1)

Paper-12

**Factors influencing the choice of place of delivery and attendants
in selected remote area of Myanmar**

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High quality institutional delivery reduces maternal and perinatal morbidity and mortality. Some women from remote area still deliver at home without skilled birth attendant (SBA).

This study aims to explore the factors influencing the choice of delivery place and attendants. In 2016, a community-based cross-sectional study was conducted in Gangaw Township, Magway Region where maternal mortality ratio (1.3 per 1000 live births) and infant mortality rate (89 per 1000 live births) were high. Two-stage cluster sampling methods was used to select 396 reproductive aged women from randomly selected households participated. Eight Focus Group Discussions (FGD) were conducted involving 76 participants representing youth, old, single, married. Data were collected with face-to-face interview using pre-tested semi-structured questionnaires and FGD guides. The data were double entered by EpiData-3.1, logistic regression were analyzed by STATA13. Qualitative data were manually analyzed using thematic analysis. Among respondents, 15% were youth (15-24 years). Only 5.6% had good level of knowledge about danger signs. Knowledge were positively associated with income and total number of pregnancy and negatively associated with age. Among respondents, 5.1% experienced delivery and 55.2% of those took Antenatal Care (ANC). Over half delivered at institution and 40% at home. Almost all women who had good knowledge, high family income and majority of multiparous women delivered at health facility. Majority of women who married before 18 years and experienced of pregnancy before 20 delivered at home. All institutional deliveries attended by SBA and 62.5% of home deliveries were attended by SBA. There were association between institutional delivery and knowledge (OR=1.07, 95%CI: 0.89-1.28) and SBA and knowledge (OR=0.98, 95%CI: 0.77-1.23) respectively. Knowledge about danger signs was low and associated with respondent's age, age of first marriage and pregnancy, number of pregnancy and income. Preference of delivery place and attendants depended on maternal age, transportation difficulty, availability and quality of health persons and fees for service. Health education and promotion activities should be intensified to achieve universal coverage of deliveries attended by SBA.

Afternoon Session (2), Auditorium (1)

Paper-13

Out of pocket expenditure on maternal and child health care services among rural households in a selected township, Myanmar

Wai Wai Han¹, Saw Saw¹, Hla Mya Thwe Einda², Nyi Nyi Zayar¹, Phyu Phyu Aye², Hnin Lae Yi Khaing³ and Myo Thurein Latt³

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This study was conducted with the aim of assessing the out of pocket expenditures (OOPE) of households on maternal and child health care services in rural areas. It was a cross sectional study conducted in rural areas of Dedaye Township, Ayeyarwaddy Region in December 2015. Face-to-face interview using a structured questionnaire was carried out with 331 households having mothers of under one year old children. Out of pocket expenditure on maternal and child health care incurred by the respondents' households during 2014 and 2015 were estimated. In analysis, the households were disaggregated into five quintiles based on their annual expenditure per capita. On average, the respondents spent 6% of their total household expenditure only for maternal and child health care. The average OOPE for antenatal care in government and private hospitals were 6014 kyats and 12,051 kyats per visit respectively.

Depending on the type of birth attendant, the households incurred 12,750 to 20,737 kyats for home delivery. The households had to expense 86,416 kyats to 228,255 kyats for delivery at government hospital and 176,340 kyats to 335,063 kyats for the delivery at private hospital. The institutional delivery cost approximately seven times more than home delivery. The average cost for hospitalization of under one year old children was 120,900 kyats. The OOPE for maternal and child health care caused financial catastrophe in 18.1% of households if the cutoff point is set at 30% and 9.4% of households if the cutoff point is at 40% of non food expenditures of the households. Financial burden was high among households where the women had undergone institutional delivery. No considerable difference in the share of household expenditure spent for maternal and child health care among the poorest households and richer households indicating that the financial burden was highest in the poorest households. As out of pocket expenditures on maternal and child health care alone can cause financial catastrophe among the households, it should be considered as a priority area in establishing financial protection mechanisms. Furthermore, financial burden of institutional delivery on the households should be taken into account while strengthening institutional delivery.

Afternoon Session (2), Auditorium (1)

Paper-14

How social norms limited health services for rape survivors: Why health services for rape survivors still unmet need?

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Rape related health problems effects physically and mentally to individual rape victim but also public health on its society the rest of its life. The researcher looked into the obstacles and challenges of rape victims to get health services following in case of being rape. The research was conducted by qualitative exploratory method. In each phase, different questionnaires were used to collected data from different group of informants. 12 medical professionals and 11 social workers were in-depth interviewed. Then researcher requested informed consent and conducted privacy in-depth interview to 16 rape survivors. Informants were selected according to their consent through medical professionals and social workers. Among 16 rape victims, 9 of the victims had tried to get health services while as 7 of the victims had not reported. Although 9 of the victims had attempted health services, 2 of them did not reported for the reason that the assailants are their intimate partner, boyfriend and husband, feeling guilty and assuming their responsibility. There is also a large gap on spirituality of a person. Rape cases are more traumatic in the rural area than in the cities because of the local and traditional values. According to the findings of the research, attitude of rape survivors is the first basic part of the behavior change agent. Second challenge for health seeking practice and reporting is the responses and norms of families on incidence of rape.

**Optimizing the role of auxiliary midwives in Myanmar:
Feasibility and acceptability of task shifting essential maternal
and newborn health interventions**

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Auxiliary Midwives (AMWs) in Myanmar are trained and deployed to support maternal and child health care where the health system is at its weakest. The study aims to find out the role of AMWs for the feasibility and acceptability of evidence based essential maternal and newborn interventions. A mix method study was conducted using both qualitative and quantitative research methods from July 2015 to February 2016 in Magwe Region. Twelve key informant interviews with health care providers, 15 Focus Group Discussions with Midwives (MWs), AMWs, mothers of under three year old children and community members participated for the qualitative data collection. 262 AMWs participated for the pretested questionnaire survey. The findings indicate that the role of AMW was comprehensive in performing preventive, promotive and curative care to mother and newborn. AMW in the study have attended on average four women for antenatal care, two women for deliveries and four women for postnatal care during the last six months. AMWs also assisted normal deliveries and were providers of drugs to women and children in the community for treatment of emergency situations. 43 percent of AMWs said that they have provided antibiotics to mothers during puerperium, 29.6 percent have performed neonatal resuscitation to save a life of a newborn child and 40.1 percent have provided misoprostol to prevent postpartum haemorrhage which is the main cause of death among pregnant women in Myanmar. They were also the main provider of contraception in villages where MWs are not available. Both the qualitative and quantitative findings suggest that the roles that AMWs currently plays enable the task shifting of the essential maternal and newborn interventions: administration of oral supplements for pregnant women, oral administration of antibiotics for puerperial sepsis, misoprostol for prevention of postpartum haemorrhage and neonatal resuscitation using bag and mask. Some of the barriers identified by the key informants and MWs were need for regular refresher trainings, regular supply of essential medicines, constructive monitoring and supervision. In conclusion, the evidence suggests that task shifting of essential interventions for mothers and newborns to Auxiliary Midwives are possible for Myanmar.

Afternoon Session (2), Auditorium (1)

Paper-16

Understanding the public health system in Rakhine State, Myanmar: Towards inclusive health service provision*Thaung Hlaing¹, Allison Gocotano², Jorge Mario Luna³, Maung Maung Ye Zin Zin², Thiha Aung¹ and Aung Thurein¹*¹State Public Health Department, Sittwe, Rakhine State²Emergency Humanitarian Action Unit, WHO, Sittwe, Rakhine³WHO Representative to Myanmar, WHO Country Office, Yangon, Myanmar

The context of Rakhine State of The Republic of the Union of Myanmar is a complex environment. It has both development and humanitarian needs, and commonly experiences acute onset emergencies over the protracted crisis. This article looks into the overview of the situation using a health sector perspective. The intercommunal violence in 2012 triggered long-standing crisis of population displacement which in turn generated the humanitarian health needs. Since then, both government and non-government health actors made efforts to deliver life-saving and essential health services despite the limited resources. In a statewide needs assessment, only 36% of 2,342 community respondents reported as having access to a clinic or hospital while 53% as having sufficient number of health professionals. This finding is supported by a rapid capacity assessment which revealed that only 46.7% of 704 health facilities (HF) are fully functional and those currently hired human resources for health (HRH, workforce density approach) within Rakhine State is at 5 per 10,000 population (Myanmar country is at 16.2, ideal target is at 22). Indeed, overall health outcomes is further affected by multi-factorial challenges from different sectors beyond the needs and capacity of health alone. Furthermore, health service delivery needs to be adapted resulting to varying service models depending on the township-specific, local context.

Paper Reading Session : Day 2

Morning Session (1), Auditorium (1)

Paper-17

Screening of microalbuminuria and estimated glomerular filtration rate in type 2 diabetes mellitus for early detection of renal dysfunction*Khin Aye Thin, Aye Aye Khin, Win Kalayar Kyaw, Myat Su Mon Zaw and Ei Ei Mon Aung***Department of Medical Laboratory Technology, University of Medical Technology, Yangon**

Monitoring patients with diabetes for microalbuminuria is now standard practice. The estimated glomerular filtration rate (eGFR) equations are based on serum creatinine level, the accuracy of these equations can be affected in certain populations such as extreme of age and body size, severe malnutrition or obesity, diseases of skeletal muscle, paraplegia or quadriplegia and vegetarian diet. It was to find out the association of microalbuminuria and eGFR in type 2 diabetes mellitus. It was the cross sectional descriptive and analytic study. Urine, blood and body weight from 70 type-2 diabetes mellitus patients from diabetic clinic, Yangon General Hospital were collected. Urine microalbumin was detected by immunometric method and eGFR was calculated by Cockcroft-Gault formula. If eGFR is less than 90ml/min, diabetic patients has increased in risk of chronic kidney disease (Skorecki *et al*, 2005). With the normal urine volume, less than 20 mg/L is normoalbuminuria, greater than or equal to 20 mg/L is microalbuminuria. Mean age of patients was 56 and mean duration of diabetes was 7 years. Thirty five percent of patients had microalbuminuria and were in the risk for CKD, 19% had normoalbuminuria with risk for CKD, other 19 % had microalbuminuria with no risk for CKD. Normoalbuminuria and no risk for CKD patients were 27 % of the study population. There was an association in microalbuminuria and eGFR ($p=0.35$). Patients that included in risk CKD group have more risk 2.8 times (95% CI) to suffer microalbuminuria than non-risk CKD group.

Morning Session (1), Auditorium (1)

Paper-18

Metabolic risk factors and associated morbidities among adult urban people in Pyin Oo Lwin Township*Khin Moe Aung¹, Myint Myint Khaing¹, Nyein Nyein Thau¹, Nanda Ko¹
Aye Min Maw¹, Myitzu Tin Oung¹, Kyaw Thu² and Win Aung¹*¹Department of Medical Research²Department of Medical Services

This community and laboratory-based cross-sectional descriptive study was conducted at the Department of Medical Research (Pyin Oo Lwin Branch) during 2015. The purpose of this study is to identify metabolic risk factors and associated morbidities among adult urban people in Pyin Oo Lwin Township. A total of 355 people, 94 men (26.5%) and 261 women

(73.5%) were enrolled and a systematic sampling procedure was used. Age distribution was from 18 to 85 years and mean age was 49.98 years (SD-15.22 years). Metabolic risk factors were identified according to National Cholesterol Education Programme Adult Treatment Panel III (NCEP ATP III) guideline. There were waist circumference male > 102 cm, female > 88 cm, High triglycerides \geq 150 mg/dl, low HDL-cholesterol male < 40 mg/dl and female < 50 mg/dl, elevated blood pressure \geq 130/ 85 mmHg, and elevated fasting glucose \geq 110 mg/dl. Metabolic syndrome was if \geq 3 of the above categorical cut points. In this study, central obesity was the highest component 145 subjects (40.8%) followed by elevated triglycerides 129 (36, 3%), elevated blood pressure 104 (29.3%), low HDL-cholesterols 85 (23.9%), and elevated fasting glucose in only 48 individuals (13.5%). The total prevalence of metabolic syndrome was 125 cases (35.2%) with prevalence in men and women are (n=25, 26.6%) and (n=100,38.3%) respectively. There were statistically significant associations between all five metabolic risk factors with metabolic syndrome (p value <0.001). Regarding liver function test, normal in total bilirubin level (96.1%) and ALP level (93.8%) otherwise ALT and AST levels were abnormal, 18.0% and 28.2% respectively. Serum urea, creatinine, uric acid and calcium levels were normal in 96.1%, 89.6%, 67.3% and 33.5% respectively. ECG examinations showed normal 296 cases (83.4%) and abnormal in 59 cases (16.6%). In Bone Mass Density by T- score using qualitative ultrasound examination, the results showed normal 168 cases (47.3%), osteopenia 174 cases (49.0%) and osteoporosis 13 cases (3.7%) respectively. In conclusion, this study recognizes the high prevalence rate of metabolic syndrome and can be depicted about the metabolic risks as the baseline data for implementation of further activities to reduce the incidence of non-communicable diseases.

Morning Session (1), Auditorium (1)

Paper-19

Selective non-communicable diseases risk factors status of female school teachers from Dagon Myothit (North) Township in Yangon, Myanmar

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Nowadays Non-communicable diseases (NCD) are accountable for 80% of "premature" deaths occurring in low- and middle-income countries. High blood pressure; elevated blood glucose and overweight/obesity are metabolic risk factors of NCDs. Urban female school teachers were at risk for NCDs because of their job stress. This study aimed to assess hypertension, diabetes and overweight/obesity status of female school teachers from Dagon Myothit (North) Township in Yangon, Myanmar. This cross-sectional study was

conducted during January-March 2015 among 335 female school teachers. Baseline characteristics were assessed by pretested structured questionnaires. Body weight, height and waist circumference (WC) were measured by using standardized SECA machines and guidelines. Body fat percent (BF %) was estimated by Bio-electrical Impedance Analysis (BIA) method using standardized body composition monitor BC 541 TANITA machine. Blood pressure and random blood glucose (RBS) level were measured by standardized procedure. More than 60% of teachers were aged between 45-60 years and mean age of teachers was 46 ± 10 years with minimum-24 years and maximum-60 years. The proportion of hypertension and diabetes were 26 % and 5.7% respectively. About 7%, 27.2%, 19%, 35.2%, and 11.9% were underweight, normal, overweight, obese I and obese II respectively while 35.9% and 54.9% of subjects had abdominal obesity and high body fat mass. The mean Systolic Blood Pressure (SBP), Diastolic Blood Pressure (DBP), RBS, Body Mass Index (BMI), WC and BF (%) were 116 ± 12.7 mmHg, 77 ± 8.3 mmHg and 102 ± 28 mg% and 24.7 ± 4.2 kg/m², 74.2 cm and 35.23 % respectively. Elder age group (45-60 years old) had significantly higher BMI, BF (%), SBP, DBP and RBS compared to younger age group (25-44 year old). These findings highlighted that there was high proportion of non-communicable diseases among urban school teachers. Targeted screening activities focusing on the school teachers and high risk groups should be implemented to combat the risk factors of NCD. As school teachers are great mentors of children and models of community, healthy life style education programs for both teachers and students should be promoted in school health programs.

Morning Session (1), Auditorium (1)

Paper-20

Awareness and practice of type 2 diabetic patients on healthy diabetic diet: A preliminary study in selected general practitioners' clinics in Yangon

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Diabetes mellitus is one of the top ten leading causes of death in South-East Asia countries . In Myanmar, about 12.14% of total population is suffering from diabetes. In management of type-2 diabetes, dietary management plays an important role as unhealthy eating is one of the major modifiable risk factors. However, there are limited evidences on awareness and practices of healthy diabetic diet, particularly for diabetic patients who are seeking treatment at general practitioners'(GPs) clinics. Aim of this study was to assess awareness and practices of type-2 diabetic patients on healthy diabetic diet (HDD). A preliminary survey using cross-sectional descriptive and analytical study design was carried out among 31 diabetes patients from six selected GPs-clinics in Yangon, in February 2016. A pre-tested structured questionnaire was used to collect socio-demographic and diabetic clinical

background, body mass index(BMI), awareness and practices on HDD including source of HDD information. Glycemic control status of patients in either fasting or random blood-sugar was measured on the day of data collection. Influences of socio-demographic factors and BMI on awareness and practices of HDD and its relationship with glycaemic control were analysed. Majority of participants (80.6%) had limited awareness on HDD, followed by fair (9.7%) and high (9.7%). Regarding HDD practices, there was no patient with highly acceptable practices, 64.5% were acceptable and 35.5% were needed to be improved. Knowledge of HDD were received from GPs (29%), DM specialists (6.5%), health journal (16.1%), mass media (3.2%), more than one person (38.7%) and one media (12.9%). Patients with glycaemic control achievement in fasting/random blood-sugar was very low (19.4%). Influences of age, gender, education, income and BMI on awareness and practices of HDD were not found ($p>0.05$). Although influence of HDD awareness on glycaemic control-status was found out ($p<0.05$), that of HDD practices was not significant ($p>0.05$). Thus, this preliminary result highlighted that HDD among diabetic patients from GPs practices should be promoted for their glycemic control. A further study with adequate sample size should be conducted for more valid results.

Morning Session (1), Auditorium (1)

Paper-21

Potential risk factors of cardiovascular diseases among adolescent students at two selected schools in Yangon

Sandar Kyi, Win Lai May, Han Win, Aye Tha, Aung Aung Maw, Kyu Kyu San, Ni Ni Aye, Dam Lian Pau and Khin Thet Mon

Department of Medical Research

A cross-sectional descriptive study was conducted at the No.2 State High School of North Okkalapa Township and No.4 State High School of Ahlone Township, Yangon in 2016. A total of 230 students, 108 students from North Okkalapa and 122 students from Ahlone, with a mean age of 14.24 ± 1.05 years were recruited to determine the proportion of selected cardiovascular diseases(CVD) risk factors and the relationship between the cardiovascular risks and background characteristics of the students. Background characteristics such as age, sex, parental education, occupation and lifestyle related risk factors of CVD were collected. Anthropometric measurements, blood pressure and venous blood sample for determination of random blood sugar and total cholesterol were also taken using standard procedures. The blood pressure was taken on the right arm of seated subjects after resting for at least 5 minutes prior to measurement using mercury sphygmomanometer. BP measurements were done twice and the mean of these readings was taken as the final observation on a single visit. Hypertension is considered as average systolic and/or diastolic blood pressure are at or above the 95th percentile (based on age, sex and height). Regarding the CVD risk factors, the most prevalent risk factors were having inappropriate diet like fried snack and fast food (about 95% each), followed by preference of salty food (77.4%) and physical inactivity (51.7%). Overall, about 28% and 15% of students were found to have high blood pressure and overweight /obesity respectively. About 3.5% of the students had high serum total

cholesterol and no one had high blood sugar level as a risk for CVD. Relationships were found between gender and preference of salty food like fish-paste, dried fish, dried prawn ($p < 0.05$). Students whose mothers are less educated also have more preference of salty food ($p < 0.05$). Compared to North-Okkalapa, students from Ahlone township were more physically inactive ($p < 0.01$). The most prevalent risk factors are modifiable and therefore play an important role in the prevention of CVDs in their later life. School based educational intervention are required to increase knowledge and awareness about risk factors of CVDs in order to reduce the burden of CVDs..

Morning Session (2), Auditorium (1)**Paper-22****Monitoring of water quality in Inle Lake, Myanmar**

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Inle Lake is located in the Nyaung Shwe Township of Taunggyi District of Shan State in Myanmar. Inle lake is one of the best tourist attraction place for its beauty in having scenic villages, floating island and famous pagoda festivals. Inle Lake is suffering from the environmental effects due to deforestation, water pollution, disposal of solid garbage and lake sedimentation. Lake Inle is also famous in Asia for the tomato crops. Our objective is to monitor water quality of Inle Lake by detecting endocrine disrupting chemicals, Escherichia coli and coliform groups. Water sampling of Inle Lake was conducted in dry (February 2015) and rainy seasons (August 2016). We selected seven sampling points; boat station, the center area of the lake, near tomato farm, residential area, hotel, Pagoda, and dye factory. Samples were collected into empty clean plastic bottles. These samples were filtered using glass fiber filters and C18 discs at University of Public Health in Yangon, Myanmar. C18 discs were eluted by methanol and applied to chemical analysis. LC-QTOFMS and Triple Quad LC-MS were used as analytical equipment. The concentration level of bisphenol A was 167-241 ppt, and that of p-nonylphenol was 100-375 ppt. p-nonylphenol, however, was detected from mineral water as blank with highest concentration. This means that source of p-nonylphenol may be the plastic bottle. 17-beta-estradiol were detected from the sampling points in both the residential area and the tomato farm with high concentration. Their concentrations were 2.2-15 ppt. Concentration level of estradiol in Japanese rivers are usually < 0.0001 to 0.28 ppt. The estradiol concentration in the residential area, Inle Lake was considerably high relative to Japanese one. These findings suggest that our research team has to continue assessment of water quality for confirmation of data of our pilot study and awareness of the local people on community development and environmental conservation is important for water quality control in Inle lake.

Morning Session (2), Auditorium (1)

Paper-23

Quantification of heavy metals in white rice and brown rice from Tha-baung Township

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Department of Medical Research

Rice is the major staple food of Asia. In general, there are two kinds of rice as white and brown rice. The evidence suggested that brown rice may contain more heavy metals especially arsenic than white rice. When the permissible concentration of heavy metals in the body becomes exceeded, they can cause serious health disorders. This study was aimed to determine the concentrations of heavy metals in white and brown rice from Tha-baung Township. A cross sectional study was conducted at four villages namely Konetangyi (ကုန်းတန်းကြီး), Yaylegyi (ရေလဲကြီး), Dale-et (ဒလယ်အဲ) and Shannkwin (ရှမ်းကွင်း) of Tha-baung Township in Ayarwaddy Region. Six milled rice and six raw rice samples were collected as white rice and brown rice samples respectively. The concentration of heavy metals was determined by ICP-OES (Perkin Elmer) Optima 8000. In brown rice samples, Pb, Zn, Cu, Ni, Fe and Mn were detected above their respective maximum allowable concentration (MAC). However As, Cd, Cr and Co were below their MAC. In white rice samples, Pb, Zn, Cu and Mn were above their respective MAC. However, these concentrations were lower than that of brown rice samples. As, Cd, Cr and Co in white rice samples were below their MAC as in brown rice samples. Among the highly toxic metals, As was not detected in both brown rice and white rice samples. However, one of the toxic metals, lead (Pb), was present above MAC in all samples of brown rice. Pb was also above MAC in all samples of white rice except one sample and these concentrations were much lower than that of brown rice. Therefore, it can be assumed that white rice contained less heavy metals concentration than the brown rice.

Morning Session (2), Auditorium (1)

Paper-24

Trend of acute poisoning cases admitted to Poison Treatment Centre, New Yangon General Hospital (2011 to 2015)

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Acute poisoning remains one of the commonest medical emergencies inflicting a substantial burden on health care system and patient family, as well as contributing significantly to cost of hospitalization and patient care. A clinical profile of poison cases was studied to explore the trend of acute poisoning and outcome of management so as to upgrade guidelines for management and prevention of poisoning. There is increasing trend of acute poisoning cases

admitted to New Yangon General Hospital from 8.3% of total admission in 2011 to 14.8% in 2015. Acute poisoning is mainly seen in the young adults (18-25 years) followed by working age group (26-40 years) and female were more likely than males to report acute poisoning which is the same trend for five consecutive years. Most of the poisoning cases were dependents followed by those who run their own business which is the same trend. Although drug poisoning still stood the highest incidence (49% of acute poisoning cases, in 2015), it is in decreasing trend which accounted for 63 % in 2011. It is followed by chemical poisoning which is in increasing trend which accounted for 36% in 2011 to 43% in 2015. In drug poisoning, antihistamine group mostly Chlorpheniramine maleate stood the highest followed by analgesic group mainly Paracetamol. In chemical poisoning, insecticide poisoning stood the highest, followed by rodenticide poisoning. Acute poisoning with household product, such as detergent, acetone, liquid soap are also in increasing trend accounting for third commonest cause of chemical poisoning. As for the duration of stay in hospital, approximately (60 to 80%) stayed for 1-3 days while (20 to 40%) of patients stayed for 4-7 days. Only less than 5% of the patients needed longer hospital stay of >7days. There were less than 4% of poisoning cases admitted to the intensive care unit (ICU) and most of them spent less than 3 days in ICU. Although most patients (>80%) recovered and were discharged without undue consequences, mortality rates due to acute poisoning across five years were more or less similar around 3%. Insecticide and herbicide poisoning are the leading cause of mortality.

Morning Session (2), Auditorium (1)

Paper-25

Plasma malondialdehyde level and vibration perception threshold in non-exposed subjects and lead-exposed battery workers

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Lead is toxic to multiple organ systems and oxidative stress is one of the key mechanisms in lead toxicity. Long-term exposure can result in lead neuropathy, typically motor neuropathy. Peripheral sensory neuropathy caused by lead exposure is still controversial. The aim of this study was to determine and compare plasma malondialdehyde (MDA) level and vibration perception threshold (VPT) between non-exposed subjects and lead-exposed battery workers. This cross-sectional study included 28 non-exposed subjects and 28 lead-exposed battery workers of small-scale battery workplaces in Insein and North Okkalapa Townships. Plasma malondialdehyde level was determined by colorimetric method. The function of large myelinated peripheral sensory nerve fibers was determined by vibrometer and described as vibration perception threshold (VPT). The mean plasma MDA level of lead-exposed battery workers was significantly ($p = 0.000$) higher than that of the non-exposed subjects and their plasma MDA levels were $2.08 \pm 0.94 \mu\text{mol/L}$ and $0.9 \pm 0.43 \mu\text{mol/L}$ respectively. The mean VPT (hand) of the lead-exposed battery workers was $4.20 \pm 2.29 \text{ Volts (V)}$ and that for the non-exposed subjects was $2.66 \pm 0.71 \text{ V}$. The mean VPT (foot) of the lead-exposed battery workers was $8.36 \pm 4.81 \text{ V}$ and that for the non-exposed subjects was $4.93 \pm 2.62 \text{ V}$. Both mean values of VPT (hand and foot) in the lead-exposed battery workers were significantly higher than that of non-exposed subjects ($p=0.002$). There was no significant correlation between plasma MDA

level and VPT measurements in the lead-exposed battery workers. This study showed that lead exposure not only increased reactive oxygen species but also affected in the function of large myelinated peripheral sensory nerve fibers in lead-exposed battery workers.

Morning Session (2), Auditorium (1)

Paper-26

The effect of mirror therapy in stroke patients with left visual hemineglect

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Unilateral hemineglect is defined as failure to report, respond, or orient to novel or meaningful stimuli presented to the side opposite a brain lesion. It occurs in about 25- 30% of all stroke patients and associated with poor rehabilitation prognosis by adversely affecting mobility, length of hospital stay, and daily activities. The study was aimed to evaluate the effect of mirror therapy in stroke patients with left visual hemineglect. A hospital-based randomized interventional study was done at Physical Medicine and Rehabilitation Department, Yangon General Hospital. A total of 44 stroke patients with left visual hemineglect were randomly divided into group A (Mirror + Transcutaneous Electrical Nerve Stimulation TENS) and group B (TENS only). Group A patients received TENS to the left hand (100 Hz, 100 us, 15 mA) for 30 minutes per session followed by mirror therapy by assigned physiotherapist for 30 minutes, once a day, 5 days a week for 4 weeks. Mirror therapy was continued in Group A for next 2 weeks. Group B patients received TENS therapy only as in Group A. Assessments were done at baseline, 2nd, 4th week of treatment and 6th week (follow up) by Star Cancellation Test, Line Crossing Test and Letter Cancellation Test from Behavioral Inattention Test, and Activity of Daily Living (ADL) Neglect score. The results showed improvement in scanning accuracy in 2nd week (91.41 vs. 92.23, p=0.711), 4th week (96.23 vs. 96.14, p=0.966) and 6th week (101.36 vs. 100.23, p=0.589) as well as in scanning range in 2nd week (33.32 vs. 32.82, p=0.44), 4th week (34.59 vs. 34.5, p=0.879) and 6th week (35.86 vs. 35.91, p=0.938) in both groups. In comparison, there was no significant difference between the groups during treatment as well as post treatment. No harmful effects were found in both groups. So, mirror therapy can be used as adjunctive therapy in stroke patients with left visual hemineglect in rehabilitation management.

Afternoon Session (1), Auditorium (1)

Paper-27

Antibody kinetic of *falciparum* and *vivax* malaria merozoite surface protein 1 among the local residents in Myanmar Artemisinin Resistance Containment Zone I

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A one year longitudinal cohort study was conducted in 1,182 residents in Myanmar Artemisinin Resistance Containment Tier 1 area to explore the antibody kinetic profile of

falciparum and vivax merozoite surface protein 1 (MSP1). On-site case screening was done by rapid diagnostic test (RDT) and microscopic examination, followed by PCR in every three months to exclude the asymptomatic malaria infection. Although there was no RDT-positive case, two vivax infections were detected by microscopy. Molecular methods detected the asymptomatic cases of 28/1182 (2.37%) in first, 5/894 (0.42%) in second, 12/944 (1.02%) in third, 6/889 (0.51%) in fourth collection respectively. All asymptomatic infections were vivax except four falciparum and two malariae infections that were detected only on the first time collection. The PfMSP₁₋₁₉ and PvMSP₁₋₁₉ antibody status were assessed among the 1080 sera from four times collections on selected 270 participants using the protein microarray. IgG antibody positivity of PfMSP₁₋₁₉ and PvMSP₁₋₁₉ were detected in 157/1080 (14.54%) and 191/1080 (17.69%) respectively. PfMSP₁₋₁₉ showed the higher antibody positivity in older age group and highly correlated with the history of past malaria infection ($p < 0.001$). Steady positivity of PvMSP₁₋₁₉ was observed in all age group regardless of the collection time that was coherent with the prevalence of asymptomatic infections. Moreover, 24/50 (48.0%) asymptomatic vivax sera showed PvMSP₁₋₁₉ antibody positive while 3/4 (75.0%) of asymptomatic falciparum infection showed positive PfMSP₁₋₁₉ antibody. Although same antibody prevalence was noted after three months of asymptomatic vivax infections, all four (4/4, 100%) of asymptomatic falciparum infected individuals showed seropositivity. Malaria case detection and asymptomatic carriers screening by molecular methods is essential in low endemic setting. Malaria antibody analysis using PfMSP₁₋₁₉ and PvMSP₁₋₁₉ are useful to assess the local transmission of malaria for priority assessment on control or elimination of malaria.

Afternoon Session (1), Auditorium (1)

Paper-28

Determination of *in vitro* artesunate sensitivity against *Plasmodium falciparum* in Shwe Kyin Township, Bago Region

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Artemisinin resistance in *Plasmodium falciparum* has emerged in Southeast Asia and now poses a threat to the control and elimination of malaria. Malaria is still one of the priority diseases and a re-emerging public health problem in Myanmar. This study was conducted to determine *in vitro* artesunate sensitivity against *Plasmodium falciparum* in Shwe Kyin Township, Bago Region. The cross sectional descriptive study was done in Shwe Kyin Township during the malaria transmission season of 2016. A total of 2918 clinically suspected malaria patients were screened for malaria parasite by Rapid Diagnostic Test and Giemsa microscopy. Malaria Parasite positivity rate by Giemsa microscopy was 2.98% (87 out of 2918 cases). As regards to species prevalence, *P. falciparum* was detected in 37 cases (42.53%), *P. vivax* was 48 cases (55.17%) and mixed infection was 2 cases (2.30%). All eligible 32 *P. falciparum* isolates were tested for artesunate susceptibility applying WHO Mark III. After 24-30 hours incubation at 37°C, 27 out of 32 isolates (84.38%) showed successful

growth in culture and included in the data analysis. Minimum Inhibitory Concentration value of 300nmol/L was applied to discriminate artesunate resistant and sensitive according to WHO Mark III. *In vitro* artesunate resistant rate of *Plasmodium falciparum* was noted as 29.63% (8 out of 27 isolates). Applying WHO Probit Calculus Software Programme, the geometric mean of effective concentration 50 (EC₅₀) of artesunate was 21.88 nmol/L(12.74-37.57), EC₉₀ was 210.54 nmol/L(86.69-511.34) and EC₉₅ was 400.01 nmol/L(140.83-1136.20). The finding of this study pointed out the *in vitro* artemisinin resistant rate was found to be increased within three years in Shwe Kyin. This could be due to increased drug pressure as ACT has been widely and freely used since after 2005. That kind of drug use could exert drug pressure on the parasite population leading to emergence of drug resistance. As the previous study reported the presence of *P.falciparum* with slow parasite clearance after artemisinin treatment since 2012, regular monitoring of artemisinin (both *in vivo* and *in vitro*) sensitivity is recommended.

Afternoon Session (1), Auditorium (1)

Paper-29

Therapeutic efficacies of two different ACT and their relation to K13 mutations in sentinel sites of Myanmar

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Artemisinin Combination Treatment (ACT) is the first line treatment for *Plasmodium falciparum* malaria, recommended by World Health Organization (WHO) and used globally. Artemisinin resistant *P. falciparum* was reported in Cambodia, and now confirmed in several Greater Mekong Subregion (GMS) countries. Although ACT efficacy remains high in many parts of the malaria endemic world, it is progressively declining in Cambodia, raising a great concern regionally and globally. Recently mutations in *P. falciparum* Kelch propeller gene, commonly known as K13, were shown be associated with artemisinin resistance in Cambodia and specific regions of GMS. These mutations are expected to predict clinical efficacy of ACT, and the assessment of K13 mutations was recommended by the WHO, as part of studies to routinely monitor therapeutic efficacy of ACTs at the country level. Following the WHO recommendation, three prospective, multi-center, open-label clinical studies were conducted in 2013–2015 to assess the efficacy of artemether-lumefantrine (AL) and dihydroartemisinin-piperaquine (DHA-PIP). Each study drug was assessed in three sentinel sites in Myanmar: Buthidaung in Rakhine State (Western Myanmar), Myitkyina in Kachin State (Northern Myanmar), and Mu-se in Shan State (North-eastern Myanmar). A total of 293 participants acutely ill with mono-infection with *P. falciparum* were recruited, treated and monitored for 28 days, and assessed for safety and clinical and parasitological efficacy of the study drugs. Overall, both drugs were well tolerated. The PCR-corrected ACPR

(Adequate Clinical Parasitological Response) to AL was 100%, 96.3%, and 96.6% in Buthidaung, Myitkyinar and Mu-se respectively, and to DHA-PIP was 100% in all the three sentinel sites. The K13 gene was successfully sequenced in all 293 samples, and resistance-associated K13 mutations were observed in 136 of 293 participants (46.4%). K13 F446I mutation was detected in 56.7% (55/97) in Mu-Se and 61.1% (58/95) in Myitkyinar. The study reported the prevalence of k13 mutations together with therapeutic efficacy of different combination of ACT.

Afternoon Session (1), Auditorium (1)

Paper-30

Efficacy of chloroquine in vivax malaria in adults in Homalin

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Chloroquine therapy is recommended by the World Health Organization as first line to treat *P.vivax* malaria. A considerable level of chloroquine resistant vivax malaria has been reported from Myanmar since 1999. However, therapeutic efficacy studies on Vivax malaria treated with chloroquine revealed that it was 100% effective. Therefore, monitoring of its anti-malarial efficacy is essential. Homalin is one of the malaria endemic area which is heavily populated with mobile migrant workers. This study aimed to assess the therapeutic efficacy of chloroquine. It was a hospital based therapeutic efficacy study based at Homalin 100 bedded military hospital. An oral three days dose of chloroquine was administered to adult uncomplicated *P. vivax* malaria patients. Observations of fever, parasite clearance, reappearance, and other clinical manifestations were made on Days 0, 1, 2, 3, 7, 14, 21 and 28. A total of 14 adult *P.vivax* positive cases were included in the final evaluation of the study. The mean age was 28.3 ± 5.4 years. The mean weight and height were 58.0 ± 2.5 Kg and 167.9 ± 4.0 cm respectively. Initial temperature was $38.6 \pm 0.6^\circ\text{C}$. The mean initial parasitaemia was 4577 per micro-liter (Range 979-13,976 per micro-liter). The clearance of parasitaemia assessed by microscopy was 72% of patients in Day 2 and all patients in Day 3. The 28 day adequate clinical and parasitological response was 100% in all cases. Chloroquine is still effective for the treatment of uncomplicated *P.vivax* malaria.

Afternoon Session (1), Auditorium (1)

Paper-31

Compliance of service providers from private and NGO sectors in prescribing Primaquine according to National anti-malarial treatment guideline in selected townships in Myanmar

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Myanmar National Malaria Control Program introduced Primaquine (PQ) treatment into antimalarial treatment policy since 2011. Apart from routine programmatic data, there was very limited information regarding compliance of service providers to National anti-malarial treatment guideline (NAMTG) particularly practice of prescribing PQ as part of anti-malarial treatment (AMT). The study aims to estimate the extent of compliance of service providers with national treatment guideline in prescribing PQ and to identify the factors associated with service provider compliance. Cross-sectional descriptive study was designed using a pretested structured questionnaire and observation of patient registers in past 3 months through face to face interview. 143 service providers across eight townships in six states and regions participated in the study. Median years of service of service providers was 4.2 and mean was 7.2±8.9 SD. The participants comprise 71% of trained volunteers, 19% of general practitioners and 10% of basic health staff. 3% out of 143 respondents prescribed incorrect dosage of PQ as part of Plasmodium *falciparum* treatment, 1% prescribed incorrect dosage of PQ as part of Plasmodium *vivax* treatment, 11% of them didn't prescribed PQ as part of antimalarial treatment though they should do according to NAMTG. On the other hand, 87% of them found out to be complied with NAMTG in term of dosage, timing and considering contraindication. Service providers with high knowledge score were 2.9 (95% CI 1.04-8.14) times more likely to comply with national treatment guideline than those with lower knowledge score (p=0.037). Similarly, majority of respondents 72% mentioned knowledge of the rationale of giving PQ as the promoting factor for them to prescribe it. This highlighted promoting service provider's knowledge level, particularly rationale of use of PQ as part of AMT is essential for their compliance with NAMTG.

Afternoon Session (2), Auditorium (1)

Paper-32

Study on panorama of border malaria in Ta-mu Township

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Department of Medical Research

Malaria is one of the top priority health problems in Myanmar and mostly endemic along the border areas of the country. Ta-mu township is located in the north-west part of Sagaing Region bordering with Manipur state of India. Malaria morbidity, mortality, Adequate

Clinical and Parasitological Response (ACPR) to coartem (artemether and lumefantrine) regime and Annual Parasite Incidence (API) in the last ten years were studied in the context of preparation for malaria elimination in the near future. Data showed that total malaria positive cases were 324 in 2008 which reduced to 32 in 2016. There was one malaria death in 2012 and no more malaria death has been reported after 2012. ACPR to coartem was 57/60(95.0%) in 2009 and 60/63(95.2%) in 2016 respectively. API was 5.6 /1000 in 2008 and reduced to 1.2/1000 in 2016. The findings suggested that magnitude of malaria has been reduced dramatically in the last ten years and feasible for malaria elimination in the near future.

Afternoon Session (2), Auditorium (1)

Paper-33

Evaluation of targeted mass treatment of malaria in Tanintharyi Region, Myanmar: Preliminary results

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Targeted mass treatment (TMT) may be a useful intervention for malaria elimination, and is being evaluated for eliminating asymptomatic *P. falciparum* and *P. vivax* infections detected by active surveillance in malaria endemic populations in eastern Myanmar. A community-based study was conducted in Tanintharyi Region, southern Myanmar to evaluate the feasibility and efficacy of TMT. In preparation, malaria posts were established with trained malaria health workers, and malaria prevalence was estimated using rapid diagnostic tests (RDT) and ultrasensitive real-time PCR (usPCR) in a total of 35 villages in three rural townships of the Region. Based on the prevalence of subclinical malaria by usPCR, three villages with the highest malaria prevalence were selected to receive TMT, and six control villages were selected. The TMT villages were treated with three daily therapeutic doses of dihydroartemisinin-piperaquine (DHP) and low-dose primaquine, monthly for three months. No treatment was provided in the control villages. Standard diagnosis and treatment for malaria were available in all nine villages. No serious or unexpected adverse effects reported. In pre-TMT screening, only two of 1,750 blood samples collected were positive for *P. falciparum* by RDT, and none were positive for *P. vivax*. By usPCR, the pre-TMT prevalence of malaria ranged from 0–20.8% (*P. falciparum* 0–10.2% and *P. vivax* prevalence 0–18%). The percent reduction for *P. falciparum* was higher in the TMT than the control villages (92.3% versus 72.7%), however the difference was not statistically significant. The percent reduction in *P. vivax* is significantly higher in the TMT than the control villages. The findings of this study conclude that TMT with DHP and low-dose primaquine to eradicate subclinical malaria was well tolerated. The impact of TMT may be greater for vivax malaria than falciparum, but larger studies are needed to differentiate the impact of TMT from seasonal and other variations in prevalence.

Afternoon Session (2), Auditorium (1)

Paper-34

**Efficacy and safety of three artemisinin-based combination therapies for
Plasmodium falciparum along the Myanmar-China
and Myanmar-India border areas**

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In Myanmar, three artemisinin-based combination therapies (ACTs), artemether-lumefantrine, (AL), artesunate-mefloquine, (AS+MQ), and dihydroartemisinin-piperaquine, (DP) are recommended as first-line treatment of uncomplicated falciparum malaria. Resistance to both artemisinins and ACT partner drugs have been reported from the Greater Mekong subregion, and regular efficacy monitoring of the recommended ACTs is conducted in Myanmar. This paper reports on results of studies conducted 2011-2012 and 2014 to monitor the efficacy of the three ACTs in sentinel sites in Northern Myanmar, and investigations of mutations in *K13* propeller domain. Seven therapeutic efficacy studies were conducted in 2011-12 and 2014 in three sentinel sites in Myanmar (Tamu, Muse and Thabeikkyin). Three studies were done for the evaluation of AL (204 patients), two studies for AS+MQ (119 patients) and two studies for DP (147 patients). It was an open-label, one-arm, prospective evaluation of clinical and parasitological responses to directly observed treatment for uncomplicated malaria. These studies were done according to standard WHO protocol 2009, with clinical and parasitological follow-up done to day 28 for AL, and to day 42 for the other two combinations. Polymorphisms in the *K13* propeller domain were examined in the dried blood spots collected at day 0. The primary end-point was day 28/42 adequate clinical and parasitological response (ACPR), corrected to exclude reinfection using polymerase-chain reaction (PCR) genotyping. Safety data were collected through self-reporting. PCR-corrected ACPR was 97.2 - 100% for AL, 98.6 - 100% for AS+MQ and 100% for DP across the study sites and years. The efficacy of AL, AS+MQ and DP remains high in Northern Myanmar despite widespread evidence of *K13* mutations associated with delayed parasite clearance. This study showed that already in 2012 there was a high frequency of *K13* mutations in Myanmar on the border to India. The high efficacy of the recommended ACTs gives confidence in the continual recommendation of the use of these treatments in Myanmar.

Ownership and utilization of insecticide-treated bednets among migrant population in the Myanmar Artemisinin Resistance Containment (MARC) areas

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Malaria is a major public health problem in Myanmar with reported artemisinin resistance. Myanmar promotes use of insecticide-treated nets (ITNs) through free delivery of Long Lasting Insecticide Nets (LLINs) with target coverage of at least 80% in moderate and high-risk areas by 2015. Migrant people are at greater risk of malaria. They have significant barriers to health care services for febrile illness and malaria. Thus, a community based survey was conducted among migrant population to assess the ownership and utilization of bed nets (LLIN/ITN) for malaria. The study analyzed secondary data from a community-based malaria survey conducted in 2014 among migrant population in 30 randomly selected townships out of 52 townships in Tier I and II artemisinin resistance areas. In each township, five migrant sites were randomly selected (total of 150 migrant sites). A total of 3933 households (approximately 125 households from each township) were selected. Of 3923 households assessed, 97% had access to at least one bed-net (any type), but only half had access to ITN/LLINs. Only 24% of households had adequate ITN/LLIN access (at least one ITN/LLIN per two persons). In terms of household utilization, 94.3% slept under a bed-net (any type) the previous night. Only 43.4% slept under an effective ITN/LLIN (desired target=100%). ITN/LLIN utilization in children under 5 years and pregnant women (high malaria risk groups) was 45.3% and 46.6% respectively. Of all observed nets, 31.3% had holes or had already undergone repairs. In terms of insecticide treatment status, an estimated 52.9% were untreated and, 38.9% of ITN had crossed the desired expiry time of one year. This study highlights poor access and utilization of ITN/LLINs among migrant population, particularly among children and pregnant women. It highlights the need for improving bed net coverage and utilization through bed net distributions and/or social marketing with focus on migrant population and targeting of households with children and pregnant women.

Afternoon Session (2), Auditorium (1)

Paper-36

Real-time quality assurance of malaria surveillance data in Myanmar and its border with China

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Collection of high quality data in public health surveillance and research studies is essential to ensure data interpretability and applicability. We evaluated the feasibility of systematic quality assurance procedures and the impact of a real-time integrated approach for large-scale malaria surveillance in Myanmar. We will present the data from and experience with evidence-based integrated monitoring and evaluation (M&E) procedures, with real-time feedback and quality assurance, implemented during the preparation and conduct of a large malaria surveillance study. The study was conducted in 43 villages located in 13 rural malaria-endemic townships of nine State and Regions of Myanmar, and by a network of seven research and non-research partners working in the public and private sectors on malaria control and/or surveillance towards malaria elimination. M&E procedures were developed and performed manually and electronically using an edit-check system. Training was provided before and again during the study, with quality assessments before and after mid-study retraining. Study documents were comprehensively and systematically reviewed. Sample quality was evaluated by a trained team of laboratory experts, using a pre-specified check list. The most common and critical errors were site- and partner-specific, regardless of the type of the study. Documentation errors were related to age, travel history, antimalarial treatment history, evidence of consent, sample labeling, the quantity of blood required, and sample contamination. Findings from a comprehensive evaluation of approximately 5,000 study documents and more than 12,000 blood samples, using three different types of study record forms, and the quality before and after re-training, will be presented. Systematic and comprehensive monitoring and evaluation of data and related samples can be effectively integrated within a surveillance system, and real-time evaluation and feedback early in the process may significantly improve the quality of the data and samples, therefore subsequent usefulness of public health interventions developed and deployed based on these data.

Morning Session (1), SRC Parallel Session

Paper-37

Different types of anaemia in pregnancy*Ei Myat Nwe, Zaw Myint Thein, Mya Thida and San San Myint***Department of Obstetrics and Gynaecology, University of Medicine 1, Yangon**

Anaemia affects 1.62 billion people globally, corresponding to 24.8% of the world's population. Anaemia is common nutritional disorder in Myanmar and is also regarded as a country with high endemicity of iron deficiency anaemia (IDA). According to WHO (1993-2005), prevalence of anaemia in Myanmar's pregnant women is round about 63.2%. The aim of this study is to determine the prevalence of the different types of anaemia in pregnancy in Central Women's Hospital, Yangon. The hospital based cross sectional study was conducted for a period of 6 months from February to July 2014. Total 200 uncomplicated singleton pregnant women attending antenatal clinic were detected for haemoglobin level at booking visit. Blood for complete picture (auto) results of antenatal patients were reviewed. In the group which involve the patients with haemoglobin level less than 11g/dl and hypochromic blood film, serum iron, serum ferritin, total iron binding capacity and Haemoglobin electrophoresis tests were done. There was no blood film showing macrocytic picture, so serum B12 and serum folic acid were not measured. Total 200 patients were observed to detect the haemoglobin level. It was found that 67 patients (33.5%) had anaemia and 39 (19.5%) had iron deficiency anaemia. Therefore (19.5%) were detected as iron deficiency anaemia among the 200 patients. Among 39 pregnant women with iron deficiency anaemia, 28 (71.8%) had Hb A, 10 (25.6%) had haemoglobin E heterozygous state and one (2.6%) had Hb AF respectively. Among 28 pregnant women with anaemia not due to iron deficiency, 16 (57.2%) had Hb A, 5 (17.9%) had Hb AE i.e haemoglobin E heterozygous state, 5 (17.9%) had Hb AF i.e beta thalassaemia, one (3.5%) had Hb E i.e haemoglobin E homozygous state and one (3.5%) had Hb AH on haemoglobin electrophoresis i.e. alpha thalassaemia (HbH disease). This finding suggests that the contribution of iron deficiency to pregnancy associated anemia in this study is high. This study showed the prevalence of iron deficiency anemia was much higher in the anaemic pregnant women. Thalassaemia and haemoglobinopathies are also prevalent in Myanmar.

Morning Session (1), SRC Parallel Session

Paper-38

Effectiveness and safety of postplacental and early postpartum insertion of intrauterine contraceptive device*Thiri Htun, Aye Aye Than, Myint Thet Mon, Mya Thida and San San Myint***Department of Obstetrics and Gynaecology, University of Medicine 1, Yangon**

Pregnancies within 24 months of a previous birth have a higher risk of unintended pregnancy. Unintended pregnancy has a higher risk of adverse outcomes such as septic induced abortion and maternal death. Women should use contraception to reduce unintended pregnancies. For many women who rarely access health care services, the

insertion of an IUD in immediate postpartum period presents a unique opportunity to initiate a long acting and reversible method of family planning. This study was conducted in Central Women's Hospital, Yangon from December 2013 to November 2014. The aim of this study was to study the effectiveness and safety of post placental (insertion within 10 min after delivery) and early postpartum (within 24 to 48 hour after delivery) insertion of intrauterine contraceptive device. One hundred and ninety patients who were 18-40 year old postpartum women who had delivered vaginally within 48 hrs and eligible for the study were recruited for IUD. They were randomized into post placental and early postpartum group. Effectiveness was shown in failure rate (Number of pregnant women per 100 women year) and it was 2.1% Vs. 0.0%. There was no significant difference of effectiveness (P=0.15). Safety was shown as complete expulsion, perforation, infection and menstrual problem such as heavy and prolonged bleeding. Complete expulsion rate (totally projected through the cervical os) were 8.4% Vs. 18.9 % at 6th week (P=0.03), 6.3% Vs. 10.5% at 6th month (P=0.2), 3.1% Vs. 1.0% at 1 year (P=0.3). There was higher complete expulsion rate in early postpartum than postplacental group at 6th week. There was no uterine perforation and no menstrual problem. Infection rate between two groups were 2.1% Vs. 2.1% at 6th week (P= 0.9), 1.0% Vs. 1.0% at 6th month (P=0.9), 0.0% Vs. 2.1% at 1 year (P=0.1) in respective group. In conclusion, immediate postplacental insertion of IUD is a useful, effective, safe, convenient and low cost procedure.

Morning Session (1), SRC Parallel Session

Paper-39

Cervical cytological patterns of women living in suburban area of Magway Township

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This community based cross sectional descriptive study was undertaken to identify the proportion of women having abnormal cervical cytological patterns, to determine the types of patterns and to find out the factors associated with abnormal patterns. Total sample size was three hundred and eighty four married women, aged between 25 to 64 years living in Aung Zayar Ward, Aung Chan Thar Sub Center of Magway Township. This study was conducted within one year which was from December 2013 to November 2014. Papanicolaou smear was taken from the sample size to screen for precancerous stage of cervical carcinoma and sent for cytology to the laboratory of Magway Teaching Hospital. Normal cytological results were found in one hundred and ninety-nine women while one hundred and seventy-three women had inflammatory smears. Mild and moderate dyskaryosis were found in nine and three women respectively. There was neither severe dyskaryosis nor invasive lesions in the sample size. So, most of the commonest findings were inflammatory smear among abnormal findings. Mild and moderate dyskaryosis were found in the women aged between 46 to 64 years. Most of them were multiparous, young marriage as well as oral contraceptive pill users. Most were single marriage. Most of the

findings were associated with low socioeconomic status. Their education status was middle school level and monthly income was between 30000 and 50000 kyats. Most women having abnormal cytological patterns were defaulter for repeated smear and most were unaware of follow up visit. So it might be concluded that cytology is invaluable as a preliminary screening test at grass roots level of Myanmar as it is quick, practical and non-invasive screening test as well as low costing and cost-effective. This study was supported by DMR External Grant Committee.

Morning Session (1), SRC Parallel Session**Paper-40****A comparative study on effect of sublingual *versus* vaginal misoprostol in management of first trimester miscarriage in Magway Teaching Hospital***Thin Thin Aye, Khin Latyar Aung and San San Myint***Department of Obstetrics and Gynaecology, University of Medicine, Magway**

Miscarriage is the most common complication of pregnancy. It impacts on physical and psychological distress on patients. Among various options, medical management is an attractive method now. The aim of this study was to compare the effect of sublingual *versus* vaginal misoprostol for medical management in first trimester miscarriage in Magway Teaching Hospital. Hospital based randomized controlled study was used for this study. It lasts from 1st December 2013 to 30th November 2014. There were 86 numbers of first trimester miscarriage patients involved in this study. There were 43 numbers of patients in one arm of study. They received 400 microgram of either sublingual or vaginal misoprostol 4 hourly for three doses. Patients received sublingual or vaginal misoprostol randomly. The primary outcome measures were complete expulsion of retained product of conception and the occurrence of side effects. The complete expulsion rate was 34.9 percent in sublingual group and 14 percent in per vaginal group. There were 2 patients needed only one dose of misoprostol in sublingual group and 7 patients needed only 2 doses but all of the patients in vaginal group required full doses of misoprostol. So, Sublingual group patients needed few doses than per vaginal group to be successful. There was no significant difference in side effects between two groups. The overall side effect of this study was 34 percent. The main side effect of this study was abdominal pain in both groups (10 patients versus 11). Nausea and vomiting was more common in sublingual group (3 versus 1). Mean blood loss in sublingual group was 110 ml and 87 ml in per vaginal group. There were no significant different in blood loss in both groups. Blood transfusion was not required for both groups. All of the side effects were tolerable. In this study showed sublingual route of misoprostol had more complete expulsion rate than per vaginal route for first trimester miscarriages without increasing the side effects. So sublingual route misoprostol can be used alternative to per vaginal route.

Morning Session (1), SRC Parallel Session

Paper-41

Determinants of utilization of antenatal care services among women in Kungyangone Township, Myanmar

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The aim of this study was to find out the determinants of utilization of antenatal care services among women in Kungyangone Township, Myanmar. This was a cross-sectional analytic study, carried out in Kungyangone Township using both quantitative and qualitative methods within one year period of January 2014 to January 2015. For the quantitative approach, 284 women (83 from urban and 201 from rural area) rearing under one year old child were interviewed with a structured questionnaire in urban and rural areas. For qualitative approach, six focus group discussions and nine in-depth interviews were conducted in urban and rural areas. Among the study population, there were 64.1% of mothers who took proper antenatal care. In urban areas, 56.6% of respondents took proper antenatal care whereas 67.2% took proper antenatal care in rural areas. In multivariable model, educational level of the husband, presence of neonatal complication in previous pregnancies, mode of transportation, duration of waiting time at antenatal clinic were significantly associated with antenatal care utilization. The respondents also mentioned that the availability of transportation to antenatal clinic, the condition of being apparently healthy pregnant women, condition of migration to different places and opening hours of the antenatal clinic as the main factors influencing the proper antenatal care. The majority of women in the qualitative study supported the antenatal care, but only a few participants could mention the benefits of antenatal care such as birth plan, preparedness for emergency situation and timely referral of high risk cases. There were only a few respondents who had awareness of importance of early antenatal visit, antenatal care timing and minimum antenatal care frequency. To conclude, these results would be valuable to raise the awareness of proper antenatal care in the community to ensure good maternal and fetal outcome thereby reducing maternal and perinatal morbidity and mortality.

Morning Session (2), SRC Parallel Session

Paper-42

Baseline practices and coverage of maternal newborn and child health care in Kanpetlet Township, Southern Chin State, Myanmar

Thida, Nyein Nyein Thaug, Kyaw Oo, Kyaw Ko Ko Htet, Phyu Phyu Thin Zaw and Win Aung

Department of Medical Research

Current practices of Maternal, Newborn and Child Health (MNCH) and responses to complicated MNCH were explored in Kanpetlet Township during 2016 for effective MNCH

promotion through community network activity. A cross-sectional descriptive study using both qualitative and quantitative methods was conducted with 200 mothers who have children of age 2 or less and 25 health care providers. Among the mothers, 37.5% was from hard-to-reach villages. Eighty-three percent had at least one antenatal care (ANC) with a skilled birth attendant (SBA) for their last pregnancy and 33.1% completed 4 visits. SBA rate was 34.5% and 61.0% had at least one postnatal care (PNC) with SBA. Contraceptive utilization was 36.5%. Mother's compliance to the supportive emergency obstetric referral was satisfactory. Ninety-five percent of the mother started demand breast feeding soon after delivery and almost all mothers kept their newborn warm. Most of the mothers from hard-to-reach villages could not seek skilled health care providers in case of newborn emergencies. Applying charcoal powder or traditionally accepted materials to the infected umbilicus was common. Out of 212 age ≤ 2 children, measles coverage was 96.4%. Supplementation of vitamin A and anthelmintic last 6 month was 87.6% and 59.0%. Prevalence of acute respiratory tract infection, acute diarrhea and suspected malaria was 86.7%, 76.4% and 4.7%, respectively. About 39% of the mothers reduced feeding amount to their ill child. Self-medication with antibiotics was common. Median day of seeking any health care for ill child was 2 days. In regression analysis, mother who knew at least 3 postnatal danger signs is more likely to have delivery with SBA (AOR=6.82, $p=0.02$) and to use contraception (AOR=8.0, $p=0.005$). Delivery with SBA reduced half among mothers from hard-to-reach villages (AOR=0.4, $p=0.02$) and it happened even among mothers who know availability of community network (AOR=0.4, $p=0.03$). Mothers received PNC from SBA only if there is newborn or maternal complication and it is slightly decreased with one year increase in maternal age (AOR= 0.93, $p=0.04$). Current practices and responses to MNCH care are still weak and promotion is essentially needed in Kanpetlet Township.

Morning Session (2), SRC Parallel Session

Paper-43

Maternal, newborn and child health care practices among mothers from Paletwa Township in Southern Chin State, Myanmar

Kyaw Thu Soe, Yadanar Aung and Kyaw Oo

Department of Medical Research

A cross-sectional descriptive study design using both quantitative and qualitative methods was conducted at selected villages in Paletwa Township during 2016. Face-to-face interviews with 205 mothers of under-two year old children were done using pretested structured questionnaires. Four focus group discussions and 9 in-depth interviews with mothers of under-two year old children, and 18 key informant interviews with health care providers were done. The mean age of mothers was 28 ± 6 years, and their highest proportion was found at 25-35 year age group (58%). The mean gestational age receiving the first time of antenatal care (ANC) was 14 ± 8 weeks. Nearly half of mothers took at least four times of ANC during their last pregnancy. Most frequently mentioned ANC providers for their last pregnancy were basic health staffs (BHS) (80%). Most of mothers delivered their youngest child with normal spontaneous vaginal delivery (95%). The most frequent reason for not going to skilled birth attendants (SBA) was "no SBA at village" (30%). There were mothers (~30%) doing wrong practices on taking care of umbilicus of their neonates. Eighty

nine percent of mothers started breastfeeding within 24 hours to their children after birth. The post natal care (PNC) services received among the mothers were mostly “immunization” (45%). Prevalence of the contraceptive use was 50% and injectable method was mostly used (59%). Thirty five percent of clients didn't know the type of immunization their children received. Child health care was received mostly from BHS (64%). Half of the respondents reported that they have ever heard about village health committee (VHC) and there was a system for funding support for referral of patients to the hospitals. Qualitative results showed the challenges to get MNCH cares services including poor knowledge among mothers, shortage of basic health staffs, difficult in transportation, and improper referral systems. It is recommended to strengthen the numbers of health assistants and midwives according to the geographical situations and populations of communities. It is also suggested to conduct refresher trainings especially for locally available and functioning auxiliary midwives (AMW). Community awareness about existence, mechanism and support functions of VHC among local community members should also be increased.

Morning Session (2), SRC Parallel Session

Paper-44

Mindfulness-integrated reproductive health package for adolescents with parental HIV infection: A group randomized-controlled trial

Myo Myo Mon¹, Kyaw Min Htut¹, Htun Nyunt Oo², Wai Wai Myint¹, Lwin Lwin Ni¹, Aung Soe Min¹ and Ni Ni Htay Aung¹

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Sustainable and correct knowledge on reproductive health (RH) is essential for adolescents, particularly in the early stage of adolescence when abrupt physiological and mental changes occur. However, effective interventions are very limited. We assessed the effects of a mindfulness-integrated reproductive health (Mind-RH) intervention on mindfulness situation and RH knowledge among adolescents with parental HIV and determined their associated factors. A group-randomized controlled trial was conducted among adolescents aged 10-16 years with HIV infected parent(s) using Mind-RH intervention package which included group mindfulness practice and participatory discussions on RH. Eligible adolescents from two townships were randomly assigned into intervention group and those from another two townships were assigned into control group. The intervention involved monthly group sessions for 3 consecutive months. Knowledge on RH and evaluation of mindfulness practice by mindfulness-based self-efficacy scale-revised (MSES-R) were assessed at baseline, 3 months and 6 months. Univariate analysis and multilevel regression were used to identify influencing factors of adolescents' RH knowledge. A total of 160 adolescents, 80 adolescents in each group, were included. A significant improvement of mindfulness scores at 3 months was found and sustained at 6 months among adolescents from intervention group in comparing to those of control group ($p < 0.01$). Univariate analysis showed significantly higher knowledge scores in the intervention group than in the control group at 3 and 6 months ($p < 0.001$). After adjusting for family type, age and HIV status of the

adolescents, RH knowledge scores increased at 3 and 6 months in both groups, but at a higher rate at 3 months for adolescents in the intervention group. Early adolescents, HIV negative adolescents and those from extended families had lower knowledge scores ($p < 0.01$). Most adolescent (98%) showed positive expressions about the intervention and many of them were willing to attend similar training in the future. The Mind-RH package significantly improved knowledge and mindfulness of adolescents with parental HIV. Longer follow-up is required to evaluate the long-term impact of this intervention.

Morning Session (2), SRC Parallel Session**Paper-45****Promoting key family practices of common childhood illnesses among mothers with under-five children in selected military communities***Ni Ni Aung¹ and Kay Thi Tun²*¹**Military Institute of Nursing and Paramedical Sciences, Mingaladon**²**Defence Services Obstetrics, Gynaecological and Children Hospital, Mingaladon**

Mothers are fundamental caregivers for under-five children and thus, family participation in child health services is very important. Therefore, a quasi-experimental study for promoting key family practices of mothers with under-five children was conducted among 278 respondents (intervention group=140 in Oktwin Station and control group=138 in Indaing Station). Respondents were randomly selected from their respective area. Data were collected by face-to-face interview with pretested structured questionnaire. Health promotion program including health education and advocacy for unit supports was implemented in only study group. Before intervention, baseline data of respondents and pre-intervention knowledge and practices level were identified. In the three-month, and six-month after intervention, post-intervention data collection was done in both groups. Those data were analyzed by using Chi-square test, Fisher's exact test, independent sample t-test, and ANOVA. Findings show that there was statistically significant difference of knowledge and practice scores of study group and control group in the three-month, and six-month post-interventions at $p < 0.0001$ and the magnitude of this difference was also very large. Moreover, knowledge and practice level within study groups have a significant effect for time at p value < 0.0001 and the magnitude of this effect was also large. At the same time, knowledge and practice of control group have a significant effect for time but this effect was very small. Although there was statistically significant association between pre-intervention knowledge and age of mothers, mothers' education, and fathers' education, fathers' rank, family income and food cost. It can be asserted that although health promotion program can improve the knowledge and practice of mothers regarding key family practices, this program should be implemented in every six months to sustain their knowledge and practice level. The findings of current study might be a cornerstone for improvement of maternal knowledge and practice on caring for children in the military community.

Morning Session (2), SRC Parallel Session

Paper-46

Women's pathways to post abortion care in three regions of Myanmar*Ni Ni¹, Cheri Poss², Tin Lei Lei Aung¹, Thwe Thwe Win¹, Myint Thu Lwin¹, Sally Dijkerman²,
Jamie Menzel² and Kathryn Andersen²*¹Ipas, Myanmar²Research and Evaluation Ipas, North Carolina, USA

Despite progress, maternal mortality in Myanmar remains high at 282 deaths for every 100,000 live births. Unmet need for modern contraception is at 19%, leading many women to resort to unsafe abortion, increasing their risk of mortality. This study seeks to understand pathways and barriers to post abortion care (PAC) at public hospitals in Myanmar. Specifically, the objectives aimed to assess: 1) Characteristics of women seeking care for post abortion complications; 2) The pathways from time of pregnancy to seeking PAC in the public health system; 3) Types and severity of symptoms that lead women to seek PAC; 4) The barriers women face in accessing PAC at public hospitals; and 5) Women's perspectives on the quality of PAC at public hospitals. A cross-sectional survey was conducted among 406 women accessing PAC at 21 public health facilities in three regions of Myanmar (Mandalay, Yangon and Magway). A semi-structured questionnaire collected information on care received prior to coming to the current facility (including techniques used) as well as the signs and symptoms of complications which led to seeking care at the study facility. Additionally, the questionnaire captured information on perceived quality of PAC during their visit. Preliminary analysis found most women (61%) attempted termination at home before going to formal/informal providers and used homemade concoctions (68%) or medicines (28%). The remaining women (39%) visited formal/informal providers to induce abortion, citing provider skill (30%), no known alternative (21%) and proximity (19%) as reasons for seeking care from that location. Women often made multiple visits to formal/informal providers for post abortion complications; heavy bleeding and lower abdominal/back pain were most cited symptoms. Most women sought PAC by the fourth visit and on average, five weeks passed from time of confirmation of pregnancy to seeking PAC at the study facility. Findings demonstrate the need to provide better information about and access to safe PAC for women experiencing post abortion complications in Myanmar. A push for increased awareness and use of misoprostol within the country could also ameliorate the rate of post abortion complications.

**Genotypic analysis of Epstein–Barr virus (EBV)
in nasopharyngeal carcinoma patients in Myanmar**

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Soe Aung³, Hlaing Myat Thu¹, Khin Pyone Kyi³ and Kyaw Zin Thant¹*

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Nasopharyngeal carcinoma (NPC) is endemic in certain populations, 0.6% of all cancers in the world. It occurs at high incidence in South East Asia, Southern China and North Africa. In Myanmar, the prevalence of NPC is gradually rising yearly and it is most common Head and Neck cancer in Yangon General Hospital (YGH). Epstein Barr virus (EBV) or Lymphocryptovirus is a member of the *Herpesviridae* family. It is a well-known causative agent in NPC and mainly infects lymphocytes and epithelial cells. The polymerase chain reaction (PCR) was used to study DNA extracted from the blood samples of (35) histologically confirmed NPC patients. The commonest age group is 51-60 years in both gender and males are more common than females (1.5:1). The most common histological type was poorly differentiated squamous cell carcinoma (SCC) (45.7%) and other histological types were non-keratinized carcinoma (20%), undifferentiated anaplastic carcinoma (17.2%), moderately differentiated SCC (11.4%) and well differentiated SCC (5.7%) according to World Health Organization (WHO) classification. Primers were directed to conserved regions of the EBV genome encoding Epstein-Barr nuclear antigen 1(EBV-NA1) region. Specific EBV amplification (262 bp fragment) was found in 5 samples of NPC patients (14.3%). The purified PCR products were sequenced by using ABI 3500 XL genetic analyzer. These isolates were found to be EB virus (Human Herpesvirus genotype 4) and this study is the first detection in blood samples of nasopharyngeal carcinoma patients in Myanmar. A phylogenetic tree was generated and the new Myanmar EBV sequences were analyzed with a group of 14 previously published EBV strain sequences including 8 from China, 5 from Australia and one from Japan within years 2006-2016. The new Myanmar EBV strains were recorded that was different from other isolates of these countries. Cancer treatment for early stage of NPC has a good response but 70-80% of NPC is found in advanced or metastatic state. EBV DNA may be currently related biomarker in NPC which is one of the indicators for early diagnosis, better prognosis, treatment response and recurrent of disease during cancer therapy.

Afternoon Session (1), SRC parallel session

Paper-48

**Population-based cervical cancer prevention in Myanmar:
Evaluation of a pilot program**

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Myanmar lags many countries in cervical cancer prevention. Screening coverage is low and human papillomavirus vaccine is only available in the private sector. In 2014, an INGO provided training and supplies for a township government-led population-based cervical cancer prevention program. Using a training of trainer approach (midwife-based screening and cryotherapy by the township obstetrician/gynecologist (OB/GYN), visual inspection with acetic acid (VIA) and cryotherapy (secondary prevention) were introduced in Yamethin and Pyin Oo Lwin (POL) townships. WHO recommendations regarding vaccination (girls 9-13 years of age only) were discussed but not implemented. To evaluate this program, we (1) conducted key informant interviews (with physicians, midwives, and pharmacists) (2) administered a quantitative survey and conducted focus group discussions with a stratified random sample of community women (30 to 49 years old with daughters 5-15 years of age) (3) obtained and analyzed monthly screening and cryotherapy data and (4) reviewed educational materials including infomercials and advertisement on HPV vaccine. In POL, screening was discontinued a few months after it began. In Yamethin, 3783 (9%) of women between 30 and 49 years of age were screened for the first time in 26 months. Of these, 413 (11%) were VIA positive, and 393 (95%) of these were successfully referred to and treated by the township OB/GYN with cryotherapy. Lack of time to conduct and support for supplies (cryotherapy tips, specula and headlamps), and transportation (for midwives to conduct VIA in remote areas and for patient travel to Yamethin for cryotherapy) limited the program. Most (70%) community women had heard of, and wanted to receive, HPV vaccine. Community women's primary sources of information regarding vaccination were midwives and broadcast/print material sponsored by the vaccines manufacturer GlaxoSmithKline. We conclude that secondary prevention was successful in Yamethin but not POL. Population-based coverage was low due to a variety of obstacles. GSK's direct-to-consumer marketing is likely to be responsible for adult women's demand for vaccination. Substantial additional advocacy, resources and education will be needed to scale up age-appropriate secondary prevention and convince adult women that they need to be screened and their 9-13-year-old daughters need to receive HPV-2

Afternoon Session (1), SRC Parallel Session

Paper-49

Alcohol drinking as a major risk factor for gastric malignancies in Chin State*Swe Zin Linn¹, Soe Oo², Hnin Pa Pa Khine² and Kyaw Oo³*¹200-Bedded General Hospital, Hakkha²State Public Health Department, Chin State³Department of Medical Research

Gastric cancer and peptic ulceration leading to perforation were common in Chin State. A hospital-based case-control study was carried out in December 2015 to identify its risk factors related to life-style and dietary practices. Fifty gastric malignancy cases and their residences were identified from the registers and records of all township hospitals in the State. Patients or one of their family members were recruited as “case” and interviewed using structured questionnaire. One hundred most informant family members from two nearest households of each case, without history of chronic gastric diseases in the family, were recruited as “control” to collect data using structured questionnaire. Alcohol drinking was significantly higher in case group (53% vs. 28%, P=0.003). Local-made and/or low-cost alcohol was being drunk more in case group. Past history of smoking was more in case group (51% vs. 33%, P<0.05). Betel chewing (mostly with tobacco) was practiced in one-third of both groups. “Case group” had fewer amount of breakfast and dinner (mainly with rice) than “control group”. Frequency of having meats, use of food additives, source of food, types of vegetables and meats were not different. Most commonly used food preservation method was “sun-dried” for all types of food and “smoked-dried” for meat and “fermentation” for vegetables in both groups. Adjusted analysis showed that drinking low-priced alcohol was single significant risk factor (3.5 times than non-drinker and two-time than other types of alcohol drinkers, P=0.027). Locally produced and low price alcohols in the market were concluded as the main risk factor for gastric malignancies in Chin State. The community should be informed and communicated about the risk. Local administrative authorities require an advocacy in ways to reduce the risk of gastric malignancies.

Afternoon Session (1), SRC Parallel Session

Paper-50

Role of flow cytometric immunophenotyping in diagnosis of multiple myeloma*San San Htwe¹, Htun Lwin Nyein², Aye Mya Khine¹, Khin La Pyae Tun¹, Win Pa Pa Naing¹, Ni Ni Win¹, Moe Thuzar Min¹, Sein Win² and Khin Saw Aye¹*¹Department of Medical Research²Department of Clinical Haematology, Yangon General Hospital

Immunophenotyping has become an invaluable tool in the management of hematological malignancies and is increasingly finding a role in the diagnosis and monitoring of plasma cell disorders. The aim of the study was to provide an accurate diagnosis of multiple myeloma

by application of flow cytometry immunophenotyping. A cross sectional descriptive study was conducted at Department of Clinical Hematology, Yangon General Hospital from September 2015 to August 2016. Multiparametric flow cytometry immunophenotyping was performed using monoclonal antibodies against CD 56, CD 19, CD138 (CD38) and CD 45. A total of 40 clinically suspected cases of multiple myeloma were included for the study. Among the 40 cases, 25 cases (62.5%) showed the expression of CD 138 or CD 38, negative CD 19 expression, weak or negative CD 45 expression and positive or negative CD 56 expression and were diagnosed as multiple myeloma. Age of the patients ranged from 49 years to 89 years. The male to female ratio was 1.1:1. Serum protein electrophoresis and densitometer reading was performed for detection of monoclonal band and monoclonal protein concentration. Monoclonal band was detected visually and estimation of monoclonal protein was done by densitometer. Among the 40 cases, 25 cases (62.5%) had monoclonal gammopathy. Among these cases, 20 cases (80%) had monoclonal band in the gamma (γ) region and 5 cases (20%) had it in the beta (β) globulin region. The mean concentration of monoclonal protein was 4.50 g/dl, with a range of 2.28 to 7.95 g/dl. In conclusion, flow cytometry immunophenotyping is useful tool for the diagnosis of multiple myeloma and it should be included as a routine assay in monoclonal gammopathy patients.

Afternoon Session (1), SRC Parallel Session

Paper-51

Knowledge and practices on leukemia disease among caregivers of childhood leukemia patients attending Hemato-Oncology follow-up clinic at Yangon Children Hospital

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Leukemia is the commonest childhood malignancies in worldwide as well as in Myanmar. The care of children with cancer is a complex and challenging and caregivers are part of the health care team. Caregivers are responsible for personal hygiene, healthy diet, psychological support, prevention of infection, awareness and management of side effect of drugs. Therefore this study aimed to assess the knowledge and practices on acute leukemia disease among caregivers of childhood leukemia patients. A cross sectional descriptive study was carried out from June 2016 to October 2016. Caregivers of childhood leukemia patients attending Hemato-Oncology follow-up clinic at Yangon Children Hospital were interviewed. Data analysis was done with SPSS 22.0. A p value of less than 0.05 has considered as significant. A total of 120 caregivers were interviewed with pretested questionnaire. Most of the caregivers were aged 25-44 years (74.66%), female (95%), mothers (85%), and had medium (middle and high school) education level (45%). A high proportion of caregivers had knowledge about cause, symptoms, diagnostic method, treatment option, regular taking cancer treatment and its side effects, regular follow up needed in leukemia disease (63.3% to 100%). However 18.8% of caregivers had false knowledge that regular antibiotics were the

treatment for cancer. Majority of caregivers (92.5%) obtained knowledge about childhood leukemia from health staff. Most of the caregivers had good practice on hygiene (81.63% - 98.33%) but practice about managing symptoms related to disease itself and treatment varies (43.33% to 98.33%). Higher education was significantly associated with better knowledge ($p=0.0001$) and good practice ($p=0.0003$). In addition, knowledge and practice were significantly associated with each other ($p<0.0001$). Our study showed caregivers had weak practice in providing an adequate amount of water to child and applying thermometer when their child was ill. Education programme about providing care at home is needed for caregivers of childhood leukemia patients who are receiving cancer treatment.

Afternoon Session (2), SRC Parallel Session

Paper-52

Contribution and constraints for the involvement of people living with HIV in HIV prevention and control activities: A qualitative study at Mandalay Region

Kyaw Thu Soe¹, Than Win², Zaw Zaw Aung², Yadanar Aung¹, Thida Aung¹ and Thura Ko Ko¹

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The objectives of this study are to assess the contribution of people living with HIV (PLHIV) in HIV prevention and control related activities, and to identify the challenges for the sustainability of their contribution. It was conducted at Mandalay City and two townships from Mandalay Region during 2016. Eight focus group discussions with six to seven PLHIV in each group, eight in-depth interviews with leaders of HIV positive groups, and two key informant interviews with team leaders of HIV/AIDS were conducted. This study included PLHIV in different characteristics such as out-reach workers, peer educators, counselors, field supervisors, volunteers, accountants, assistant project managers, project managers and clients or users. The average age of interviewed PLHIV was 40 years. The ratio of male and female was 1:5. The average years of involvement in HIV/AIDS related activities was 4 years. Generally, there was a strong collaboration between PLHIV groups and AIDS/STD teams at Mandalay Region. PLHIV were very supportive especially to the AIDS/STD teams which have limited human resources. It was reported that the achievement of PLHIV involvement could be mainly seen in condom promotion and distribution to vulnerable groups, HIV-test counseling, supporting PLHIV from hard to reach areas and with poor socio-economic conditions, assisting in ART provision at AIDS/STD teams, home-based-care for the HIV positive adult and children, and referring people to get HIV tested and ART treatment. Areas and activities which need to be focused were also reported. Peer to peer education activities should be emphasized to increase the awareness of self-care and to prevent transmission of HIV to other people. Counseling to married PLHIV regarding family planning also needs to be strengthened. Activities to reduce the discrimination among themselves, within their families, and from the public should also be taken as priorities. The key challenges for the sustainability of their contribution were also identified. They are poor resource of basic equipments and facilities especially the place and funding for office, the lower interest of PLHIV and poor technical knowledge to develop income generation activities, the changing attitudes of PLHIV on their involvement, and uncertain future plans of PLHIV groups.

Afternoon Session (2), SRC Parallel Session

Paper-53

**Anemia, immunologic status and rate of mortality
among HIV infected children on Antiretroviral Therapy**

Khaing Lay Mon

University of Public Health, Yangon

The aim of this study was to assess the Anemia, Immunologic status and rate of mortality among HIV Infected Children on Antiretroviral Therapy (ART) at specialist hospital, Mingalardon and 300 bedded children hospital, Mandalay. Retrospective cohort study was carried out among HIV positive children (under 15 years aged) on ART from 1st January 2005 to 31st August 2012. Information on relevant variables was collected from patients' ART cards and registries. Incidence rate ratio was calculated to compare the rate of mortality. A total of 881 records were included in the data analysis. The median follow up period was 26 months (IQR= 27 months). At the end of follow up, 87 (9.9%) were dead, 28 (3.2%) were loss to follow up and 15 (1.7%) were transferred out to other health facility. Mortality was 4.16 deaths per 100-child-years of follow up period. Baseline value of all hemoglobin and total lymphocyte count values were available. For the CD4 level, 10 children were missing. At the baseline, 192, 493 and 107 children were at acceptable level for hemoglobin, total lymphocyte count and CD4 level respectively. Six months after treatment, the median increase in hemoglobin was 0.6 mg/dl, total lymphocyte count was 476 cells and CD4 percent was 8.98%. The rate of mortality among the children with baseline hemoglobin <9 mg% was 6.57 times higher compared to hemoglobin ≥9 mg%, baseline TLC below threshold was 4.58 times higher compared to TLC above threshold and baseline severe HIV associated immunodeficiency was 3.97 time higher compared to not severe HIV associated immunodeficiency. The findings that advanced immunologic status and severe anemia were high rate of mortality and thus emphasize the urgent need for early identification of HIV infected infants and children and access to ART before disease progression.

Afternoon Session (2), SRC Parallel Session

Paper-54

**Determinants of treatment adherence in patient with HIV/AIDS taking
Antiretroviral Therapy at Insein General Hospital**

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Military Institute of Nursing and Paramedical Sciences, Mingalardon

Treatment adherence of a patient is important to control HIV/AIDS and more strategies must be considered to get its optimum. This study was conducted to explore the determinants on ART treatment adherence of patients living with HIV/ AIDS (PLHIVs) using combination of qualitative and quantitative methods at Insein General Hospital, during

September, 2015 to February, 2016. A total of 180 respondents having at least six-month duration of ART treatment participated in this study. Data were collected by face to face interviews by using pretested structured questionnaire for quantitative data and individual in-depth interview for qualitative data. Regarding Transmission of HIV/AIDS and ART, 41.7 % of respondents had high level of knowledge with the mean score of 45.8 ± 2.8 . in assessing level of ART adherence, 68.3% had high adherence and 29.4% had moderate adherence. There were statistically significant differences between knowledge level and some variables like age ($X^2 = 5.648$, $p=0.017$) and marital status ($X^2 = 4.107$, $p=0.043$) at p value 0.05. There were also some correlations between level of treatment adherence and some variables like educational status ($r_s=0.21$, $p=0.005$) and monthly family income ($r_s=0.226$, $p=0.002$) and having difficulties to take ART in life long period ($r_s=0.168$, $p=0.024$). According to qualitative findings, the participants continued ART in spite of many difficulties for regular treatment. While all of the respondents knew the benefits of ART, some were not aware of some ways of transmission. It was concluded that ART knowledge should be emphasized in education section and health care providers and policy makers should try to improve optimal adherence on ART.

Afternoon Session (2), SRC Parallel Session

Paper-55

Preliminary study of mutations within Enhancer II and BCP regions of hepatitis B virus in hepatocellular carcinoma patients

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Studies on the characteristics of mutations within the hepatitis B virus (HBV) genome in Hepatocellular carcinoma cases of HBV-infected individuals have not been conducted in Myanmar. For addressing this issue, 10 cases with HBV surface antigen (HBsAg)—positive liver cancer patients (male 8, female 2) age, 55.6 ± 11.6 -year-old were selected and the viral whole genome sequencing was carried out. 58 chronic hepatitis B patients (all are female, age 33.8 ± 13.4 -year old) those who attending at the Hepatitis Carrier Clinic were selected for comparison. Mutations in enhancer II (Enh II) and basal core promoter (BCP)/ precore regions were analyzed by PCR-direct sequencing method. The prevalence of mutation was significantly higher in cases with Hepatocellular carcinoma. Basal Core Promoter (BCP) region, C1638T and T1753V mutations constituted independent risk factors for the advancement of liver diseases. The presence of C1638T mutation was seen on chronic hepatitis cases as well as liver cancer patients. Instead of T1753V mutation, there is T1753 C mutation was seen on 7 out of 10 HCC patients but not seen in chronic hepatitis B patients. In BCP region, double mutations, A1762T and G1764A mutations were detected in 8/10 (80%) and single mutation, A 1764 G 2/10 (20%) was seen on two hepatocellular carcinoma cases. In comparison with chronic hepatitis patients, none of cases were seen on double mutation or single mutation at BCP region. The presence of G1896A, T1771C and A1773G

mutations were seen on most of HCC patients but single point mutation C1786 T, C1788A, T 1784 C mutation were seen on precore promoter region of chronic hepatitis patients which will be needed for further in-depth study.

Afternoon Session (2), SRC Parallel Session

Paper-56

Sero-prevalence of hepatitis B and C viral infections among hemodialysis patients in 500 bedded Yangon Specialty Hospital

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Patients on chronic hemodialysis are at increased risk of hepatitis B and C viral infections. These patients have an increased tendency to become chronic carriers and also to be a potential reservoir for its transmission, possibly contributing to the nosocomial spread in dialysis centers. In addition, hepatitis B and C seem to increase the mortality rate in this group of patients. To identify the challenges of infection control standards for prevention of blood borne infections including HBV and HCV, we tested the magnitude of these infections among hemodialysis patients in 500 bedded Yangon Specialty Hospital. A cross sectional descriptive study was carried out among hemodialysis patients in Department of Renal Medicine, 500 bedded Yangon Specialty Hospital. After taking informed consent, all participants completed the demographic characteristics, hemodialysis history and risk factors. A total of 111 patients were tested for HBs antigen and anti-HCV antibody by one step qualitative immunochromatographic assay (Standard Diagnostic, Inc, Korea). Sero-prevalence for hepatitis B and C viral infection was 7.2% and 15.3% respectively. Two out of 111 patients had both HBV and HCV. Mean age (SD) of the study population was 48 (14.6) year and 57% were male gender. The positivity of HBV or HCV was not different in gender and age group. Mean (SD) frequency of hemodialysis was 133 (112.3) and 50% of the patients had >200 frequencies of hemodialysis. The hemodialysis frequency was significantly related to HCV positivity among hemodialysis patients ($p=0.04$). All patients had a previous attendance to other hemodialysis unit. History of complete HBV vaccination was found in only 44.1% (49/111) of patients. The HBV positivity (7.2%) among hemodialysis patients in this study was not different with that of general population (6.5%) but the prevalence of HCV infection (15.3%) among hemodialysis patients in this study was remarkably higher than that of general population (2.7%). It was highlighted that the screening and treatment strategies of these infections among high risk group are needed to reduce the morbidity and mortality due to HBV and HCV infections.

Paper Reading Session : Day 3

Morning Session (1), Auditorium (1)

Paper-57

**Phylogenetic analysis of Myanmar human respiratory syncytial virus from
under five children with acute respiratory infection
admitted to Yangon Children Hospital**

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Wah Wah Aung¹, Ye Myint Kyaw², Hlaing Myat Thu¹ and Kyaw Zin Thant¹*

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Human respiratory syncytial virus (RSV) is one of the most important respiratory viruses responsible for annual epidemic ARI outbreaks in infants and pre-school children worldwide and it is frequently causing bronchiolitis and pneumonia in infants less than six months old. RSV is a member of the family *Paraxymoviridae* that is differentiated into two groups (A and B) based on antigenic and genetic variability. To date, 11 genotypes for RSV group A and 23 for RSV group B have been described based on changes in the G gene coding for the attachment glycoprotein. In this study, nasopharyngeal swabs samples were collected from hospitalized pediatric ARI cases at Yangon Children Hospital between January to September 2014. Of 160 cases, Non-structural protein 1 (NS1) gene of RSV was detected in 16.25% (26/160) comprising RSV - A strains 52% (11/21) and RSV- B strains 48% (10/21). Furthermore, the 21 NS1 gene positive nasopharyngeal swab samples were processed for genotyping by reverse transcription-PCR and sequencing of C terminal of the G gene, second variable region. RSV G gene was found in 61.9% (13/21) of samples. RSV-A was the larger group, accounting for 53.8% (7/13), followed by RSV-B, 38.5% (5/13) and one case (7.7%) was a mixed infection. The phylogenetic analysis revealed that all group A strains clustered as the ON1 genotype. This RSV ON1 genotype in subgroup A has a characteristic of a 72 nucleotide duplication in the second highly variable region of attachment G gene and it was first detected in Canada in 2010. Other studies reported ON 1 genotype was associated with less severe cases such as bronchiolitis and the present study also showed the similar findings.

Morning Session (1), Auditorium (1)

Paper-58

**Molecular detection of human rhinoviruses in children
with influenza-like illness attending Yangon Children Hospital, 2016**

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Influenza-like illness (ILI) is caused not only by influenza virus but other viruses including human rhinovirus (HRV). HRV usually causes common cold and exaggerates asthmatic attack and otitis

media in children. The aim of this study was to determine the prevalence and clinical severity of HRV among children with influenza-like illness. It was a cross-sectional study conducted at Out Patient and Emergency Department of Yangon Children Hospital (YCH). Nasopharyngeal swab samples were obtained from a total of 119 children with ILI attending the hospital from January to September 2016. Viral RNA was extracted by QIAamp® RNA Mini kit. Non-coding region of HRV gene was detected by conventional RT-PCR using Qiagen One Step RT-PCR kit. Of 119 cases, HRV was detected in 26 cases (23.8%). Gender distribution of HRV positive cases was equal. The maximum number of HRV cases was found in the children aged less than 5 years that accounted for 69.2%. During the study period, HRV positive cases were mainly detected in rainy season peaking in June. Fever, cough and rhinorrhoea were observed as the main symptoms of HRV infections that were responsible for 100%, 100% and 80.8% of HRV cases respectively. Most of the HRV affected children presented with low grade fever (mean=100.7°C, SD ± 0.96). Severe symptoms like severe pneumonia were not observed among HRV positive children. Clinical diagnosis of HRV cases included acute viral infection (AVI), acute respiratory infection (ARI) and Dengue Haemorrhagic Fever Grade 1 (DHF I) accounting for 84.6%, 7.7% and 7.7% respectively. This study provided base line information about ILI cases due to human rhinovirus that would be useful for the assessment of HRV outbreak and management of children with influenza-like illness.

Morning Session (1), Auditorium (1)

Paper-59

Common bacterial pathogens among Myanmar children with acute respiratory tract infection

*Thi Thi Htoon*¹, *Nan Aye Thida Oo*², *Wah Wah Aung*², *Hlaing Myat Thu*²,
*Mon Mon*³, *Wah Win Htike*³, *Htay Htay Tin*¹ and *Kyaw Zin Thant*²

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Acute respiratory tract infection (ARI) is the leading infectious cause of death in children younger than 5 years of age worldwide. ARI is ranked at the position of 19 out of 42 priority ranking diseases and health conditions in Myanmar. The aim of this research was to identify the different types of bacterial pathogens from nasopharyngeal swab specimens of ARI patients admitted to Yangon Children Hospital from 2014 to 2015. A cross-sectional, laboratory-based descriptive study was carried out on 231 patients (135 males and 96 females) who were aged 1 month to less than 5 years (Median age = 12.5 months). Majority of the ARI patients (195/231, 84%) were less than 2 years of age. Severe pneumonia was the most commonly diagnosed clinical condition (101/231, 43.7%) followed by bronchiolitis (86/231, 37.2%) and severe bronchiolitis (28/231, 12.1%). Colonization of 7 different types of bacteria was observed in 30.7% (n=71) of the study population. Among the isolated bacteria, *Staphylococcus aureus* (30 isolates, 13%) was found to be the most frequently isolated pathogen followed by *Moraxella catarrhalis* (18 isolates, 7.8%) and *Streptococcus pneumoniae* (17 isolates, 7.4%). In addition, antimicrobial susceptibility profile of these isolates was determined by modified Kirby-Bauer method. 76.7% of *S.aureus* isolates (23

isolates) were detected as resistant to oxacillin and 43.3% (13 isolates) were erythromycin resistant. 61.1% of *Moraxella catarrhalis* isolates (11 isolates) were resistant to ampicillin. 70.6% of *S. pneumoniae* isolates (12 isolates) were found to be penicillin nonsusceptible and multi-drug resistance was observed in 41.2% of isolates (7 isolates). In conclusion, the findings from the present study have highlighted the increasing incidence of antibiotic resistant respiratory pathogens among the ARI children aged less than 5 years in Myanmar.

Morning Session (1), Auditorium (1)

Paper-60

Influence of electrical ionic field exposure on red cell deformability, resting metabolic rate and insulin sensitivity in obese adult females

Khin Mi Mi Lay¹, Ohnmar², Nway Htike Maw¹, Pyae Phyo Kyaw¹, Sandar Win¹, Htike Htike Soe¹, Htet Htet Lwin¹, Kyi Kyi Htwe¹ and Theingi Thwin¹

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Pulsed electrostatic field generator can reduce erythrocyte membrane glycosylation by generating negative charges. Erythrocyte membrane glycosylation reduces negative surface electric charge that contributes to cellular rigidity, reducing red cell deformability in obesity and diabetic patients. In addition, pulsed electrostatic field exposure is also linked to improvement in peripheral vascular resistance. The aim of the study was to find out the influence of electrical ionic field exposure on red cell deformability (RCD), resting metabolic rate (RMR), arterial blood pressures and insulin sensitivity in obese adult females. A total of 23 adult women (mean age = 39.04±7.83yr) with mean body mass index (28.86±2.12 kg/m²) and waist circumference (WC) (>80 cm) participated in this study. Red cell deformability was assessed by filtration method and red cell deformability index (RCDI) was expressed by filtrating rate/min. Arterial blood pressure was measured by indirect method using mercury sphygmomanometer. Fasting blood glucose (FBG) and serum insulin level were determined by oxidase method and enzyme linked immunosorbant assay (ELISA) method respectively, and RMR was assessed by indirect calorimetry method. Insulin sensitivity was expressed as quantitative insulin sensitivity check index (QUICKI) value. Exposure to electrical ionic field was done by using pulsed electrostatic field generator (30 minutes/day) for 14 consecutive days. After 14-day exposure, there was no significant change in anthropometric measures, RCDI, RMR, serum insulin, and QUICKI. However, significant changes were found in FBG (85.79 ± 10.05 to 91.19 ± 11.26 mg/dL, p<0.02) and DBP (76.09 ± 10.49 to 71.96 ± 8.74mmHg, p<0.01). SBP was reduced but not significantly. In conclusion, 14-day electrical ionic field exposure could reduce arterial blood pressures but increase FBG.

Morning Session (1), Auditorium (1)

Paper-61

**Nurturing experiences of care providers of institutionalized children
at training school for boys, Thanlyin***Thae Hnin Soe¹, Naw Clara² and Khin Sandar Htun¹*¹Military Institute of Nursing and Paramedical Sciences, Mingaladon²Community Health Nursing Department, University of Nursing, Yangon

This phenomenological study uncovered the nurturing experiences of careproviders of institutionalized children at Training School for Boys, Thanlyin. Necessary data were collected by conducting face to face unstructured in-depth interviewing. Among six careproviders who were selected by purposive sampling method. The tape recorded data were analyzed by van Kaam's modification of the phenomenological method and four themes emerged as reason for being starfish, glance at the first experience, nurture on nature of children and gratification on jobs. Initially participants faced physical and emotional constraint such as fighting each other, run away, being around with the boys make because some care providers are single and also facing challenges to fulfill the individual emotional needs and for attachment with children. They also expected the children to become educated persons for brighter future, not to return to street. Thus, also had optimistic view on their work and prevail their challenges positively. Therefore, "Social work is noble and care providers nurture the children with empathy without discrimination even though they have physical and emotional challenges. In this study, nurture corner cultivates the goodwill of children on their future life" was revealed as a structural definition. This study highlighted that stress and struggles of social workers' life affected their performance. Therefore, holistic approach to physical and emotional support is crucial for the careproviders of the institutionalized children.

Morning Session (2), Auditorium (1)

Paper-62

**Awareness on symptoms, complications and preventive health behaviours
of menopause among women in Insein Township***May Lei Lei Oo¹, Cho Mar Kaung Myint¹, Su Htar Lwin² and Khaing Lay Mon¹*¹University of Public Health, Yangon,²University of Medicine 1, Yangon

The objective of the study was to assess the awareness on symptoms, complications and preventive health behaviours of menopause among women. So cross sectional descriptive study was done among women in the age of 40 to 60 years in selected areas of Insein Township. All pre-menopausal, peri-menopausal and post-menopausal women were included in this study and it was performed during September to October 2016. Data

collection was done by face to face interview with pretested questionnaires. Total of 22 questions were included in the section of awareness on menopausal symptoms, 10 questions for awareness on menopausal complications and 16 questions for awareness on preventive health behaviours. The participations were voluntary and total of 220 respondents were included in the study. Mean age of the study population was 48.65 years and 46.8 % were post-menopause, 10.9% were peri-menopause and 42.3% were pre-menopause. Nearly 5 % were single and 68 % were dependent. About 26% were at the level of high school and university as well as 4% were graduated. Among married women, 63.3% had three or more alive children. More than two third of the study population had high awareness regarding menopausal symptoms but all of 220 respondents had low awareness regarding menopausal complications. About two third of the respondents had high awareness on both menopausal symptoms and complications. 73.2% of the respondents had high awareness about preventive health behaviours of menopause. They got the information mainly from their mothers or aunts and secondly from their friends. Significant association was seen between marital status and awareness on both menopausal symptoms and complications ($p= 0.036$). There was another significant association between awareness on preventive health behaviours and age and marital status ($p= 0.018$ and 0.006). Single women had less awareness about menopausal symptoms, complications and preventative health behaviours. Menopause is a natural phenomenon that must be undergone by both single and married women. It is also a major and important transition in all women's lives. Therefore programs for distribution of health education about menopause through different media should be raised especially for single women.

Morning Session (2), Auditorium (1)

Paper-63

What, how and why they drink? : Drinking of alcoholic beverages among youths in Twantay Township

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In Myanmar, alcohol drinking is a growing problem and the health and social consequences due to alcohol drinking have become burden on families. A cross-sectional study was conducted among 152 youths (18 to 24 years) in Twantay Township, Yangon in 2015. Face-to-face interview using structured questionnaire was done among the youths in the villages of Twantay Township. It aimed to determine knowledge, attitude and practice related to alcohol drinking and to identify alcohol dependency among the youth drinkers. Among 152 youths, there were 114 males and 38 female youths. About 92 (61%) had high knowledge score and 60 (39%) had low knowledge score on alcohol drinking. Females had got higher knowledge scores than males. Negative attitude towards drinking alcohol was found among 109 respondents (72%). The prevalence of alcohol drinking experience was 62.5%. Mean age of starting alcohol drinking was 17.34 years and the youngest age of starting alcohol drinking was at 11 years. Among the drinkers, 87 (91.57%) were males and the others were females and there was statistically significant association between alcohol drinking practice

and gender ($p < 0.001$). Among the drinkers, 93 (97.89%) drank within past 30 days, 11 (7.37%) drank daily, 53 (75.79%) drank once a week or once in two weeks and 29 (16.84%) drank occasionally. Social reason, peer pressure and easily availability were the most common reasons for drinking. Beer was the most used type of alcohol among the drinkers (58, 61%). About 102 (67%) had friends who drank alcohol and parents' drinking status was found in 136 (89%) which precipitated alcohol drinking of the respondents. The CAGE test aimed to identify the respondents who have alcohol dependency showed that 70 (75%) of the youths had alcohol dependency. High prevalence of alcohol drinking among the youths and the youngest age of start drinking was 11 years. This study highlighted the needs to law enforcement on easily availability and selling alcoholic beverages to children and adolescents. Innovative ways of behavior changed communication for the risk of alcohol drinking among male youths is also necessary.

Morning Session (2), Auditorium (1)

Paper-64

Physical fitness of the elderly at the Home for the Aged (Hninzigone), Yangon

Khin Mi Mi Lay, Nway Htike Maw, Pyae Phyo Kyaw, Sandar Win, Khin San Lwin, Htet Htet Lwin, Yi Yi Mon, Lei Lei Win Hlaing and Theingi Thwin

Department of Medical Research

A cross-sectional descriptive study was conducted to assess physical fitness in 145 elderly; 52 men (mean age = 81.23 ± 6.36 years) and 93 women (mean age = 79.03 ± 5.27 years), volunteered from the Home for the Aged (Hninzigone), Yangon by using the Senior Fitness Test. The test consists of six measures of physical fitness: (1) 30-second chair stand test, (2) 30-second arm curl test, (3) chair sit and reach test, (4) back scratch test, (5) 8-foot up and go test and (6) 2-minute step test. Weight and height were measured and body mass index (BMI) was calculated. Body fat percent was calculated after bicep and triceps skin-fold thickness measurements. Most of elderly women had higher BMI (23.19 ± 6.46 kg/m² vs. 22.98 ± 4.24 kg/m², $p = 0.83$) and higher body fat percent (24.23 ± 7.6 % vs. 20.11 ± 6.46%, $p = 0.001$) than elderly men in all age groups. All the elderly had completed the six fitness tests. There was no statistically significant difference ($p > 0.05$) in arm curl test, back scratch test and 2-minute step test in all age groups. The subjects aged 70-74 significantly ($p < 0.05$) differed in the chair stand test and 8-foot up and go test compared to 80-84 years of age and they also significantly ($p < 0.05$) differed in the chair sit and reach test compared to subjects aged 85-89 years of age. Scores from each test were compared to Americans' norms by subject's age and gender and described as performance better than the norm, same as the norm, or worse than the norm. Generally, performance was better in strength tests (chair stand and arm curl) than cardiovascular tests (2-minute step and 8-foot up and go) or flexibility tests (chair sit and reach and back scratch). The low scores of cardiovascular tests may be attributed to the fact that those types of exercise are not very common in the daily activity of elderly in Myanmar. However, the good results of chair sit and reach test is essential part of their daily physical activity. It could be concluded that aging process decrease flexibility and dynamic balance in elderly people.

Lived experiences of senior citizens attending at Day Care Center for the Aged in Yangon: A Phenomenological approach

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The population of elderly people in Myanmar is gradually increasing and the caring for ageing becomes global issues and Day Care Center for the Aged is important in caring for older adults. This study is a qualitative research design by using a phenomenological approach. The aim of this study is to explore lived experiences of senior citizens attending at Day Care Center for the Aged in Yangon. The study period is from July, 2015 to February, 2016. Purposive sample of seven senior citizens who are attending at this center were interviewed in-depth for data collection. The recorded data were transcribed, translated and analyzed by using van Kaam's modification method and nine major themes emerged. At this center, they could do prefer activities as they wished and they were happy with services of Day Care Center for the Aged and they did not need to be worried about their health. This center also supported delicious food. Some participants hated holidays because they felt down-hearted and boring on those days. All participants could do their various ways of religious practices there. The only difficulty was transportation because there was only one ferry bus that was not accessible for all participants of this center. The structural definition of this study was that although senior citizens who had different backgrounds and different aims to attend Day Care Center for the Aged, they got satisfied with services of this center except insufficient transportation facilities. However, they liked to attend Day Care Center for the Aged any longer. Thus, there was a need to promote more sufficient transportation facilities. It is hoped that by exploring lived experiences of those senior citizens, the support can be provided throughout their resting periods as necessary. Moreover, it is also suggested to establish the another Day Care Center for the Aged in every state and region to help more coverage of social service for the Aged in Myanmar to provide comprehensive care and to strengthen existing social services.

Detection of metabolic-based resistance against pyrethroids in *Aedes aegypti* from selected areas in Mandalay

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The development of vector resistance to insecticides is a main problem for mosquito borne diseases control. The metabolic detoxification through enhanced level of enzyme activities

(oxidases, esterases and glutathione S-transferases) involved in insecticide resistance. Based on the resistance data, appropriate alternative insecticides can be conducted for effective vector control. This study was conducted to determine pyrethroids (0.05% deltamethrin and 0.75% permethrin) resistance in *Aedes aegypti* by WHO standard procedure and to detect the level of enzyme activities (oxidases and esterases) in mosquitoes by biochemical assay. *Aedes aegypti* were collected from three selected areas (MinTe Ekin, Maha Myaing, Keik Sana Mahe wards) in Mandalay, from August 2014 to December 2015. Results showed that the adult of *Ae. aegypti* from selected areas was resistant to deltamethrin and permethrin. The mean optical density values of oxidases in Maha Myaing, Keik Sana Mahe, Min Te Ekin and laboratory populations were 0.87 ± 0.2 , 0.64 ± 0.1 , 0.54 ± 0.1 and 0.53 ± 0.1 at 630 nm, respectively. The level of oxidases activity was significantly higher in Maha Myaing and Keik Sana Mahe populations when compared to the laboratory population ($P < 0.05$). Furthermore, the mean optical density values of esterases in Min Te Ekin, Maha Myaing, Keik Sana Mahe and laboratory populations were 0.58 ± 0.1 , 0.39 ± 0.1 , 0.38 ± 0.03 and 0.37 ± 0.03 at 450 nm, respectively. The level of esterases was significantly higher in *Ae. aegypti* in Min Te Ekin compared to laboratory population ($p < 0.05$). The enhanced enzyme activities (oxidases and esterases) contribute to pyrethroids (deltamethrin and permethrin) resistance in *Ae. aegypti* from selected areas.

Afternoon Session (1), Auditorium (1)

Paper-67

Urinary albumin to creatinine ratio and the degree of coronary artery narrowing in patients undergoing coronary angiography

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Coronary artery disease (CAD) is one of the major causes of death and disability in both developed and developing countries. Microalbuminuria is regarded not only an indicator of global endothelial dysfunction but also an antecedent to atherosclerotic coronary artery disease. A cross-sectional study was done on 57 patients of both sexes undergoing coronary angiography at Cardiac Medical Unit, Yangon General Hospital in order to associate urinary albumin to creatinine ratio (UACR) and the degree of coronary artery narrowing. The mean age was 57.9 ± 9.8 years with M: F ratio of 1.7:1. UACR was measured by immune-turbidimetry method using UACR 30mg/g as cut off value for having microalbuminuria. The severity of coronary artery narrowing was recorded as normal, one vessel narrowing, two vessels narrowing and three vessels narrowing. Microalbuminuria was present in 31.6% of total cases. There were 21.1% CAD negative (Normal) patients and 78.9% CAD positive (stenosis $\geq 50\%$) patients. Microalbuminuria was detected in 16.7% of patients with one vessel narrowing, 22.2% with two vessels narrowing and 61.1% with three vessels narrowing. None of the patient with normal angiogram result had microalbuminuria. There was significant association between UACR and degree of coronary artery narrowing ($p = 0.000$). This showed that patients with microalbuminuria (raised UACR) have greater atherosclerotic burden and more severe coronary artery disease than those without microalbuminuria.

Afternoon Session (1), Auditorium (1)

Paper-68

Ki-67 immunoexpression in gestational trophoblastic diseases*Nyein Nyein Soe, Saw Wut Hmone, Myint Myint Nyein and Myat Mon***Department of Pathology, University of Medicine 1, Yangon**

Gestational trophoblastic diseases comprise of hydatidiform mole, invasive mole, choriocarcinoma and placental site trophoblastic tumor having different biological behavior. Ki-67 is a proliferative marker used to evaluate the biological behavior of different tumors. The study was aimed to determine the Ki-67 immuno-expression in gestational trophoblastic diseases and its association in different types of gestational trophoblastic diseases. A cross sectional descriptive study was done on 50 cases of gestational trophoblastic diseases, histologically identified as 10 cases of partial hydatidiform mole, 23 cases of complete hydatidiform mole, 9 cases of invasive mole and 8 cases of choriocarcinoma. Immunoexpression of Ki-67 was determined by PAP immuno-histochemistry. All cases showed Ki-67 immuno-positivity. High Ki-67 labeling index ($\geq 50\%$ of Ki-67 positivity) was found in 10% of partial hydatidiform mole, 73.9% of complete hydatidiform mole, 33.3% of invasive mole and 100% of choriocarcinoma. Low Ki-67 labeling index ($< 50\%$ of Ki-67 positivity) was found in 90% of partial hydatidiform mole, 26.1% of complete hydatidiform mole, 66.7% of invasive mole ($p = 0.000$). These findings indicated that high Ki-67 labeling index was observed in gestational trophoblastic diseases having worse biological behavior such as complete hydatidiform mole and choriocarcinoma. So this study supports that Ki-67 immunoexpression might predict the biological behavior and prognosis of gestational trophoblastic diseases.

Afternoon Session (1), Auditorium (1)

Paper-69

Immunodetection of human epidermal growth factor receptor 2 (HER2) over expression in carcinoma breast*Aye Myat Mon¹, Aye Aye Khin² and May Than Naing²*¹Department of Medical Laboratory Technology, University of Medical Technology, Yangon²Department of Food and Drug Administration

Breast cancer is the most lethal neoplasm in women. The rate of the breast cancer increased by yearly. Management For breast cancer may include surgery, radiation therapy, hormonal therapy, chemotherapy, targeted therapy, or a combination of these therapies. Selection of treatment is based mainly upon cancer stage, presence of hormone receptors, overexpression of Human Epidermal Growth Factor Receptor2 (HER 2), and the patient's health status. HER2 has a clinical value in breast tumours. Treatments that specifically target HER2 are very effective. Treatment with the anti HER2 monoclonal antibody trastuzumab

has revolutionized the outcome of patients with this aggressive breast cancer subtype, but intrinsic and acquired resistance is common. One year of trastuzumab therapy is recommended for all patients with HER2 positive breast cancer who are also receiving chemotherapy. In this study, a total of 30 biopsy specimens of histologically confirmed carcinoma breast were collected to detect over expression of HER 2 by polymer detection method of Immunohistochemistry (IHC) staining. Out of 30 cases of this study, 3 cases (10%) showed HER 2 overexpression, 6 cases (20%) in equivocal immune expression and 21 cases(70%) were negative immunostain. Although the polymer detection IHC method is more sensitive and more specific than other IHC method, the HER2 equivocal cases should be confirmed by *in situ* hybridization(ISH) method.

Afternoon Session (1), Auditorium (1)

Paper-70

Immunoexpression of Pan-cytokeratin and leucocyte common antigen in common malignant nasopharyngeal tumors

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Nasopharyngeal carcinoma (NPC) is the most common malignant tumor of the nasopharynx, followed by malignant lymphomas. Since most of the NPC are nonkeratinizing undifferentiated type, it is often difficult to distinguish from malignant lymphomas on H & E examination. This study is to determine the immunoexpression of Pan-cytokeratin and leucocyte common antigen (LCA) in common malignant nasopharyngeal tumors. The common malignant nasopharyngeal tumors are nasopharyngeal carcinoma and non-Hodgkin lymphoma of the nasopharynx. A total 31 cases of common malignant nasopharyngeal tumors from Mandalay Eye, Ear, Nose and Throat Hospital was collected during 2014-2015. All of the cases were histologically confirmed nasopharyngeal carcinomas, classified as 11 cases of nonkeratinizing undifferentiated type and 20 cases of nonkeratinizing differentiated type. There was no case of malignant lymphoma on H & E examination. Immunohistological (IHC) study with Pan-cytokeratin and LCA antibodies was done on all cases by conventional peroxidase-antiperoxidase method. Twenty cases (100%) of nonkeratinizing differentiated type and 9 cases (81.8%) of nonkeratinizing undifferentiated type were strongly positive for Pan-cytokeratin and negative for LCA immunoreactivity. Two cases of nonkeratinizing undifferentiated type showed opposite staining pattern. Therefore, after IHC study with Pan-cytokeratin and LCA, 20 cases of nonkeratinizing differentiated type and 9 cases of nonkeratinizing undifferentiated type were finally diagnosed as nasopharyngeal carcinomas and 2 cases of nonkeratinizing undifferentiated type were diagnosed as malignant lymphomas which accounted for 18.2 % of undifferentiated nasopharyngeal carcinomas in this study. So, IHC study with Pan-

cytokeratin and LCA should be done on all cases of undifferentiated nasopharyngeal tumors to confirm the diagnosis of nasopharyngeal carcinoma and to exclude malignant lymphoma.

Afternoon Session (1), Auditorium (1)

Paper-71

Immunohistochemical expression of C-Kit (CD117) in interstitial cells of Cajal in the myenteric plexus of fundus and pyloric antrum of human fetal stomach

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Interstitial cells of Cajal (ICC) have long been described in musculature of gastrointestinal tract. ICC lying in myenteric plexus region (ICC-MP) of the stomach and small intestine and in submucosal region (ICC-SM) of the colon are well-recognized as pacemakers and they play an important role in gut motility. ICC express a specific cell surface tyrosine kinase receptor (c-Kit) and signaling via Kit receptor is essential for their development and maintenance. The aim of this study was to detect the ICC-MP in fundus and pyloric antrum of human fetal stomach by c-Kit immunoexpression. A total of 20 human fetal stomachs (11 were males and 9 were females) were studied and their gestational age ranged from 28 weeks to 41 weeks. According to this study, four subtypes of ICC such as ICC-SM, ICC-CM, ICC-LM and ICC-MP were identified in human fetal stomach according to their location in gastric wall. C-Kit positive ICC cell body was defined as brown cytoplasmic staining with several processes surrounding a nucleus. Out of 20 cases of this study, 19 cases (95%) showed positive immunostaining and only one case (5%) showed negative immunostaining. In this study, most of the ICC-MP had oval, triangular or rounded cell bodies with several processes forming anastomosing networks of multipolar cells. The mean number of ICC-MP per high power field in fundus was 7.09 and in pyloric antrum was 8.47 and there was a significant difference in ICC numbers between these two regions of stomach. This region-dependent variation in ICC number might correlate with motor activity particular to these gastric regions and this study formed a morphological basis for better understanding of their role in gastric motility.

Afternoon Session (2), Auditorium (1)

Paper-72

Satellite cells of adult human skeletal muscle with M-Cadherin immunohistochemical expression in autopsy cases

Thu Thu Ohn Myint, Myint San Nwe and Zaw Zaw Latt

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Studies on satellite cells in human skeletal muscle relied on the cell surface marker, M-cadherin as a marker for satellite cell identification. The skeletal muscle satellite cells maintained their functional properties and prolong storage in anoxia. Therefore, this study could support the research of satellite cell biology and development of the regenerative

medicine. In this study, a total of 23 cases from age of 24 - 60 years were studied for immunohistochemical expression of M-cadherin positive satellite cells in human skeletal muscle in autopsy cases and the study population was the human skeletal muscle at autopsy cases from the Police Surgeon's Office, North Okkalapa General and Teaching Hospital. The number of satellite cells was identified the M-cadherin staining cytoplasmic membrane of satellite cells interface between their nucleus and the myofibre. The mean satellite cells index was 8.8217 ± 3.43669 SD in cases within 24 hours after death and 4.8696 ± 2.14422 SD in cases 5 days after death (n= 23). There was significantly lower satellite cells in cases 5 days after death. There were no satellite cells in cases 6 days and one week after death. It was found that there was a statistically significant correlation between the M-cadherin positive satellite cells index with various ages in year. This meant that as the age was older, M-cadherin positive satellite cells index was lower. The percentage of remaining satellite cells in between 24 hours and 5 days post mortem interval was $39.5710 \pm 30.6841\%$. There was reduced in number of satellite cell population with increasing age and the satellite cells that could survive in post mortem time.

Afternoon Session (2), Auditorium (1)

Paper-73

CD117 immunohistochemical expression in telocytes within the cholelithiasis and stone-free human adult gall bladders

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This study was conducted to identify the telocytes (stromal cells) within human adult gall bladders with CD117 immunohistochemical expression and to access their functional role by comparing the number of telocytes within cholelithiasis and stone-free gall bladders. In this research, data from 10 gall bladders with gallstones and 10 without gallstones (6 females and 4 males in each groups and ages were ranged from 38 years to 89 years) were compared with indirect immunoperoxidase method by using mouse monoclonal anti-CD117 antibody. The brown transmembranous staining of telocyte was defined as positive immunoreactivity for CD117 antigen. CD117 positive telocytes were detected in all cases of gall bladders (100%). Mean number of CD117 positive telocytes was $43.2 \pm 10.73/10$ Field of View (FOV) in cholelithiasis gall bladder and $78.4 \pm 5.48/10$ FOV in stone-free gall bladder. The number of telocytes was significantly lower in cholelithiasis group than the number observed in the stone-free group. Telocytes were most frequently observed in the muscularis propria (about 79%) and also in sub-epithelial layer (about 21%). Moreover, there was negative correlation between mean number of telocytes and increasing age in stone-free cases ($r = -0.908$, $p = 0.000$) while no such association was found in cholelithiasis cases ($r = -0.321$, $p = 0.366$). Thus, quantity of telocytes was significantly lower in cholelithiasis group than the number observed in the stone-free group and there was also negative correlation between the number of telocytes and increasing age in stone free cases. Regarding the role of interstitial cells of Cajal in regulation of gastrointestinal tract

motility, it appeared that reduction in the number of telocyte might be one of the etiopathogenic factor of cholelithiasis.

Afternoon Session (2), Auditorium (1)**Paper-74**

Immunohistochemical expression of Ki-67 proliferation associated nuclear antigen in the ductal cells of human fetal pancreas

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This study aimed to assess the immunohistochemical expression of Ki-67 proliferation associated nuclear antigen in the ductal cells of human fetal pancreas at autopsy cases. A total of 12 human fetal pancreases from 22 weeks to 40 weeks of gestational age were studied on formalin fixed, paraffin wax embedded tissues by routine Haematoxylin and Eosin staining method. Immunostaining of these tissue blocks were carried out to evaluate proliferative activity of pancreatic ductal cells with the monoclonal Ki-67 antibody (proliferative marker) using immunoperoxidase method. The brown nuclear staining of ductal cells was defined as positive immunoreactivity for Ki-67. Out of 12 cases, 9 cases (75%) showed Ki-67 positive immunoexpression. Mean Ki-67 proliferative index for all positive cases was 15.7%. In the fetal pancreas of 22-26 weeks of gestational age, Ki-67 proliferative indices had more than mean Ki-67 proliferative index (16.6% – 19.5%). Between the gestational ages of 27-40 weeks, the mean Ki-67 proliferative index was found less than 15.7% (13.1% – 15.2%). Mean gestational age for all cases was 30 weeks. Between the gestational age of 22-30 weeks and more than 30 weeks, mean and standard deviation of Ki-67 proliferative index for all positive cases are 17 ± 1.7 and 14 ± 0.9 respectively. There was a statistically significant correlation between mean Ki-67 proliferative indices and various gestational ages in weeks, i.e. the higher the gestational age, the lower the Ki-67 proliferative index was found. Thus, this study showed that the fetal ductal cells had limited proliferative capacity within 26 weeks of gestation. Therefore, this result might support to be informative research for further study in cell-based therapies for the treatment of diabetes.

Paper Reading Session : Day 4

Morning Session (1), Auditorium (1)

Paper-75

Hepatoprotective activity of *Tinospora cordifolia* Miers. stem on Carbon tetrachloride (CCL₄) induced hepatotoxicity in albino rats***Khine Khine Lwin, Mu Mu Sein Myint, Moh Moh Htun, Khin Pyu Phyu, Win Win Maw, Phyu Phyu Win, Nu Nu Win, Myint Myint Khine and San San Myint*****Department of Medical Research**

This study was done to find out the hepatoprotective activity of *Tinospora cordifolia* Miers. stem (Sin-don-manwe) in carbontetrachloride induced hepatotoxicity in albino rats. In this study, phytochemical analysis and acute toxicity test of 70% ethanolic extract of stems of the plant on albino mice were also carried out. Parallel experimental study design was performed. Phytochemical analysis of the 70% ethanolic extract of the stem showed the presence of alkaloid, glycoside, amino acid, polyphenol, saponin, carbohydrate, and steroid/terpene. Acute toxicity test was done in albino mice according to OECD guideline 423. It was found that medium lethal dose (LD₅₀) of 70% ethanolic extract was found to be more than 5g/kg. In hepatoprotective activity test of 70% ethanolic extract of the plant, tested rats were grouped into 6 groups and each group contained 6 rats. Group I was negative control group (distilled water only) and Group II was CCL₄ intoxicated group. Group III, IV and V were tested groups which received 70% ethanol extract (0.75g/kg, 1.5g/kg and 3g/kg) respectively and group VI received standard drug, silymarin (50 mg/kg) daily by oral route upto 7 days. On 8th day, Group II to VI received single dose of CCL₄ 1ml/kg per orally. After 24 hours of CCL₄ administration (i.e. on 9th day), they were sacrificed. The blood samples were collected by cardiac puncture. Liver Function Tests of the serum and histological examination of liver tissue were done. In this study, there were significant decrease in liver enzymes such as ALT,AST,ALP and total bilirubin in 0.75g/kg, 3g/kg of the extract treated group when compared with those of carbontetrachloride intoxicated group (p<0.01). Significant decrease in AST, ALP, and total bilirubin levels except ALT were found at 1.5g/kg of the extract. The hepatoprotective effect of the extract is lower than that of silymarin. No significant changes in histopathological findings of liver at 3 doses of the extract but significant decrease in fibrosis was found at 1.5g/kg of the extract when compared with CCL₄ intoxicated group. In conclusion, 70% ethanolic extract of the stem of *Tinospora cordifolia* Miers. had some degree of hepatoprotective effect in rats.

Hypoglycemic effect of *Terminalia chebula* Retz. (Phan-kha-thee) on diabetic albino rat models*Ei Pyae Phyoe Aung*¹, *Shin Hnaung Lwin*¹, *Nu Nu Aye*¹ and *Khin Phyu Phyu*²¹Department of Pharmacology, University of Medicine 2, Yangon²Department of Medical Research

Terminalia chebula Retz. belongs to the family Combretaceae and is known as phan-kha-thee in Myanmar. This study was aimed to evaluate the hypoglycemic effect of ethanolic extract of *Terminalia chebula* Retz. fruits on diabetic albino rat models. In first part, a randomized controlled experimental animals study was done. 80%-ethanolic extraction of fruits of *Terminalia chebula* Retz. was done by using Soxhlet extraction method. Diabetes Wistar albino rats were induced by alloxan (100 mg/kg). The extracts (100, 200 and 400 mg/kg) groups and metformin group were orally administered for 28 days. Blood was collected by squeezing the tip of the tail and fasting blood glucose (FBG) levels were measured at the end of the first, second, third and fourth weeks by using glucometer. At the end of first, second, third and fourth weeks, the FBG levels of diabetic group were 325.7±28.2, 308.5±69.8, 322.7±65.8 and 369.2±57.4 mg/dL, those of metformin (100 mg/kg) group were 76.2±9.5, 92.5±14.9, 94.5±17.9 and 90.8±9.9 mg/dL, those of the *Terminalia chebula* Retz. Extract 100 mg/kg group were 232.5±78.6, 122.8±41.4, 109.2±33.6 and 132.3±41.1 mg/dL, extract 200 mg/kg group were 82.7±8.2, 82.7±8.2, 89.7±9.8 and 89±15.2 mg/dL, extract 400 mg/kg group were 80.2±9, 83.5±7.1, 91±11.5 and 82.7±5.9 mg/dL, respectively. When all treatment groups compared with diabetic group, the FBG levels were significantly reduced ($p<0.001$). There was no significant difference in FBG levels between metformin group and extract (200 and 400 mg/kg) groups. In second part, quasi experimental study was done in maltose-induced models. Acarbose (18.5 mg/kg) and extract (100, 200 and 400 mg/kg) were orally administered first and maltose 2 g/kg was also administered after 10 mins apart. The blood glucose concentrations were measured at 0, 30, 60, 90 and 120 mins by glucometer. The post-prandial blood glucose concentrations of acarbose were 82.5±5.6, 133.0±24.3, 117.5±7.1, 113.3±6.9 and 107.0±7.8mg/dL, those of the *Terminalia chebula* Retz. Extract 100 mg/kg group were 79.8±4.7, 142.5±21.6, 138.3±17.8, 113.8±12.4 and 99.8±12.9 mg/dL, extract 200 mg/kg were 82.2±9.2, 129.3±12.6, 119.5±15.8, 107.5±8.0 and 91.3±10.3 mg/dL and extract 400 mg/kg were 89.2±4.8, 147.5±16.7, 137.7±16.1, 115.7±8.8 and 102.2±9.0 mg/dL, respectively. The post-prandial blood glucose concentration was no significant difference between acarbose and extract 200 mg/kg. The ethanolic extract has significant hypoglycemic effect on alloxan-induced diabetic rats and its action is comparable to metformin.

Morning Session (1), Auditorium (1)

Paper-77

Hepatoprotective effect of ethanolic extract of *Andrographis paniculata* Nees. (say-gha-gyi) leaves on paracetamol-induced hepatotoxicity in albino rats*Ei Mon Mon Hlaing¹, Myint Myint Than¹, Khin Phyu Phyu² and Nu Nu Aye¹*¹Department of Pharmacology, University of Medicine 2, Yangon²Department of Medical Research

Andrographis paniculata Nees. (say-gha-gyi) is a medicinal plant traditionally used as hepatoprotective agent and grows wild throughout Myanmar. The aim of this study is to evaluate scientifically the hepatoprotective effect of *Andrographis paniculata* Nees. leaves on paracetamol-induced hepatotoxicity in albino rats. Study design was experimental comparative animal study. *Andrographis paniculata* Nees. leaves were extracted with 50% ethanol. To induce hepatotoxicity, oral paracetamol (0.5 g/kg) was used. To investigate hepatoprotective effect, thirty albino rats (250-300 g) were divided into five groups, and each group contained six albino rats. Group I served as normal control (distilled water only), group II was kept as paracetamol control and group III, IV and V served as tested groups, receiving 200, 300 and 400 mg/kg of the extract, respectively, daily up to 7th day. On the morning of 7th day, group II, III, IV and V received single dose of oral paracetamol (0.5 g/kg). After 48 hours of paracetamol administration, the animals of all the groups were sacrificed, and blood was collected by cardiac puncture for ALT and AST, and liver samples were taken to find out degeneration and necrosis. In normal control, mean ALT and AST values were 57.71±12 and 114.15±29 U/L, respectively. In paracetamol control, mean ALT and AST values were 161.75±19 and 251.06±86 U/L, respectively. Those values for paracetamol with extract (200, 300 and 400 mg/kg) receiving groups were 120.39±12 and 177.13±27; 95.00±13 and 132.45±24; 73.58±5.9 and 119.42±18 U/L, respectively. All doses of the ethanolic extract of *Andrographis paniculata* Nees. showed significantly lower both ALT and AST level than paracetamol control ($p < 0.05$). All tested groups showed significant hepatoprotective effect in necrosis when compared with paracetamol control ($p < 0.05$) but in degeneration, only extract 300 and 400 mg/kg receiving groups showed significant hepatoprotective effect. In acute toxicity study, the LD₅₀ of the ethanolic extract was greater than 5000 mg/kg according to Organization for Economic Cooperation and Development (OECD) guidelines 425. From these data, the ethanolic extract of *Andrographis paniculata* Nees. leaves has some extent of hepatoprotective effect on paracetamol-induced hepatotoxicity in albino rat.

Morning Session (1), Auditorium (1)

Paper-78

Effect of omeprazole on pharmacokinetics of metformin in healthy volunteers*Ei Ei Aung¹, Khine Khine Lwin², Nu Nu Aye¹ and Thein May Saw³*¹Department of Pharmacology, University of Medicine 2, Yangon²Department of Medical Research³Department of Pharmacology, University of Medicine, Mandalay

Metformin is a first line oral hypoglycemic agent to treat type 2 diabetes mellitus. Gastro-esophageal reflux disease (GERD) is common in type 2 diabetes mellitus. Proton-pump inhibitors and metformin co-administration may be prescribed in diabetes mellitus patients with GERD. Metformin is not metabolized and is excreted unchanged from the kidney through organic cation transporter 2. As inhibitors of organic cation transporters, proton-pump inhibitors may affect the plasma levels of metformin. The aim of the study is to explore the effect of omeprazole on pharmacokinetics of metformin in healthy volunteers. The study was carried out in 31 healthy volunteers by cross-over study design. Comparison of the pharmacokinetic parameters was made between metformin alone and metformin with omeprazole. Single oral dose of metformin 500mg and metformin 500 mg concomitantly with omeprazole 40 mg were given to each subject with a two-week wash out period. Plasma concentrations of metformin at 0, 0.5, 1, 2, 3, 6 and 10 hrs were determined by high performance liquid chromatography with UV detection. Mean AUC_(0-∞) of metformin was increased from 9.07 ± 1.61 µg/mL.hour to 11.67 ± 1.67 µg/mL.hour when metformin was taken together with omeprazole ($p < 0.001$). Mean C_{max} of metformin was increased from 1.43 ± 0.22 µg/mL in metformin alone to 1.72 ± 0.22 µg/mL in metformin with omeprazole ($p < 0.001$). There was significant decrease in mean K_{el} and mean Cl of metformin and significant increase in mean T_{1/2el} of metformin when it was co-administered with omeprazole. Omeprazole co-administration increased the plasma concentration of metformin, most probably by decreasing elimination of metformin. Therefore, it should be aware of this drug-drug interaction when co-administration of metformin and omeprazole are prescribed.

Morning Session (1), Auditorium (1)

Paper-79

Antimicrobial activity of *Justicia adhatoda* L. leaf extracts*Khin May Thi¹, Saw Myat Thwe¹, Soe Myint Aye², Aye Thida Htun¹, Ei Ei Htway¹, Moh Moh Lwin¹, Rai Kit¹, Aye Aye Phyu¹ and Win Aung¹*¹Department of Medical Research²Department of Botany, University of Mandalay

Justicia adhatoda L. is a well-known medicinal plant and widely distributed in Myanmar. In this study, antimicrobial activity of different extracts (95% ethanol and methanol) of *Justicia adhatoda*

L. leaf was studied on *Staphylococcus aureus*, *Pseudomonas aeruginosa* and *Escherichia coli*. Ceftriaxone was used as positive control. Antimicrobial activity of *Justicia adhatoda* L. leaf extracts was determined by agar disc diffusion method. Ethanolic and methanolic extracts showed zone of inhibition, i.e., 10 mm for *Escherichia coli*. Broth dilution method was used for determination of Minimum Inhibitory Concentration (MIC) and Minimum Bactericidal Concentration (MBC) of ethanolic and methanolic extracts of *Justicia adhatoda* L. leaf. MIC of ethanolic and methanolic extracts were observed in 200mg/ml and MBC of both was observed in 200mg/ml. Phytochemical analysis of *Justicia adhatoda* L. leaf was also carried out and alkaloids, glycosides, steroids, phenolic compounds, amino acids, starch, flavonoids, proteins, resins, phenols, tannin and carbohydrates were detected. The presence of phenolic compound seemed to be exert antimicrobial activity. So this study provided referential information about the antimicrobial activity of different extracts of *Justicia adhatoda* L. leaf.

Auditorium – 1

Day (4) - Morning Session (2)

Morning Session (2), Auditorium (1)

Paper-80

Effect of Cephalexin on pharmacokinetics of Metformin in healthy volunteers

Myo Nanda Aung, Nu Nu Aye, Shin Hnaung Lwin, Khine Khine Lwin, Ei Ei Soe and Aye Zarni

Department of Medical Research

Metformin is the most commonly used oral agent to treat type 2 diabetes mellitus. Metformin is cleared from the body by tubular secretion via organic cationic transporter and excreted unchanged in the urine. Cephalexin is useful in the treatment of infections frequently encountered in clinical practice. Cephalexin is excreted by both organic cationic transporter and anionic transporter systems of the proximal tubules. The aim of the study is to explore the effect of cephalexin on pharmacokinetics of metformin in healthy volunteers. The study was conducted on twenty three healthy volunteers and it was cross-over design. Comparison of the pharmacokinetic parameters of metformin was made between metformin alone and metformin with cephalexin. Each subject was instructed to take single oral dose of metformin 500 mg after overnight fasting and then single oral dose of 500 mg metformin with cephalexin 500 mg after one week washout period. The blood samples were taken at 0, 0.5, 1, 2, 3, 6 and 10 hours after administration of metformin. Samples were analyzed by High Performance Liquid Chromatography (HPLC) and the pharmacokinetic parameters of metformin were compared. In comparison between metformin alone and combination of metformin and cephalexin, metformin combination showed significant increase in C_{max} ($1.72 \pm 0.23 \mu\text{g}/\text{mL}$), $AUC_{(0-\infty)}$ ($12.03 \pm 1.56 \mu\text{g}/\text{mL}\cdot\text{hour}$) and $T_{1/2el}$ ($3.84 \pm 0.51 \text{ hr}$). There was significant reduction of K_{el} ($0.18 \pm 0.02 \text{ hr}^{-1}$) and CL ($0.39 \pm 0.08 \text{ L/hr/kg}$) ($p < 0.05$). From the results, co-administration of cephalexin with metformin increased the plasma concentration of metformin, most probably by decreasing elimination.

Morning Session (2), Auditorium (1)

Paper-81

Standardization, safety evaluation and anti-diarrhoeal activity of unripe fruit of *Aegle marmelos* L. (Rutaceae) (ဥသျှစ်သီး)

Khin Tar Yar Myint, Khine Khine Lwin, Mu Mu Sein Myint, Mi Mi Htwe, Myint Myint Khine, Phyu Phyu Win, Mar Mar Myint, San San Myint and Khin Phyu Phyu

Department of Medical Research

According to the latest WHO data published in May 2014, diarrhoeal diseases deaths in Myanmar reached 2.88% of total deaths and ranked 9th position among 20 causes of death in Myanmar. *Aegle marmelos* L. is an important medicinal plant with several ethnomedicinal applications in traditional and folk medicinal systems. The aim of this study is to standardize and investigate the active constituent/s of unripe fruit of *Aegle marmelos* L. and to determine anti-diarrhoeal activity on castor oil induced diarrhoea in albino mice. Unripe fruits of *Aegle marmelos* L. were collected from Sagaing Region in summer season. Standardization of unripe fruits of *Aegle marmelos* L. was done by Botanical identification, phytochemical test and physico chemical characterization of unripe fruits done by using Trease and Evans (2002), Herborne method (1987) and WHO method (1998). Phytochemical test of dried unripe fruit sample showed the presence of alkaloid, flavonoid, polyphenol, glycoside, steroid/ terpene, saponin, tannin and amino acid. Cyanogenic glycoside was absent. Dried unripe fruit powder was successively extracted with pet-ether (40°-60°C) and 70% ethanol solvent by using Soxhlet apparatus. Pet-ether extract did not show antibacterial activity and defatted 70% ethanolic extracts showed antibacterial activity against *Shigella sonnei* (zone of inhibition 15 mm) and *Shigella flexneri* (zone of inhibition 11 mm) by agar well diffusion method. According to OECD guideline (423), the LD₅₀ value of this extract was 5g/kg body weight (b.w.). Anti-diarrhoeal index in percent of defatted 70% ethanolic extracts of unripe fruit was 18.02% at 0.5 g/Kg b.w, 37.7% at 0.75 g/Kg b.w, 55.4% at 1.0 g/Kg b.w, and 81.46% at standard loperamide 6 mg/Kg b.w. Defatted 70% ethanolic extract of unripe fruit was further extracted successively with ethyl acetate, methanol and water. Methanolic fraction of defatted 70% ethanolic extract showed antibacterial activity against *Shigella sonnei* (zone of inhibition 12 mm) and *Shigella flexneri* (zone of inhibition 11 mm) except ethyl acetate fraction and water fraction. Phenolic compounds were isolated from methanolic fraction by chromatographic method. Therefore, among them defatted 70% ethanolic extract at 1.0 g/Kg b.w possessed *in vivo* anti-diarrhoeal activity and *in vitro* antibacterial activity.

Morning Session (2), Auditorium (1)

Paper-82

Determination of effect of Omega- 3 fatty acid with atorvastatin treatment on combined hyperlipidaemic patients

Zaw Hlaing Oo, Zaw Min Htun, Aung Zay Hein and Tin Maung Hlaing

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Omega 3 fatty acid, often in combination with a statin, is commonly used for treatment of persistent hypertriglyceridemia. Monotherapy with either of these drugs does not always

achieve therapeutic goal in patients particularly with combined hyperlipidaemia where both low-density lipoprotein and triglycerides are high, so that combination therapy is usually needed. However, combination therapy may increase risk of myopathy and hepatotoxicity. Therefore, this study was conducted to compare the lipid lowering effects and safety of atorvastatin alone and atorvastatin plus omega 3 fatty acid in patients with combined hyperlipidaemia from No. (1) Defence Industry, from July to September 2016. In this randomized comparative study, combined hyperlipidaemic patients were randomly assigned into two groups. First group received 6 weeks of 20mg atorvastatin alone daily and second group received 20 mg atorvastatin plus 2g omega 3 fatty acid (1 g of omega 3 contain eicosapentaenoic acid 180 mg and docosahexaenoic acid 120 mg) daily. Mean age was 47.4±8.1 year and mean BMI was 29.2±4.1. Each group involved 12 patients. Lipid lowering effects were determined by total cholesterol, triglyceride, low-density lipoprotein and high-density lipoprotein. Safety was determined by alanine transaminase and creatine kinase. Total cholesterol, triglyceride and low-density lipoprotein were significantly decreased but high-density lipoprotein was not significantly increased in both groups. Comparing lipid lowering effects of two groups regimens, there were no significant differences observed between two groups by the parameters measured. Although increase in creatine kinase level and slight decrease in alanine transaminase were observed, the changes were not significant. According to the results of present study, in terms of lipid lowering effects and safety, combining omega 3 fatty acid with atorvastatin did not bring better effects over atorvastatin alone in treating combined hyperlipidaemic patients.

Morning Session (2), Auditorium (1)**Paper-83**

Effect of erythromycin on pharmacokinetics of cyclosporine in healthy Myanmar volunteers

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Cyclosporine is an immunosuppressive drug used extensively in human transplants of solid organs or bone marrow as well as in the treatment of autoimmune diseases. Cyclosporine is extensively metabolized by CYP450 enzymes (especially CYP3A4) located in the small intestine and liver. Erythromycin is an inhibitor of CYP3A4 as well as P-gp inhibitor. The study was aimed to explore the pharmacokinetics of cyclosporine that may be altered by co-administration of erythromycin. The study was cross-over design using the same subjects as control and conducted on ten healthy Myanmar volunteers. Each subject was administered a single oral dose of 200 mg cyclosporine. After a wash out period of two weeks, erythromycin 500 mg twice a day were given 2 days before cyclosporine and together with cyclosporine 200 mg single dose in the morning of third day to the same subjects. Blood samples were collected at pre-dose and then 0.5, 1, 1.5, 2, 3 and 4 hours after cyclosporine administration. Cyclosporine concentrations in plasma were analyzed by HPLC and the pharmacokinetic parameters were measured and calculated from plasma drug concentration-time curves. Statistical differences of these data were analyzed by using Student's paired t test. AUC and C_{max} of cyclosporine were significantly increased after

erythromycin co-administration ($p < 0.001$). The mean elimination rate constant was significantly decreased ($p < 0.05$) and the mean elimination half-life of cyclosporine was statistically increased with concurrent erythromycin administration ($p < 0.05$). The mean clearance of cyclosporine was reduced significantly after erythromycin co-administration ($p < 0.001$). From the above findings, erythromycin co-administration increased the plasma concentration of oral cyclosporine, most probably by increasing absorption as well as decreasing elimination. Therefore, in patients regularly taking cyclosporine, erythromycin co-therapy may cause accumulation of cyclosporine, which may lead to cyclosporine toxicity. As cyclosporine is a drug with narrow therapeutic index, the interaction of cyclosporine and erythromycin might be undesirable because of possibility of higher incidence of adverse events in clinical practice.

Morning Session (2), Auditorium (1)

Paper-84

Effects of dry Calyx of *Hibiscus sabdariffa* Linn. (Chin-baung-ni) on serum lipid profile and serum uric acid in hyperlipidemic subjects

May June Hsann, Lwin Moe May and Nang Hla Hla Win

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Aim of the research is to study the effects of dry calyx decoction of *Hibiscus sabdariffa* Linn. in hyperlipidemic subjects. Research method was cross sectional comparative study. The 44 human volunteers between 20-60 years (male - 6, Female - 38) were included as subjects and they were randomly allocated into 3g and 10g daily intake groups of *Hibiscus* decoction for 30 days. After two week stoppage of *Hibiscus*, serum lipid levels were measured again. As a result, after 30 days consumption, it was found that no significant lipid profile (TC, TG, LDL-C, HDL-C) changes in 3g intake group ($P = > 0.05$). However, 10g group showed significant reduction in mean serum TC, TG, LDL-C levels, elevation in mean serum HDL-C from baseline levels ($P = 0.00$) and after two week stoppage, lipid levels were returned nearly to baseline level (i.e., levels before taking *Hibiscus*). Serum uric acid levels of 10g group and 3g group were found to be different. There were increased mean serum uric acid levels ($P = 0.06$) in 10g group whereas decreased in 3g group ($P = 0.048$). In comparison of two groups, at 30th day of the study, there were significant differences in mean serum lipid and uric acid levels ($P = < 0.05$). Therefore, according to the obtained data, the higher dose of *Hibiscus*, daily 10g intake gave significant lipid lowering effect but can elevate serum uric acid level insignificantly. The lower dose, daily 3g intake gave no significant lipid lowering effect but significant serum uric acid level reduction was seen.

Afternoon Session (1), Auditorium (1)

Paper-85

**Quantitative analysis of paracetamol and orphenadrine citrate
from new product, market samples and in human serum**

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The aim of this research was to assess the quality of combination tablets by official methods and modification of HPLC method. Tablets containing Paracetamol (450 mg) and Orphenadrine citrate (35 mg) were formulated as new product in Myanmar. The contents of Paracetamol and Orphenadrine citrate in dosage formulations and market samples were determined by UV-Vis spectrophotometric method and by non-aqueous titration method. These assay contents were complied with limit range of British Pharmacopoeia and United state Pharmacopoeia. Pharmaceutical quality of the two preparations and market samples are not significantly different. But Official methods for the combination tablets can be determined by particularly. Therefore HPLC method used in this research was modified for analysis of paracetamol and orphenadrine citrate in raw material, dosage formulations and human serum by using acetonitrile : water (50 : 50) as a mobile phase, adjusting pH to 4.5 with phosphoric acid, UV detection at 215 nm and propylparaben sodium as internal standard. The flow rate was adjusted to 1.5 ml/minutes and retention time was approximately 2.1 minutes for Paracetamol, 3.8 minutes for Orphenadrine citrate and 6.8 minutes for Internal standard. The running time was 10 minutes. The samples were injected by a 10 µL. The resolved peaks were good and rapid separation and only small amount of sample was required for assay and adequate precision. The method showed good linearity in the range of 100 to 2000 ng/ml for paracetamol serum concentrations and orphenadrine citrate serum concentrations with a correlation coefficient of 0.9991. This HPLC method was developed for simultaneous determination of Paracetamol and Orphenadrine citrate in pharmaceutical dosage formulations as well as in human serum which can be currently used for therapeutic monitoring.

Afternoon Session (1), Auditorium (1)

Paper-86

**Blood glucose lowering effect of seed of *Luffa acutangula* (Linn.) Roxb. (Kha-we)
on adrenaline induced acute hyperglycemic albino rats**

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Diabetes mellitus is one of the health problems with high incidence and mortality. The burden of diabetes is increasing globally, particularly in developing countries. Insulin and

oral hypoglycemic agents are used to control the blood sugar level in diabetes mellitus. *Luffa acutangula* (Linn.) Roxb. is called Myanmar name 'Kha-we' and has several traditional uses such as anti-diabetic, anti-inflammatory, anti-malaria, etc. The present study aimed to evaluate blood glucose lowering effect of seed of *Luffa acutangula* (Linn.) Roxb. on adrenaline induced acute hyperglycemic albino rats. Laboratory based experimental animal study was done at Pharmacology Research Division, Department of Medical Research (Pyin Oo Lwin Branch), from October 2015 to October 2016. A total of 30 hyperglycemic albino rats were randomly allocated into five groups of six animals in each. They were fasted for 18 hours (hr) and then baseline fasting blood sugar levels were measured in all groups. Group I, group II and group III were treated with three doses of the seed powder of the test plant (250 mg/kg, 500 mg/kg, 1000 mg/kg), respectively. Group IV received 0.5 mg/kg of the drug glibenclamide (positive control) and group V received 10 ml/kg of vehicle (negative control). All the drugs were administered in an oral single dose. After giving the corresponding drugs and vehicle, rats were immediately induced adrenaline 0.2 ml/kg by subcutaneous route. Then the blood glucose levels were measured at 1 hr, 2 hr, 3 hr and 4 hr intervals after injecting of adrenaline. The highest dose of the seed of *Luffa acutangula* (Linn.) Roxb. had significant blood glucose lowering effect at 2 hr, 3 hr and 4 hr ($p < 0.05$), compared to that of negative control group. The study showed that seed of *Luffa acutangula* (Linn.) Roxb. had revealed the blood glucose lowering activity for the test period.

Afternoon Session (1), Auditorium (1)

Paper-87

Lipid lowering effect of *Ziziphus jujuba* Lam. (Zee-Chin) fruit in borderline hypercholesterolemic human volunteers

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Hyperlipidaemia is established as a major health concern due to strong causal relationship with ischaemic heart disease, ischaemic stroke and atherosclerosis leading to high morbidity and mortality. *Ziziphus jujuba* Lam. (Zee-Chin) is widely distributed in Myanmar and is claimed to have lipid lowering effect. This study aims to find out the effect of crude powder of *Ziziphus jujuba* Lam. (Zee-Chin) fruit on serum lipid profile, body mass index and waist circumference in borderline hypercholesterolemic human volunteers. The study design is quasi-experimental study. In this study, twenty five borderline hypercholesterolemic human volunteers, age between 20-60 years, were administered 30g daily dose of crude powder of *Ziziphus jujuba* Lam. (Zee-Chin) fruit for 4 weeks. Fasting serum lipid profile was determined at baseline, 2 weeks and 4 weeks after the administration crude powder of *Ziziphus jujuba* Lam. (Zee-Chin) fruit. BMI and waist circumference were also measured before and at the end of the study. It was found out that there were significant reduction ($p < 0.001$) in serum total cholesterol (5.17%), Triglyceride (4.96%) and LDL-Cholesterol (7.86%) after 2 weeks administration of *Ziziphus jujuba* Lam. (Zee-Chin) when compared with baseline and HDL-Cholesterol (4.35%) was increased ($p < 0.001$). After 4 weeks, it showed more reduction ($p < 0.001$) in serum total cholesterol (12.52%), Triglyceride (10.64%) and LDL-Cholesterol (18.81%) from baseline and HDL-Cholesterol was also dramatically increased (9.56%)

($p < 0.001$) from baseline. Moreover, mean body mass index reduced significantly from 26.2 ± 3.63 to 25.8 ± 3.49 ($p < 0.001$) and mean waist circumference changed from 87.2 ± 10.8 cm to 85.76 ± 10.45 cm ($p < 0.001$) after daily ingestion of *Ziziphus jujuba* Lam. (Zee-Chin) for 4 weeks. In conclusion, the results of the present study suggested that crude powder of *Ziziphus jujuba* Lam. (Zee-Chin) fruit can improve serum lipid profile and it can be used as a food supplement for borderline hyperlipidemia in Myanmar population.

Afternoon Session (1), Auditorium (1)

Paper-88

Effect of different room temperature conditions on breeding performance of icr strain mouse

Sandar Lin, Aye Win Oo, Htay Yee, Kyaw Kyaw Wai, Nyunt Nyunt, Than Tint,
Aye Aye Shwe, Thida and Win Aung

Department of Medical Research

The temperature is one of environmental factors. In the laboratory mice may have physiology changes by the temperature variation. Extreme temperatures usually lead to lower growth rate and impaired fertility. At 32°C, productivity declines in losses in intra-uterine young mouse. Between food and temperature availability have a strong interaction that influences the reproductive performance of female mice throughout the reproductive cycle. This study aimed to analyze the effect of different room temperatures in the housing room on the breeding performance nature in icr mice (*Mus musculus*). In this study, healthy 15 males and 45 females, weighing 25 - 30 gm (1:3 mating ratio) were used in the experiment of breeding performance in three types of different room temperature as 18 - 22°C room temperature condition for group (1), 23 - 25°C room temperature condition for group (2) and 26 - 32°C room temperature condition for group (3). The evaluation was done by monitoring growth rate at 21 days, from the birth to weaning (21 days of age) for each group. First, second and third consecutive gestations were carried out and the following variables were monitored: fertility, delivery, litter size, birth weight, weaning rate, weaning weight and mortality. Fertility Rate 100%, Delivery Rate 100%, Litter Size 9, Weaning Rate 99.75% and Mortality Rate 0.24% in group (1) condition; Fertility Rate 100%, Delivery Rate 100%, Litter Size 7.67%, Weaning Rate 98.67 %and Mortality Rate 1.32% in group (2) condition; Fertility Rate 71.11%, Delivery Rate 71.11%, Litter Size 5.33, Weaning Rate 80.63% and Mortality Rate 19.37% in group (3) condition were found out up to first, second and third gestations of this study. Birth weight 1.5 ± 0.1 gm and weaning weight 9.5 ± 0.1 gm were measured and found in every room temperature condition. The results showed that changes of the environmental temperature influence, in a significant way, the evaluated parameters as above. As the result of this study, high temperature causes effect to lower growth rate and impaired fertility. Therefore it must be provided a suitable room temperature. There should not be allowed the room temperature condition (26 - 32°C) which is not suitable for the health and well-being of the animals.

Afternoon Session (1), Auditorium (1)

Paper-89

Comparative study on the growth of weaning laboratory rats (Wistar strain) using different formulated diet feed

Htay Yee, Aye Win Oo, Sandar Lin, San San Aye, Nyunt Nyunt, Thet Htar Hlaing, Kyawt Kyawt Khaing, Thida and Win Aung

Department of Medical Research

Rattus norvegicus seems to be the first species of mammals to be systematically domesticated for scientific purposes. Nutrition not only affects the well-being of the animal, but also the outcome of experiments. The composition of the diet and feeding practice has a great influence on the health status, performance and metabolism of experimental animals. The intent of standardization of test diets for laboratory animals was to reduce the variation inherent in cereal-based or natural ingredient-based diets and to facilitate interpretation of results among experiments and laboratories. The outcome of the committee's deliberations was the now well-known AIN-76 rodent diet. Detailed compositional analysis of this diet and the vitamin and mineral mixes can be found in AIN (1977) (PHILIP G. REEVES & et. al.). The present study investigated growth of weaning laboratory rats (Wistar strain) using different formulated diet feed. This study also aimed to analyze the nutritive values of different diets. Twenty fifth day old thirty males and twenty females of laboratory rats (Wistar strain) from DMR (mean body weight of male or female = 45-50g) were selected. Divided into five groups and each group had six males and four females using two separated cages. Five different diets were formulated and fed to the five groups of animals from 25 days old age to 70 day of their age. The body weight gain was measured weekly during the experiment. For the group (1), weight gain (mean = female 81.45g and male 112.97g); for the group (2), weight gain (mean = female 98.43g and male 147.43g); the group (3), weight gain (mean = female 97.79g and male 115.8g); the group (4), weight gain (mean = female 104.13g and male 105.32g); the group (5), weight gain (mean = female 97.28g and male 102.22g) were recorded. According to data as above, formulated diet for group (2) was achieved better growth rate than other four groups. Therefore this diet should be used for laboratory rat weaning feed as well as their growing well.

Afternoon Session (2), Auditorium (1)

Paper-90

Determination of antioxidant activities, bioactive components and minerals content of *Foeniculum vulgare* (fennel) (ဖုန်ဖုန်) seeds

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World Health Organization estimated that more than 80 % of world's population consumes indigenous medicinal plants in direct and indirect ways to treat their diseases. The medicinal

value of plants have assumed more important dimension in the past few decades owing largely to the discovery that extracts from plants containing not only minerals and primary metabolites but also a diverse array of secondary metabolites with antioxidant potential. Medicinal plants are potential sources of natural compounds with biological activities and therefore attract the attention of researchers worldwide. Antioxidants are vital substances which possess ability to protect the body from damage caused by free radical induced oxidative stress. Micronutrient malnutrition is a major global health concern because its deficiency in the body is linked with ill health and diseases. The purpose of current study was to determine antioxidant activities, bioactive components and minerals (macrominerals; Ca, Mg, Na, K and microminerals; Cu, Fe, Mn, Zn) from *Foeniculum vulgare* (fennel) (ဖုန်ဖုန်) seeds by using UV Visible Spectrophotometer (UV-Vis), Gas Chromatography-Mass Spectrometry (GC-MS) and Atomic Absorption Spectrophotometer (AAS). The antioxidant activity of aqueous extract (IC₅₀: 0.28ug/ml) of fennel seeds was showed more activity than ethanolic extract (IC₅₀: 0.28ug/ml) and comparable to well-known antioxidant, ascorbic acid. (IC₅₀: 0.59 ug/ml). GC-MS analysis was fruitful in identification of compounds and based on peak area, retention time, molecular formula, molecular weight, MS Fragment- ions and pharmacological actions. Ten bioactive phytochemical compounds from ethanolic extract and 8 from aqueous extracts of fennel seeds were identified. Macrominerals content of fennel seeds were comparable with other studies and content of microminerals were within permissible limit of vegetables and fruits set by FAO/WHO, 2001. These findings indicated that, fennel seeds have potential to provide nutrients to human beings, preventive properties against oxidative damage. These results will give scientific information for herbal medicine users, local practitioners and pharmaceutical industries using fennel for different types of ailments.

Afternoon Session (2), Auditorium (1)

Paper-91

Serum zinc level and erythrocyte superoxide dismutase activity in patients with type 2 diabetes mellitus complicated with nephropathy

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Development and progression of diabetic nephropathy is closely related with reduction in antioxidant defense system. Zinc is one of the most important antioxidants due to its diverse roles in antioxidant actions. This study aimed to identify the differences in the serum zinc level and erythrocyte superoxide dismutase (SOD) activity among different severity groups of diabetic nephropathy patients as well as to demonstrate the correlation between the serum zinc level and erythrocyte superoxide dismutase activity in the study population. Diabetic nephropathy (DN) patients (n=124) were recruited from North Okkalapa General Hospital. These patients were grouped into mild DN (n=61), moderate DN (n= 44) and severe DN (n=19) according to estimated glomerular filtration rate (eGFR) level determined by Modification of Diet in Renal Disease study (MDRD) equation based on serum creatinine level. Mean serum zinc level of severe, moderate and mild DN groups were

38.63±19.79 µg/dL, 72.93±41.45 µg/dL and 131.63±47.20 µg/dL respectively and it was found that the serum zinc level of severe DN group was significantly lower than that of mild and moderate DN groups ($p<0.001$). Mean erythrocyte superoxide dismutase activity of severe, moderate and mild nephropathy groups were 1179.41±451.94 U/g Hb, 1487.63±502.96 U/g Hb and 1845.31±551.70 U/g Hb respectively and superoxide dismutase activity was found to be significantly reduced in severe DN group when compared to mild and moderate DN groups ($p<0.001$). No significant correlation was seen between the serum zinc level and erythrocyte superoxide dismutase activity but significant positive correlation was found between serum zinc level and eGFR level in the study population ($r=0.535$, $p<0.001$). Therefore lower antioxidants status was found in increased severity of DN patients and this would implicate that development and progression of diabetic vascular complications could be linked with lower serum zinc status in type 2 diabetic patients.

Afternoon Session (2), Auditorium (1)

Paper-92

Serum zinc and retinol levels in apparently healthy adolescents

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Micronutrient malnutrition is becoming an important public health problem as more than two billion people all over the world are affected. The magnitude is much greater in low-income countries where malnutrition, infection and poverty are interrelated. Among various populations, adolescent is a period of increased nutritional requirement where a growing individual is passing through childhood to adulthood. So, adolescents face a serious nutritional challenges both macronutrient and micronutrient. The objectives of this study were to determine the serum zinc and retinol levels of apparently healthy adolescents and to determine the correlation between the serum zinc and retinol levels in adolescents. Serum zinc and retinol levels were analysed by atomic absorption spectrophotometer and high performance liquid chromatography respectively. It was a cross-sectional, descriptive study including 100 apparently healthy adolescents age between 10-19 years living in North Okkalapa Township. Collection of data was carried out during the period from December 2014 to April 2015. In the study, the mean serum zinc and retinol levels of adolescents were 74.1± 30 µg/dl and 50.5± 12.6 µg/dl respectively. Low serum zinc level (serum zinc < 60 µg/dl) was detected in 39% of the whole study group. Serum retinol levels of all participants showed no deficiency state (serum retinol <20 µg/dl) and only 5% of the study group had suboptimal serum retinol concentration (20-30 µg/dl). Pearson's correlation coefficient showed that there was no correlation between serum zinc and retinol levels in the whole study group. In conclusion, low serum zinc level was found in present study population but there was lack of vitamin A deficiency in the present adolescent population. Tests for quantitative dietary zinc intake and its bioavailability and their association with serum zinc level should be taken to determine the underlying mechanism of low serum zinc level in present adolescent population.

Afternoon Session (2), Auditorium (1)

Paper-93

Detection of Russell's viper (*Daboia siamensis*) venom concentration in experimental envenomation animals' blood by ELISA method

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Department of Medical Research

The incidence of snake bite in Myanmar is estimated for more than 10,000 per year with an average case fatality rate of 7.2%. Among Russell's Viper bites, 28% of victims have no envenomation (blank bite), 29% local, and 43% systemic envenomation leading to complications. The aim of study is to detect the Russell's Viper (*Daboia siamensis*) Venom (RVV) concentration in experimental envenomation animals' blood by ELISA method. The mice were intrapretoneally injected with 3LD₅₀ of RVV. The blood samples were collected at various time intervals (0, 1, 2, 3, 4 and 5 hrs) after venom injection. The amounts of venom were measured by using ELISA method. The mean levels of venoms were 58.1, 171.2, 42.9 and 127.33 ng/mL at 1, 2, 3 and 4hrs respectively. In this study, the detected venom levels were in the range of 49ng/mL to 299 ng/mL in blood samples. In conclusion, the RVV concentration in blood samples can be detected in envenomation victims' blood by ELISA method. The detection and quantitation of RVVs are helpful for both diagnosis and prognosis of snake envenomation in Myanmar.

Paper Reading Session : Day 5

Morning Session (1), Auditorium (1)

Paper-94

Fluoroquinolone resistance among drug resistant *Mycobacterium tuberculosis* isolates from Yangon and Mandalay Region, Myanmar

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Fluoroquinolones has been increasingly used for the treatment of multidrug-resistant tuberculosis (MDR-TB). The use of forth generation fluoroquinolone (i.e. moxifloxacin or gatifloxacin) to shorten the treatment of drug susceptible tuberculosis to four months has been recently assessed in large trials. The present study was carried out to detect the frequency of fluoroquinolone resistance and pattern of mutations in quinolone resistance-determining region (QRDR) of the *gyrA* and *gyrB* genes in *Mycobacterium tuberculosis* (MTB) isolates from Myanmar. MTB isolates of patients enrolled for MDR-TB treatment in Yangon and Mandalay Regions during 2014-15 were collected from TB Reference Laboratories. Phenotypic drug susceptibility tests on four first line drugs (Isoniazid, Rifampicin, Ethambutol, Streptomycin) and three fluoroquinolones (Ofloxacin, Levofloxacin, Moxifloxacin) were performed by solid agar based method. Sequencing of *gyrA* and *gyrB* genes were performed using Sanger's method by ABI 3500 sequencer. Of 45 MTB isolates, 44 were MDR-TB and one was rifampicin resistant (RR) and 31.11% (14/45) were resistant to fluoroquinolone. Among those, 12 were resistant to all three tested fluoroquinolones and two were resistant to two groups of quinolones (Ofloxacin and Levofloxacin). Ten different types of mutations were found in QRDR of *gyrA*. Among them eight well known mutations and one new mutation were detected in 12 phenotypic fluoroquinolone resistant isolates. Double mutations and triple mutations were found in one isolate each. Mutation in *gyrB* was not found. This study highlighted the high proportion of fluoroquinolone resistance including Moxifloxacin in MDR-TB strains. The prevalent mutation pattern of fluoroquinolone resistance MTB strains in Myanmar was also revealed.

Morning Session (1), Auditorium (1)

Paper-95

Urinary lateral flow lipoarabinomannan (LF-LAM) test in prediction of TB in HIV infection

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The point-of-care, urinary lateral flow lipoarabinomannan (LF-LAM) test has shown considerable promise in assisting the diagnosis of tuberculosis in HIV infection particularly in severely immunocompromised state. The utility of LF-LAM in prediction of tuberculosis needs to be determined. The LF-LAM test was performed on HIV positive patients at ART Clinic of Insein General Hospital. Patients on anti-TB treatment were excluded. Patients received standard clinical care, but the medical team was blind of the LF-LAM test result. The patients were followed for six months and their clinical course of developing tuberculosis was correlated with the baseline LF-LAM result. Five hundred and seventeen HIV seropositive adults were enrolled in this study. Two hundred and three patients were positive for LF-LAM. Patients with a positive LF-LAM (\geq grade 2) were more likely to have advanced immunosuppression (CD4 cell count $<$ 100 cells/mm³) (OR 4.4, $p < 0.001$). In the 6 months after enrolment, patients with a positive LF-LAM test were more likely to have a microbiological diagnosis of TB (OR:7.7, $p < 0.001$), to die (OR: 5.5, $p = 0.007$) or to be hospitalised (OR:5.1, $p < 0.001$). The positive predictive value of the LF-LAM test for a confirmed TB diagnosis was 57% in symptomatic patients with advanced immuno-suppression. However, a negative test was very helpful in excluding the diagnosis with a negative predictive value of 96%. It can be concluded that positive LF-LAM test was a useful predictor of future tuberculosis in next 6 months in a patient with HIV infection, a mortality predictor for tuberculosis and a severity predictor. The negative LF-LAM test can be used to exclude tuberculosis by using other sensitive test. (Polymerase chain reaction, PCR).

Morning Session (1), Auditorium (1)

Paper-96

Antimicrobial resistance of *Vibrio cholerae* among patients admitted for acute watery diarrhea in hospitals of Mandalay city

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Acute diarrhea defined as an increased frequency of defecation (3 or more times per day or at least 200 g of stool per day) lasting less than 14 days, may be accompanied by nausea, vomiting

and abdominal cramping. Acute diarrhoeal diseases may occur in all ages. Acute diarrhoea can be caused by a number of different agents such as viruses mostly caused by *Norovirus*, *Rotavirus*, *Adenovirus*, or *Astrovirus*, bacteria, or parasite. Rotavirus diarrhea is an acute infection primarily of children less than 2 years of age, characterized by watery stools and vomiting. Cholera remains one of the great epidemic diseases of the tropical world. A case of cholera is confirmed when *Vibrio cholerae* O1 or O139 is isolated from any patient with diarrhea. Cholera is an extremely virulent disease that affects both children and adults. The prominent clinical feature of cryptosporidiosis is diarrhea, which is mild and self-limited (1-2 weeks) in normal persons but may be severe and prolonged in immunocompromised person. A total of 390 participants at (550) and (300) Bedded Children Hospitals (Mandalay), Mandalay General Hospital, (300) Bedded Teaching Hospital (Mandalay) and Communicable Diseases Hospital (Mandalay) from May 2015 to August 2015 were enrolled in this study and analyzed the data. In this study, 104 patients (26.7%) out of 390 participants revealed infected with *Vibrio cholerae* according to their stool culture result. Twenty nine out of 100 under five years age patients (29%) revealed Rota virus detected by using SD bioline Rota virus test device. Fifty one cases (13.1%) revealed *Cryptosporidium parvum* infection all immunocompromised person. Antibiotic sensitivity pattern showed resistant to Tetracycline, Cotrimoxazole and Erythromycin while sensitive to Doxycycline, Ciprofloxacin and Chloramphenicol.

Morning Session (1), Auditorium (1)

Paper-97

Bacteriological profile of diabetic wound infections in Yangon General Hospital and New Yangon General Hospital

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Diabetic wound infections are frequent complications among patients with diabetes mellitus and can result in disable complications. A bacteriological profile of diabetic wound infections (DWIs) was carried out at the surgical wards of Yangon General Hospital and New Yangon General Hospital from January 2016 to October 2016. A total of 100 wound swab samples were cultured and 89 samples (89%) showed growth of bacteria. Out of 89 samples, 56 samples (62.92%) had growth of single organism while the rest 33 samples (37.08%) were polymicrobial. Total 122 bacterial pathogens were isolated. Among gram positive bacteria, *Staphylococcus aureus* 10.65% (13/122) was the predominant isolate followed by *Enterococcus* species 2.46% (3/122) and coagulase negative staphylococci 1.64% (2/122). Among gram negative bacteria, *Pseudomonas* species 33.61% (41/122) was the predominant isolate followed by *Citrobacter freundii* 24.59% (30/122), *Acinetobacter* species 11.48% (14/122), *Escherichia coli* 10.65% (13/122), *Proteus mirabilis* 3.28% (4/122) and *Klebsiella pneumoniae* 1.64% (2/122). *Staphylococcus aureus* showed good sensitivity to linezolid (92.31%), cefoxitin (92.31%) and resistant to clindamycin (76.92%). Coagulase negative staphylococci showed 100% sensitive to linezolid, cefoxitin and 100% resistant to amoxicillin/clavulanic acid, clindamycin, gentamicin, doxycycline, erythromycin and

sulphamethoxazole/ trimethoprim. *Enterococcus* species showed 100% sensitive to amoxicillin/ clavulanic acid and 100% resistant to levofloxacin and gentamicin. *Escherichia coli* were sensitive to piperacillin/tazobactam (76.92%), imipenem (76.92%) and 100% resistant to cefuroxime and cefotaxime. *Citrobacter freundii* were sensitive to imipenem (77.42%) and resistant to cefuroxime (83.87%). *Klebsiella pneumoniae* were 100% sensitive to imipenem, cefoperazone/sulbactam, ampicillin/sulbactam, piperacillin/tazobactam and 100% resistant to gentamicin, amoxicillin/clavulanic acid, cefuroxime, cefepime and cefotaxime. *Proteus mirabilis* were 75% sensitive to imipenem, amikacin, cefepime, cefotaxime, ceftazidime and sulphamethoxazole/trimethoprim and 75% resistant to levofloxacin. *Pseudomonas aeruginosa* were sensitive to imipenem (51.72%) and resistant to cefotaxime (93.10%). *Pseudomonas putida* were sensitive to ampicillin/sulbactam (58.33%) and 100% resistant to cefepime, cefotaxime, levofloxacin and gentamicin. *Acinetobacter* species were sensitive to cefoperazone/sulbactam (64.29%) and 100% resistant to ceftriaxone and doxycycline. This study can help to know about etiological diagnosis and choice of antibiotics for different bacterial pathogens in DWIs at YGH and NYGH. Antibiotic resistant patterns of different bacteria to commonly used antibiotics in hospitals can also be seen.

Morning Session (1), Auditorium (1)

Paper-98

Phenotypic and genotypic characteristics of Carbapenem-Resistant *Enterobacteriaceae* among clinical samples from Yangon General Hospital

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Carbapenem-Resistant *Enterobacteriaceae* (CRE) has emerged as a global threat and an increasing concern for healthcare services worldwide. Patients with CRE infections are associated with significant morbidity and mortality and treatment options have been limited. Early identification of carbapenemase producers in clinical infections, at the carriage state, or both, is therefore mandatory to prevent the development of nosocomial infection. This was a cross-sectional descriptive study including a total of 11859 clinical samples submitted to Microbiology Laboratory at Yangon General Hospital. These clinical samples were subjected for bacteriological identification and antimicrobial susceptibility testing by using VITEK2 automatic system at the Microbiology laboratory, Yangon General Hospital. *Enterobacteriaceae* isolates showing minimum inhibitory concentration (MIC) levels of 2 µg/mL or more for meropenem were transferred to Bacteriology Research Division for further phenotypic and molecular analysis. Of 1306 tested *Enterobacteriaceae* isolates, 98 (7.5%) were Carbapenem-Resistant *Enterobacteriaceae* (CRE); *Escherichia coli* was found to be the most predominant (57.2%) followed by *Klebsiella pneumoniae* (21.4%), *Enterobacter spp* (13.3%), *Providencia stuartii* (5.1%), *Citrobacter freundii*, *Serratia marcescens* and *Proteus mirabilis* (1% each). Double disk diffusion synergy test (DDST) was performed using meropenem, ceftazidime and sodium mercaptoacetic acid disks for evaluation of metallo-β-

lactamase production. Forty two CRE isolates (42.9%) were found to be metallo- β -lactamase producers. The detection of major carbapenemase genes; Imipenemase (IMP), Verona integron-encoded metallo- β -lactamase (VIM), *Klebsiella pneumoniae* carbapenemase (KPC), New Delhi metallo- β -lactamase (NDM) and Oxacillinase (OXA-48) genes were carried out by polymerase chain reaction (PCR) and 42.9% of CRE isolates were positive for New Delhi metallo- β -lactamase (NDM) genes. A statistically significant correlation was observed between NDM gene positivity and metallo- β -lactamase production ($p = 0.000$). However, the results of PCR for the other major carbapenemase genes were all negative. The findings from this study uncovered that New Delhi metallo- β -lactamase (NDM) producing CRE is widely prevailing among clinical samples at Yangon General Hospital (YGH).

Morning Session (2), Auditorium (1)

Paper-99

Molecular detection of group A rotavirus in under five children with acute diarrhea admitted to Yangon Children Hospital

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Rotaviruses are regarded as the most common cause of viral gastroenteritis and are responsible for considerable morbidity and mortality among children especially under five years of age worldwide. Especially in developing countries like Myanmar, where diarrhea is in the priority childhood disease, rotavirus surveillance and detection of rotavirus genotypes are utmost important. This study is the hospital based cross-sectional descriptive study, conducted at Yangon Children Hospital among under five children admitted for acute diarrhea from January to October 2016. This study includes detection of Group A rotavirus antigen by Commercial Enzyme Linked Immunosorbent Assay (ELISA) and genotyping by multiplex RT-PCR. From a total of 488 collected samples, rotavirus antigen was detected in 219 samples (45%). Rotavirus diarrhea was most common between the age of 6-11 months (38.8%) followed by 12-23 months (37.9%). The results showed no sex preponderance although boys were more commonly affected than girls. Detection of rotavirus positivity was peak in February (57.6%). Out of 219 stool samples with positive ELISA result, 40 stool samples with high optical density value were proceeded for further determination of G and P genotypes. Regarding distribution of G genotypes, the most common G genotype was G9 which comprised 45% and that of P genotype was P[8] which comprised 92.5%. Regarding combination of G and P genotypes, the most frequent combination was G9 P[8], and it constituted 42.5%. Untypable genotypes were seen in 30% of G and 2.5% of P typing samples were found. As rotavirus infection can be prevented by vaccine, WHO recommended that rotavirus vaccination should be included in national immunization program especially in countries where prevalence of rotavirus is high. The distribution of G and P genotypes is important in consideration of appropriate vaccine in pre-vaccination and evaluation of effectiveness of vaccine in post-vaccination period. Therefore, the information on currently circulating genotypes of rotavirus in this study will serve as valuable data for vaccination programme.

Morning Session (2), Auditorium (1)

Paper-100

Viral pathogens associated with acute lower respiratory infections among hospitalized children in Yangon Children Hospital

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Viruses are common causes of lower respiratory tract disease in infants and young children and represent a major public health problem in children. The present study aimed to identify viral etiological agents of acute lower respiratory infections (ALRI) among children admitted to Yangon Children Hospital. Clinical data and nasopharyngeal (NP) samples were collected. Four multiplex polymerase chain reaction assays were performed to detect 13 respiratory viruses in each NP sample. A total of 390 were enrolled. The age of the children ranged from one to 108 months with median age of 12 months. They included 225 boys (58%) and 165 girls (42%). The mean duration from disease onset to admission was 3.5 days. Thirty-five patients (8.9%) had attended day-care or kindergarten at the time of illness. Of all study children, 202 (51.8%) were non-severe ALRI and 188 (48.2%) were severe ALRI cases. Presence of wheezing ($p=0.001$), attendance at kindergarten ($p=0.01$) and higher total WBC counts (0.004) were significantly associated with severe ALRI. Among 390 samples, 157 (40.3%) were positive for at least one respiratory virus. Major viruses detected were rhinovirus (72, 18.5%), respiratory syncytial virus (30, 7.7%), adenovirus (17, 4.4%) and parainfluenza virus 3 (17, 4.4%). Co-infections with multiple viruses were detected in 18% of virus positive cases. Respiratory syncytial virus (OR=1.35, 95% CI=1-1.8) and influenza A virus (OR=1.63, 95% CI=1.2-2.24) were associated with diagnosis of severe ALRI, but adenovirus (OR=0.35, 95% CI=0.13-0.99) was found to be related to less risk of severe ALRI. This study showed that rhinovirus, respiratory syncytial virus, adenovirus and parainfluenza virus 3 were leading cause of ALRI in hospitalized children and suggested that respiratory syncytial virus and influenza A virus may increase the severity of ALRI.

Morning Session (2), Auditorium (1)

Paper-101

Rapid diagnosis of high-risk human papillomavirus (HR-HPV) genotypes using new point of care (POC) GeneXpert HPV assay in cervical cancer patients

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High-Risk Human Papillomavirus (HR-HPV) testing is being introduced as a potential primary screening test for improved detection of cervical pre-cancer and cancer. It is now

recommended for cervical cancer screening in several evidence-based guidelines. The GeneXpert HPV Assay is a new, rapid, qualitative, real-time Polymerase Chain Reaction (PCR) assay for the detection of 14 genotypes of HR-HPV DNA. This study aimed to establish the rapid diagnosis of HR-HPV genotypes using GeneXpert HPV Assay in cervical cancer patients by a cross-sectional descriptive method. In total, 106 women with histologically confirmed cervical cancer (median age 53 years; range 20-79) from Central Women Hospital (Yangon) and East Yangon General Hospital were investigated in 2016. Among them, 97 (91.5%) had no history of cervical cancer screening. Most cervical cancer patients were 50-59years (34.9%) of age group, followed by 40-49years (26.4%), 60-69years (20.8%), 30-39years (8.5%), 70-79years (7.5%) and 20-29years (1.9%). Histologically, invasive squamous cell cancer, adenocarcinoma and adenosquamous cancer of the cervix were 86.8%, 12.3% and 0.9% respectively. Cervical cells were obtained from the head of uterine cervix by sterile disposable cytobrush and collected in SurePath solution bottle. HR-HPV DNA testing was performed by GeneXpert HPV Assay in which E6/E7genes of the 14 targeted HR-HPV genotypes were amplified simultaneously in five fluorescent channels: (1)HPV-16; (2)HPV-18/45; (3)HPV-31/33/35/52/58; (4)HPV-51/59; and (5)HPV-39/56/66/68. A specimen adequacy control was detected in a sixth channel. HR-HPV was identified in 85.8% (91/106) of cervical cancer patients. The most prevalent HPV genotype was HPV-16 (63.7%), followed by HPV-18/45 (17.6%), HPV-31/33/35/52/58 (9.9%), HPV-51/59 (4.4%), and HPV-39/56/66/68 (1.1%). Mixed HPV-16 with other HR-HPV genotypes was 3.3%. This study highlighted that most of cervical cancer patients had no history of cervical cancer screening and vaccine preventable genotype, HPV-16 was the most prevalent genotype. Therefore, Point-of-Care (POC) test for cervical cancer screening and HPV vaccination program should be established in Myanmar. This study suggests that GeneXpert HPV Assay is very useful for the rapid diagnosis of HR-HPV because it is simple, rapid, and non-batch test and it can be completed in one hour, permitting POC test, which can facilitate same day cervical cancer screening and management strategies.

Morning Session (2), Auditorium (1)

Paper-102

Clinical severity of rotavirus diarrhoea in relation to molecular characterization of different strains

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Rotavirus infection is a major cause of diarrhea in children in both developed and developing countries globally. The aim of this study was to find out clinical profile of children with acute diarrhea, different rotavirus strains and association between severity of rotavirus diarrhea and molecular characterization of different rotavirus strains in YCH, Myanmar. A cross-sectional descriptive study was conducted in children aged 1–59 months with acute

diarrhea, from January to December 2014. Rotavirus in stool specimens was identified by ELISA test. ELISA positive stool samples with high optical density were further genotyped using multiplex reverse transcription PCR. Study on clinical profile included children's age (months), gender, severity of diarrhoea using Vesikari score, presenting symptoms, complications, electrolytes disturbances in children who needed intravenous fluid therapy, nutritional status, feeding pattern of <6 months old children, total hospital stay and outcome. Total 529 children with acute diarrhea were recruited. Rotavirus antigen was detected in of 45% of stool samples. Mean age (\pm SD) of children with rotavirus diarrhea was 12 (\pm 6) months and the commonest age group was 6-11 months 44.9%. Children under 2 years constituted up to 94.9%. Male preponderance was detected. All children had watery diarrhea, vomiting 82.6% and fever 66.1% were common presenting symptoms. Children with rotavirus diarrhea had significantly more severe dehydration, vomiting and hyperchloraemia than children with non-rotavirus diarrhea (p value = 0.00) whereas children with non-rotavirus diarrhea were more complicated by convulsion (p value = 0.00). Majority 82.6% of children with rotavirus diarrhea spent 2-5 days in hospital. There was no expired case in this study. Among 34 rotavirus antigen positive stool samples with high optical density, G genotypes detected were G9 67.7%, G1 20.6%, G2 and UTG 5.9% each, and P genotypes were P[8] 76.5%, UTP 17.7%, P[4] and P[6] 2.9% each. The predominant G and P genotype combinations were G9P[8] 55.9%, G1P[8] 17.7% and G9 UTP 11.8%. G1 UTP, G2P[4], G2P[6], UTG P[8], UTG UTP were uncommon with a prevalence of 2.9% each. There was no statistically significant association between severity of diarrhea and molecular characterization of different rotavirus strains.

Morning Session (2), Auditorium (1)

Paper-103

Comparison of clinical and virological characteristics among infants, children and adults with dengue infection during 2015 dengue outbreak

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Dengue is one of the important causes of serious illness and death in children. Recently, a shift to older age group was reported from many countries and DHF/DSS was also reported to occur in infants. Although dengue in infants and adults account for a small proportion of the overall disease burden, the clinical and laboratory features need to be characterized scientifically which is vital in clinical management. In 2015 dengue season, there was dramatic increased in hospitalization of dengue cases not only children but also adults. As the data on dengue in infants and adults are still limited, this study was conducted with the aim to determine and compare the clinical and virological characteristics of dengue infection in infants, children and adults during 2015 outbreak. A total of 682 blood samples were collected from clinically diagnosed dengue patients admitted to Yangon Children Hospital

and Yangon General Hospital between June and October, 2015. Among them, 25/43 (58%), 317/548 (58%) and 44/91 (48%) were serologically confirmed by ICT in infants, children and adults respectively. Secondary dengue infection was more common in adults (66%) whereas primary dengue infection accounted up to 88% in infants and the association is statistically significant ($p=0.0001$). Regarding age distribution, 6-9 months group within infants (76%), 5-9 years group within children (53%) and 13-19 years group within adults (66%) were significantly higher than other age groups. On comparison of clinical presentations, adults presented more frequently with rash (34%), hematemesis (20%) and melena (14%) while abdominal pain was more frequent in children (48%). The signs more commonly detected in infants and children were positive tourniquet test and hepatomegaly. The highest proportion of infant cases was DHF I (88%), whereas that of adults was DHF II (48%) and DSS accounted for 27% in children. Upon serotyping by virus isolation and RT-PCR method, virus was detected in 28 samples. Among them, (21, 75%) was DENV 1, (2, 7%) was DENV 2, (1, 4%) was DENV 3 and (4, 14%) was mixed serotypes. DENV 1 was more frequent in DHF I and II cases and all DENV 2 detected were from DSS cases.

Abstracts of the Posters

Poster - 1

Postprandial hypotension in elderly obese and elderly diabetic women*Zarli Thant¹, Zaw Lin Thein¹, Ohnmar Myint Thein¹, Myat Thandar² and Ohnmar¹*¹Department of Physiology, University of Medicine 1, Yangon²University of Nursing, Yangon

Postprandial hypotension, a decrease in systolic blood pressure of 20 mmHg or more within 2 hours after meal, as a result of impairment of autonomic activity. It occurs frequently in elderly and pronounced in individual with autonomic neuropathy especially in diabetes. Some studies suggested that autonomic neural activation is impaired in obese individuals. The aim of the study was to evaluate blood pressure changes after regular meal in elderly obese and elderly diabetic women. Ten elderly lean (mean age = 70.50 ± 7.29 years), 8 elderly obese (mean age = 65.63 ± 5.68 years) and 9 elderly diabetic women (mean age = 64.56 ± 3.20 years) were recruited from Pyae Sone Aye Meditation Center. Both systolic and diastolic blood pressures were recorded at baseline, 1 hour postprandial (1HPP) and 2 hour postprandial (2HPP) by using mercury sphygmomanometer. Elderly lean and elderly obese women showed significant postprandial reduction in systolic blood pressure ($p < 0.05$) and diastolic blood pressure ($p < 0.05$) at 1HPP. Additionally, 2HPP diastolic blood pressure was decreased significantly in the elderly lean group ($p < 0.05$). However, there was no significant postprandial decrease in blood pressures in the elderly diabetic women. Moreover, 4 out of 10 elderly lean women (40%) and 3 out of 8 elderly obese women (37.5%) had postprandial hypotension whereas no one from diabetic women had postprandial hypotension. The present findings indicated that both elderly lean and elderly obese women have impairment in age-related autonomic activity resulting in postprandial decrease in blood pressure. However, in elderly diabetic women, it is probable that a postprandial decrease in blood pressure is offset by an increase in vascular pressor action as a result of postprandial hyperglycemia.

Poster - 2

**Assessment of erythrocyte magnesium and serum calcium level
in postmenopausal women***Nway Htike Maw, Khin Mi Mi Lay, Pyae Phyoe Kyaw, Thet Thet Mar, Sandar Win,
Khin San Lwin, Htike Htike Soe, Yi Yi Mon and Htet Htet Lwin*

Department of Medical Research

Many trace elements such as calcium, magnesium, zinc, copper and selenium are essential for normal growth and development of skeleton. Among them magnesium plays important role in bone metabolism as magnesium can help calcium absorption. Without the proper

balance of magnesium to calcium, good bone health cannot be achieved. Therefore, this study aims to assess the erythrocyte magnesium and serum calcium level in postmenopausal women. A cross-sectional descriptive study was conducted on postmenopausal women from Shwe Pyi Thar Township, Yangon Region. After explaining the purpose of the study, the participants were chosen according to selection criteria. Bone mineral density was measured by using bone densitometry to all postmenopausal women. After grouping of 99 postmenopausal women into 3 groups (normal, osteopenia and osteoporosis) according to T-score, venous blood was collected for erythrocyte magnesium and serum calcium concentration. The erythrocyte magnesium level was measured by magnesium Calmigate method by using Spectrophotometer within 24 hours. The serum total calcium level was measured by CPC (o-cresolphthalein-complexone) method and the concentration (optimal density) was read by Humalyzer. The mean age of all participants was 62.06 ± 9.77 year. The mean age of menopause in this study was 46.28 ± 5.1 year. In our study, 42.4% of postmenopausal women avoided some foods such as red meats, peas and some kinds of fruits and vegetables. The mean erythrocyte magnesium level (3.48 ± 0.71 mg/dL) and serum calcium level (9.29 ± 0.94 mg/dL) were significantly lower ($p < 0.05$) in osteoporotic postmenopausal women than in either osteopenic (3.93 ± 1.04 mg/dL and 9.91 ± 2.31 mg/dL) or normal (4.07 ± 1.14 mg/dL and 10.69 ± 2.44 mg/dL) postmenopausal women. The significant positive correlation was found between erythrocyte magnesium and T-score ($n=99$, Pearson's $r=0.24$) and serum calcium and T-score ($n=99$, Pearson's $r=0.23$). It means that magnesium could be as important to bone health as calcium. Magnesium converts vitamin D into active form so that it can help calcium with respect to bone health. Therefore, it can be concluded that proper balance of magnesium and calcium gave normal growth and development of bone.

Poster - 3

Social behavior and related gene expressions in fragile X mental retardation 1 (Fmr1) gene knockout and valproic acid (VPA)-induced autism rat models

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Autism spectrum disorder (ASD) is a complex neurodevelopmental disorders characterized by impaired social communication, social interactions and repetitive behaviors. Up to now, the etiology of autism remains unknown and its molecular basis is not well understood. Genetic and environmental factors are potential causative factors for ASD. In this study, we sought to examine social behaviors and related gene expressions using Sprague-Dawley (SD) background of fragile X mental retardation 1 (Fmr1) gene Knockout (KO) rats and valproic acid (VPA)-induced autism model rats. Fmr1 KO male ($n=5$) and female ($n=5$) SD rats (7 week-old) were purchased from SAGE Laboratories (St. Louis, MO, USA) and used at the age of 15 to 17 week-old for behavioral test. For VPA-induced autism rat model, SD pregnant rats (Charles River Laboratories Japan, Inc., Japan) were given VPA 600 mg/kg (intraperitoneal injection) on day 12.5 of gestation and male ($n=5$) and female ($n=5$)

offspring at the age of 11 to 13 week-old were used for social behavioral test. This study was conducted with the approval of the Ethics Committee of the Animal Care and Experimentation Council of the National Institute for Environmental Studies (NIES), Tsukuba, Japan. We performed 3-chamber social interest test including sociability and social novelty preference test and after completion of behavioral test, the hippocampus was collected from each rat to detect social behavior-related gene expression using real-time RT-PCR method. We did not find any significant changes of body weight and brain weight compared to corresponding control of male and female rats. Male and female of both Fmr1 KO and VPA-induced autism model rats show poor sociability and social novelty preference test compared to the corresponding control SD rats. Serotonin system has been implicated in the etiology of ASD. Expression level of social behavior-related genes such as serotonin, brain-derived neurotrophic factor and neuroligin were significantly reduced in the hippocampus of both male and female Fmr1 KO and VPA-induced autism model rats. Our findings indicate that similarities to autism features were observed in Fmr1 KO and VPA-induced rat models and these animal models are valuable experimental models to study neurodevelopmental alterations induced by environmental risk factors.

Poster - 4

Hepatitis B infection in Human Immunodeficiency Virus infected individuals at Specialist Hospital, Waibagi: Preliminary report on HBV and its markers

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Hepatitis infection is a leading cause of chronic hepatitis, liver cirrhosis and hepatocellular carcinoma worldwide. Due to the shared mode of transmission, co-infection with Hepatitis B Virus (HBV) and Human Immunodeficiency Virus (HIV) is not uncommon. With the objective to determine the hepatitis B surface antigen (HBsAg), hepatitis B core antibody (anti-HBc), hepatitis B e antibody (anti-HBe), hepatitis B e antigen (HBeAg) and hepatitis B surface antibody (anti-HBs) prevalence among HIV infected patients and identify the association between socio-demographic variables and the HBV infection markers, this research was conducted in Specialist Hospital, Waibagi during 2016. A total of 131 HIV-seropositive patients were enrolled. HBV markers were tested with Combo Test Kit. Out of 131 persons, male comprises 74 (56.5%) and 57 (43.5%) were females. Patients aged over 40 years were 83 (63.36%) and under 40 years were 48 (36.64%). The overall positive result for HBsAg was 19 (14.5%), Anti-HBs was 39 (29.77%), HBeAg was 3 (2.29%), anti-HBe was 6 (4.58%) and anti-HBc was 20 (15.27%) respectively. Furthermore, 85.5% of the patients were classified as never having been infected. The positivity of HBsAg in this research work (14.5%) is not high significantly than the National result (10 – 13%). It is recommended that HIV infected individuals with negative HBsAg should be immunized against HBV when they were seen first at Out Patient Departments of Government Hospitals, Private Hospitals and Private

Clinics. By this way HBV infection transmissions and its sequelae can reduce to a certain extent.

Poster - 5

**Prevalence of abnormal cervical cytology and associated factors
among women attending Cervical Cancer Screening Clinic
at Department of Medical Research**

***Nan Cho Nwe Mon, Ohnmar Kyaw, Tin Tin Han, Thazin Myint, May Thazin Hlaing,
Khin Sandar Aye, Yin Min Tun, Mu Mu Shwe and Khin Saw Aye***

Department of Medical Research

Cervical cancer is one of the important public health problem and an estimated 528,000 new cases in 2012. According to Cancer Country Profile (WHO-2014), (12.7%) of cancer death in women is due to uterine cervix cancer which is second leading cause of female cancer mortality in Myanmar. Because of the phases that precede the lesion in the natural progress of invasive cervical cancer, and because they can be easily discovered and treated, the disease is well suited to screening programs. Screening as well as vaccination is essential in the fight against cervical cancer. This study was aimed to determine the prevalence of abnormal cervical cytology and associated factors among women attending Cervical Cancer Screening Clinic, DMR. A cross sectional study was conducted on 1312 married women aged 18-68 years during 2014 July to 2016 July. The demographic data and fertility questionnaires were completed. The conventional pap smear of cervix was taken by using disposable Ayre's spatula and modified Papanicolaou method was used for staining. Evaluation and interpretation of samples were reported by using Bethesda 2014. The most common age group in this study was 40-49 year age group (38%). About 17% of women did not have children. The normal cytology was 43.0%, inflammatory change was 48.5% and abnormal atypical cytology was 8.5%. Among abnormal atypical cervical cytology, 5.9% of Atypical squamous lesion of undetermined significance (ASCUS), 1.6% of Low Grade Squamous Intraepithelial Lesion (LSIL), 0.7% of High Grade Squamous Intraepithelial Lesion (HSIL), 0.2% of Squamous Cell Carcinoma (SCC) and 0.1% of Atypical Glandular Cells (AGC) were found. Among women without children, ASCUS was only found as abnormal result. All women with LSIL, HSIL and SCC cervical smear had at least one child. Given the prevalence of precancerous and cancerous lesions in this study and effect of associated factors on abnormal results, increasing the awareness of women and their families regarding the risk factors for cervical cancer, preventive measures such as screening and timely treatment seem necessary. The screening program for cervical abnormalities is important for preventing women from cervical cancer morbidity and mortality. This study recommends strengthening cervical cancer screening programs and awareness of cervical cancer in overwhelming population.

Poster - 6

Detection of Aflatoxin B1 in black pepper

Thin Thin Wah, Kyi Kyi Nyein Win, Tin Tin Htwe, May Than Htay, Zin Mi Thein, Nilar, Myo Myo Kyaw and Tin Htet Htet Aung

Department of Medical Research

This study aimed to determine the aflatoxin B1 in black pepper and it was conducted from July 2015 to June 2016. *Aspergillusflavus* is a common mould found in tropical and subtropical countries and has been found to cause aflatoxin contamination. Aflatoxin B1 is one of the well known most potent and abundant environmental mutagens and known carcinogens. Black pepper is widely found in seasoning foods and snacks. Aflatoxin can be contaminated in some commonly consumed food like peanuts, cereal seeds, dried fruits and wide range of herbal seeds such as red and black pepper, cloves and cinnamon. In this study, 10 samples (5 samples of seeds and 5 samples of powders) of black pepper were randomly obtained from markets and spices shops in Yangon downtown area. The aflatoxin contamination in those black pepper was detected by High Performance Liquid Chromatography (HPLC) method. The aflatoxin B1 contamination was detected in 4 (40%) of 10 black pepper. Black pepper with aflatoxin B1 levels ranging from 0.6-3.0 $\mu\text{g kg}^{-1}$. Black pepper can be contaminated with aflatoxin in various stages of production (during drying, transport and storage stages in the production). According to the European Union Commission (EC) Regulation, the maximum permissible level of aflatoxin B1 for species is 5 $\mu\text{g kg}^{-1}$. According to the results, aflatoxin B1 values of 4 samples were below the permissible level of the EC but it can cause harmful effect in long term consumption. By doing this research, aflatoxin B1 contamination in black pepper, commonly used spices was detected highlighting to increase the public awareness on food safety. Moreover, surveillance studies on aflatoxin contamination of commonly consumed food should be conducted to support the food safety programme.

Poster - 7

**Relationship between coagulation parameters and disease severity
in patients with primary lung cancer**

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Activation of coagulation and fibrinolysis is frequently encountered among cancer patients. Such tumors are supposed to be associated with higher risk of invasion, metastasis and eventually worse outcome. This study was aimed to find out the relationship between coagulation parameters and diseases severity in primary lung cancer patients. A total of 103

***ABSTRACTS OF
THE POSTERS DISPLAYED***

primary lung cancer patients attending to Out Patient Department of Medical Oncology Unit, Yangon General Hospital, were involved in the study. The median age of 59 years (range from 13 to 82 years) with male to female ratio of 1.8:1. Among them, 81% of lung cancer patients had history of smoking. Regarding the primary site of the tumour, 64% (66) of cases were right sided lung cancer and 36% (37) were had left sided tumours. Pretreatment blood coagulation test included fibrinogen level, prothrombin time (INR) and platelet count were determined by using automated blood coagulation analyzer CA -50 Sysmex. Chi square test and t- test were used to find out the relationship between histological types, staging of lung cancer and coagulation parameters. Statistical analysis was carried out using SPSS 22 software. A p-value of <0.05 was regarded as statistically significant. In one year study, according to revised WHO classification of the lung tumours, 7(6.8%) of the tumours were small cell lung cancer, 51(49.5%) squamous cell carcinoma, 35(34%) adenocarcinoma, 10 (9.7%) other types (large cell carcinoma and anaplastic carcinoma). According to TNM staging, 4 cases (3.9%) were stage I, 14 (13.6%) stage II, 35 (34%) stage III and 50 (48.5%) were stage IV. The plasma level of all coagulation tests revealed statistically significance in correlation to advanced (stage III and IV) stage of lung cancer, plasma fibrinogen level ($p < 0.0001$), Prothrombin time ($p = 0.007$), INR ($p = 0.002$) and platelet count ($p = 0.009$), respectively. But, histological types of lung cancer were not significantly associated with coagulation parameters. Therefore, this study pointed out that the high levels of coagulation parameters were associated with the advanced cancer staging and these parameters might be used as the predictors for disease severity of primary lung cancer patients.

Poster - 8

DNA microarray analysis of the hepatocyte of the F1 and F2 generation in C3H mice by gestational arsenite exposure

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Naturally occurring inorganic arsenic is known to cause serious health problems, including cancer. Epidemiological studies have reported that gestational exposure to arsenite is associated with increased cancers in adulthood. It has been reported that gestational arsenite exposure of F0 pregnant C3H mice increases the incident of tumors in F1 male offspring. Recently we found that gestational arsenite exposure of C3H mice increases hepatic tumor incidence not only in the F1 male offspring but also in the F2 male offspring. In order to identify factors involving in arsenic-induced increase of hepatic tumorigenesis of both F1 and F2, we conducted DNA microarray analysis on isolated hepatocytes and searched for genes whose expression commonly changed in both F1 and F2. We prepared the total RNA samples for microarray from hepatocytes of 5 control mice and 5 arsenic-exposed mice of both generations. We used SurePrint G3 Mouse GE microarray 8x60K Ver. 2.0 (Agilent Technologies). Microarray analysis revealed that the expression levels of 41 genes were commonly changed in both generations of arsenite-exposed groups compared to the control groups (cut-off value: 1.5-fold change and $p < 0.05$) including several genes related to inflammation or cancer, such as glutathione S-transferase (Gstp1) and regulator

of calcineurin 2 (Rcan2). The involvement of these genes in the hepatic tumorigenesis in the both F1 and F2 generation will be investigated in our future studies.

Poster - 9

Adolescent exposure to intermediate-frequency magnetic fields affects neurological and immunological biomarkers in young adult male mice

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Major source of intermediate-frequency magnetic field (IF-MF) includes induction heating (IH) cookers, inductively coupled power transmission for industrial material handling machines or home appliances, and a variety of wireless communication systems, magnetic resonance imaging machines, induction heaters, and welding machines. Recent studies have shown that exposure to extremely low frequency magnetic fields causes behavioral and cognitive disturbances, attention deficit, and impaired spatial learning in rats. In the present study, we investigated the effect of IF-MF exposure during adolescence on neurological and immunological markers in the hippocampus of 7-week-old male mice. C57BL/6J mice were purchased from Japan SLC Inc. (Shizuoka, Japan) and allotted to 5 groups as the control, sham, low-dose IF-MF, high-dose IF-MF and high-dose recovery groups. We used an *in vivo* exposure apparatus that was developed collaboratively with National Institute for Public Health, Japan and Tokyo Metropolitan University, Japan. Four week old C57BL/6J male mice were exposed to IF-MF (21 kHz, 1.9 mT or 3.8 mT) for one hour per day, 5 days a week for two weeks in the whole body exposure chambers. We investigated learning and memory functions using a novel object recognition test at the 6-week-old mice. Twenty-four hour after last exposure, at the age of 7-week-old, the hippocampus from the each mouse was collected to detect the expression level of *N*-methyl-D-aspartate (NMDA) receptor subunit type 1 (NR1), type 2A (NR2A), type 2B (NR2B), proinflammatory markers (interleukin (IL)-1 β , tumor necrosis factor (TNF)- α) and the oxidative stress marker heme-oxygenase (HO)-1 using a real-time RT-PCR method. We did not observed any remarkable impairment of novel object recognition ability in IF-MF exposed mice. However, the expression levels of NR1 and NR2B, inflammatory mediator TNF- α , and the oxidative stress marker HO-1 were significantly up-regulated in the high-dose IF-MF-exposed mice compared with the control group, but no not in low-dose IF-MF group. Our findings indicate that exposure to high-dose IF-MF during adolescence period affects memory function-related genes, inflammatory mediators and oxidative stress marker in the hippocampus of young adult mice. These changes are reversible and may be recovered after cessation of exposure.

What does not make work and why?: Challenges and possible ways for engaging voluntary health workers into health care systems in Myanmar

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Engaging community health volunteers to bring health care closer to the community is essential for health systems. A Cross-sectional study was conducted in Bogale and Mawlamyinegyun Townships in 2014 to identify challenges of Voluntary Health Workers (VHWs) assisting health care and to elicit possible ways of engaging them into health systems. Supervision checklists of 731 Voluntary Health Workers (VHWs) for one year were reviewed. Twenty-five key informant interviews with Basic Health Staffs (BHS) and 30 in depth interviews (IDIs) with Auxiliary Midwives (AMW) and 26 IDI with Community Health Workers (CHWs) were conducted. Thematic analysis was carried out with ATLAS ti version 5.2 software. About 68% of VHWs were functioning and 31% were partially functioning according to record review. Half of the VHWs said they would continue working as volunteers. Some were undecided and a few would like to retire. Almost all VHWs pointed out that they did not receive essential medicines. Half of the VHWs mentioned that the community did not rely on them because they could not provide medicines for even minor ailments. Some communities judged skill of birth attendants based on previous experience of giving births. Some community chose not to rely on VHWs especially if the VHW was young and newly assigned. Roles and responsibility of VHWs were unclear which may also contribute for non-functioning of VHWs. A majority highlighted that supplying essential medicines was important for the sustainability of VHWs. A few AMWs pointed out unfriendliness of hospital staff when they went to hospital for emergency referral made them discouraged. Some BHS mentioned that VHWs had to spend their working hours to help BHS's activities like immunization and Ante natal care so they should be compensated for their daily wages loss. Most respondents preferred performance-based incentives or merit-based compensation. Both BHS and VHWs suggested monitoring and supervision was also necessary for sustainability of VHWs. This study highlighted supportive supervision, defining clear roles and responsibilities of VHWs, considering merit-based compensation, acknowledging VHS's activities by government health staff and proving essential medicines could pave the ways for engaging and sustaining VHWs in the health care delivery systems.

**Salivary alpha amylase activity
in normotensive centrally obese adult males and females**

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Human amylase is a secreted enzyme that is present in saliva in the form of salivary alpha amylase (sAA). The secretion of sAA is mainly under the control of sympathetic nervous system via beta adrenergic receptors. There have been many evidences indicating sAA as an index of sympathetic activity. To determine sAA activity in normotensive centrally obese adults, a cross-sectional comparative study was done at Department of Physiology, University of Medicine 2 during the period from April 2015 to March 2016. Forty apparently healthy normotensive centrally obese adults (26 males and 14 females) of 18 - 40 years old residing in North Okkalapa and South Okkalapa Townships were selected according to inclusion and exclusion criteria. The saliva samples of the participants were collected at 2 pm, 10 pm and immediately after awakening and their sAA activities were determined by enzyme-linked immunosorbent assay (ELISA) method. Salivary alpha amylase activity was found to be lowest in the morning after waking up and the value increased in the late afternoon sample (Median (interquartile range): 192.25 (115.25 – 279.12) U/ml versus 311.00 (165.75 – 387.00) U/ml) ($p < 0.05$). Median (interquartile range) of sAA activity at 2 pm was 311.00 (216.88 – 365.38) U/ml in males and 313.25 (137.12 – 391.88) U/ml in females. Similarly, 10 pm activity was 262.25 (145.88 – 363.50) U/ml in males, 270.00 (177.50 – 371.88) U/ml in females respectively. At awakening, sAA activity was reduced to 183.25 (115.25 – 367.25) U/ml in males and 196.75 (107.25 – 226.00) U/ml in females. At any timepoint, sAA activity was not significantly different between males and females ($p > 0.05$). In conclusion, distinct variations in sAA activity across the day and no significant gender difference in sAA activity were found in normotensive centrally obese adults.

Focusing pyrazinamide resistance in rifampicin resistant *Mycobacterium tuberculosis* isolates in Myanmar: A hidden issue to be tackled

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Pyrazinamide (PZA) is a key component of short-course anti-tuberculosis treatment regimen and also of second-line regimen for multidrug-resistant TB (MDR-TB) treatment. PZA

susceptibility testing is rarely performed routinely because of technical difficulties. A recent population-based multi-country survey led by the World Health Organization indicated the burden of PZA resistance among patients with rifampicin resistance and encouraged the PZA resistance surveillance in different settings. This study was carried out to detect proportion of PZA resistance and *pncA* mutations responsible for PZA resistance in *Mycobacterium tuberculosis* (MTB) strains from Myanmar. During 2015, rifampicin resistant (RR) MTB clinical isolates were collected from Yangon and Mandalay TB Centers. Phenotypic PZA resistance was detected by liquid culture based Mycobacterial Growth Indicator Tube (MGIT) method and mutations in the *pncA* gene were detected by DNA sequencing. Among 40RR-MTB isolates, PZA resistance was found in 26 (65.0%) by MGIT test. In PZA resistant phenotypes, 31 different types of mutations were distributed on the *pncA* gene and 10 types of which were found to be novel mutations. Common mutations were found at the following regions of each of two strains: Lys96, Phe81, Thr135, Gly17 and Thr61 (5% each). The present study showed the proportion of PZA resistance and strong correlation between *pncA* mutations and phenotypic PZA resistance (Cohen's Kappa Index =0.94). PZA resistance information can contribute to the National TB Program. The research findings supported the fact that routine PZA susceptibility testing is needed to be incorporated to current monitoring regimen and National drug resistance surveys.

Poster - 13

Establishment of in-house production of Phytohaemagglutinin (PHA) reagents for detection of chromosomal disorders

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Phytohemagglutinin (PHA), the lectin extract from the red kidney bean (*Phaseolus Vulgaris*) (မြေထောင့်ပဲ), contains potent, cell agglutinating and mitogenic activities. It possesses the ability to stimulate lymphocytes to undergo mitosis. PHA can be used for karyotyping to analyse human chromosome. It has activity of cellular mitosis. The aim of this study was to establish in-house phytohaemagglutinin (PHA) reagents extracted from red kidney beans (မြေထောင့်ပဲ) for karyotyping of chromosomal diseases and assess the quality of the extracted in-house PHA from red kidney beans for application in a laboratory based study. PHA was extracted from red kidney beans by using normal saline (0.9% NaCl) and fractionally precipitated with ammonium sulphate at 40%, 50%, 60%, 70% saturation. The extracted in-house PHA reagent was hemagglutinated with 2% chicken red blood by Hemagglutinating Activity Assay. The comparison between in-house PHA and imported commercial PHA were cultured with same concentration in blood samples of healthy individual donor for mitotic stimulation of human lymphocytes. Mitogenic activity of the in-house PHA reagent was good reasonably compared with commercial PHA in karyotyping. The protein concentration of the extracted PHA reagent from red kidney beans was 18.6 mg/ml for karyotyping. The commercial PHA contained 5-10 mg/ml of protein. A sodium dodecyl sulfate polyacrylamide gel electrophoresis (SDS-PAGE) was performed with the method of Laemmli. The fresh

preparation of indigenous PHA mitogen is superior to commercial product because it induces more metaphases scores, low cost and easily accessible.

Poster - 14

Quality and quantity assessment of saliva from dental patients with and without oral habits

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Saliva is a clinically informative, biological fluid (biofluid) that is useful for novel approaches to prognosis, laboratory or clinical diagnosis, and monitoring and management of patients with both oral and systemic diseases. Thus, saliva is essential for the maintenance of oral health. The purpose of this project is to analyze quality and quantity of saliva in dental patients with and without oral habits (betel quid chewing, alcohol drinking, smoking etc.). A total of 100 dental patients who were attending to Oral Diagnosis Division (Department of Oral Medicine), University of Dental Medicine (Yangon), were assessed according to the World Health Organization criteria (WHO 1997) for dental caries and periodontal status. The patients were apparently healthy without systemic disease or regular drug taking of drug. Quality (viscosity and pH of saliva) and quantity (salivary flow rate) of saliva in dental patients were measured and related to oral diseases. 71% of study population had one or more combination of oral habits (betel quid chewing, alcohol drinking, smoking etc.). According to this study, a significant relationship was explored between dental caries and oral habits ($p = 0.005$) as well as viscosity of the saliva ($p = 0.002$). Also dental patients with oral habits were associated with periodontal disease ($p = 0.009$). When compared to patients without oral habits, salivary flow rate was increased in patients with oral habits ($p = 0.001$). To conclude, according to this study there was a significant relationship between salivary flow rate as well as viscosity of saliva and dental diseases, which was further influenced by oral habits.

Poster - 15

Effect of smoking and alcohol drinking on quality of semen parameters in male partners of subfertile couples

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The study of the effect of smoking and alcohol drinking on semen parameters of male partner of infertile couples who attended the subfertility Clinic of North Okkalapa General and Teaching Hospital (NOGTH) and Gynaecological Clinic of Thingangyun Sanpya General Hospital (TSGH). To compare the semen parameter of male partners who smoke and those

of non smokers and to compare the semen parameters of alcohol drinker and those of non-drinker among subfertile couples who attended the North Okkalapa General and Teaching Hospital and Thingangyun Sanpya General Hospital, Yangon. It was a hospital based cross-sectional comparative study in subfertility clinic of NOGTH and Gyanaecological Clinic of TSGH from 1st January 2014 to 31st December 2014. After consent was taken, the smoking and alcohol status of participants were evaluated by using interviewed questionnaire. Semen analysis was done at the laboratory of NOGTH. This study involved 65 male partners of subfertile couple. The background characteristics of the 65 male partners of subfertile couple were not statistically significant. Sperm concentration ($p=0.001$), sperm morphology ($p= 0.000$) and sperm motility ($p= 0.038$) were statistically difference between male partners of smokers and male partners of none of the risks. But other parameters such as sperm pH, semen liquefaction time were not statistically difference between smoker and non-smoker. Semen parameters between alcohol drinker and non-alcohol drinker were not statistically significant except sperm morphology ($p= 0.001$). It has been proved by various studies that smoking and alcohol consumption effects the semen parameters. In this study sperm morphology, concentration and motility significantly reduced in smoking group. In alcohol drinking group only sperm morphology was significantly reduced. Smoking and alcohol drinking are two lifestyle factors observed to have negative impact on male subfertility. So, male partners of subfertile couples should strictly abstain from smoking and alcohol drinking.

Poster - 16

Diagnostic role of reprocessing transmission electron microscopy in amelanotic melanoma

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Transmission electronmicroscopy (TEM) is microscopy technique using an electron beam to visualize cellular organelles and cytoplasmic structures at the macromolecular level. Diagnostic TEM is useful in identification of cell differentiation, and histogenesis. TEM continues to play a significant and important role in tumour diagnosis although the introduction of new methodologies particularly immunohistochemistry and molecular techniques. Malignant melanoma is aggressive cutaneous and mucous membrane tumour having varying histological features. The specific identification depends on the identification of melanin, or on appropriate immunohistochemical reactivity. The amount of melanin present varies greatly in melanomas. Some melanomas are completely devoid of pigment in hematoxylin-eosin stains (amelanotic melanoma). The current study aimed to detect melanosomes in amelanotic melanoma and conventional melanoma by using reprocessing transmission electron microscopy technique. Tissues were retrieved from paraffin embedded blocks, and reprocessed to TEM sections and examined under JEM 1200X. Melanosomes were identified in tumour cells of amelanotic and conventional melanoma. In amelanotic melanoma, diagnostic melanosomes were scattered within the cytoplasm of

tumour cells while in conventional melanoma, numerous melanosomes were observed within the tumour cells and dermal macrophages. Although ultrastructural features were disrupted during formalin fixation, diagnostic melanosomes could still be detected easily in paraffin embedded specimens. TEM reprocessing method represents a useful diagnostic tool and has an immense potential in retrospective studies to get definite diagnosis for problematic tumour like amelanotic melanoma. Although amelanotic melanomas can be distinguished from other tumors by immunohistochemistry using a panel of antibodies, transmission electron microscopy can help as a complementary diagnostic tool especially when immunohistochemical stains give equivocal results.

Poster - 17

Anxiety and depression among a group of cancer patients in Myanmar

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Cancer is becoming a major health problem throughout the world as evident by the increase of 1.4 million more new cancer cases in 2012 as compared to 2008. It is also estimated that there were over 770,000 cases of cancer in the Southeast Asia Region in the year 2012 and the number of new cases is expected to rise by about 70% by 2030 to reach 1.3 million. This significant disease burden has led to the need for increasing the capacity of medical and social care of the patients. Psychological distress is also said to be common in cancer patients and could negatively impact the quality of life of the patients. We carried out this study to determine the problem of anxiety and depression among a group of cancer patients who participated in the ACTION study. A total of 1178 cancer patients (689 female and 489 male patients) participated in the study. Their ages ranged from 18 years to 90 years with a mean age of 51 years. There was no significant difference in the mean age between female and male patients (50.24 ± 11.78 years vs. 51.33 ± 13.19 years). Using Hospital and Depression Scale (HADS), we determine the anxiety and depression among them. HADS is a 14 question, validated screening tool to detect anxiety and depression. Seven anxiety-related questions and 7 depression-related questions were used. Total score range from 0-42 and can be divided into two subscales: HADS-D for depression and HADS-A for anxiety. Sixty-nine patients (5.9%) exhibited anxiety, females exhibited significantly higher anxiety symptoms as compared to the males (7.9% vs 3.1%, $p < 0.005$). More than a quarter of the patients were depressed (27.4%). The depression rate was slightly higher in female patients as compared to male patients (28.8% vs 25.5%). It is evident that anxiety and depression is present in one third of Myanmar cancer patients and ways of providing psychosocial support to them should be seriously considered.

Soil-transmitted helminthiasis among Myanmar elementary school children residing in Yangon Region

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Infestation with soil transmitted helminths (STH) remains a major public health problem of developing countries where poor sanitation and poor personal hygiene are prominent. Worm infestation is one of the priority ranking diseases in Myanmar. An intervention study was carried out among primary school children in three selected townships (Hlaing Thar Yar, South Dagon and North Dagon) of Yangon Region from 2013 June to 2015 December. The objective of this study was to assess the effectiveness of deworming and health education on prevalence of STH among selected primary school children. Starting from 2013, ten schools were randomly selected each year to conduct the surveys. Stool samples of (1500) students from 10 selected schools were collected and examined using Kato-Katz thick smear technique before and after giving Albendazole drug according to school regular deworming programme from 2013 to 2015. At the same time, health education regarding prevention of STH was given to the students and their parents or guardians. During baseline surveys, the overall prevalence of STH were 21% (303/1443) in 2013, 29.2% (284/973) in 2014 and 32.2% (404/1254) in 2015 while in the monitoring surveys they were detected in 18.5% (201/1084), 32% (306/956) and 20.3% (236/1160) respectively. *Trichuris trichiura* was found to be the most prevalent helminth followed by *Ascaris lumbricoides* and *Enterobius vermicularis* in both surveys. These findings have indicated that preventive chemotherapy together with health education play an important role in reduction of the prevalence of STH in three townships in 2013 and 2015. However, the prevalence of STH was increased in 2014 which might be due to several factors including reinfection of the helminths, migrant population, low socio-economic status and poor personal hygiene.

Molecular diagnosis of occult Hepatitis B Viral infection among Chronic Hepatitis C Patients attending the Hepatitis Carrier Clinic, Department of Medical Research

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Occult Hepatitis B Virus infection (OBI) is defined as the presence of low-level HBV DNA in the blood or hepatic tissue in patients with negative results of hepatitis B surface

antigen(HBsAg) test with or without serological markers of previous viral exposure(anti-HBc and/or anti-HBs positive). More than 20 percent of patients had no serologic markers because the antibody titer may become undetectable over time, leaving HBV DNA as the only marker of the infection. Although the prevalence of OBI varies according to the different endemicity of HBV infection, study design, sensitivity and specificity of the methods used for detection, OBI has been reported with a high prevalence in patients with chronic hepatitis C (CHC) because both HBV and HCV share the same parenteral way of transmission. In addition, it could be associated with a greater likelihood of progression to cirrhosis and HCC and a poor response to antiviral treatment. Regardless of clinical significance of OBI, its frequency among CHC patients is unknown in Myanmar. Therefore this study was aimed to detect the OBI among CHC patients by using Polymerase Chain Reaction (PCR) method. It was carried out in 78 Chronic Hepatitis C patients who were attending the Hepatitis Carrier Clinic, DMR during 2015 for their regular follow up. Among them, 75 patients were screened as HBsAg negative by HBV rapid immunoassay test. Six out of 75 patients (8%) showed markers of previous exposure to HBV. HBV DNA was detected in 3 out of 75 patients (4%) by using PCR targeting HBV core region. Among OBI positive patients, only 1 (33%) carried serological markers of HBV infection. It was a preliminary study which initiated the study of OBI status in Chronic Hepatitis C infection in Myanmar population. Moreover, it diagnosed co-infection of HBV and HCV which will be helpful in proper and effective management to prevent further disease progression.

Poster - 20

Antenatal care pattern and maternal and perinatal outcomes

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The aim of this study was to determine the maternal and perinatal outcomes in relation to antenatal care pattern at North Okkalapa General and Teaching Hospital. It was a hospital-based cross sectional descriptive study in obstetric ward of North Okkalapa General and Teaching Hospital from 1st January 2014 to 31st December 2014. Among the study population (1299), only 17.5% took adequate antenatal care (at least four antenatal assessments by or under the supervision of a skilled attendant with the first visit in the first trimester and the fourth visit between 36 and 38 weeks). Seventy nine percent had inadequate antenatal care (women who do not meet the criteria of adequate antenatal care) and remaining women (3.37%) did not take antenatal care at all. Eighty two percent of women taking adequate antenatal care were 20-34 year age group and almost half of them were primigravida. Thirty one percent of graduated women took adequate antenatal care whereas only 3.5% of illiterate and 2.7% of women who can read and write only took adequate antenatal care. It was statistically significant ($p < 0.05$). Women from high family income group (more than 100,000 kyats/month) were more likely to have adequate antenatal care. Women without adequate antenatal care were 1.3 times more likely to have intrapartum complications (malpresentation, fetal distress, maternal distress, retained placenta, postpartum haemorrhage) with $p < 0.05$. Still birth or asphyxiated babies were not

detected in those with adequate antenatal care group. Only 1.1% of women with antenatal care had bad early neonatal outcomes and 16.6% of those without antenatal care had still birth babies. There was no significant association between pattern of antenatal care and types of delivery ($p=0.181$). It was concluded that women with adequate antenatal care had statistically significant good maternal and perinatal outcomes.

Poster - 21

Nutritive values (macronutrients) of newly identified foods beyond 2000 in Yangon City

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The study was aimed to determine the nutritive values (macronutrients) of newly identified foods which do not exist in the Myanmar Food Composition Table (FCT). Latest version of Myanmar FCT was updated in 2000 and no more updated version could not be published after that. Updated and high quality FCT is need to know national food consumption patterns and assessment dietary intake. During decades, macronutrient contents of foods were continuously analysed by Nutrition Research Division. From 2001 to 2015, a total of 100 new foods were identified in food and nutrition survey conducted among school children and community in Yangon city. Those new identified foods were bought from the school canteens, food shops and street food vendors. Most of the identified were package fried foods, fried meat/fish ball, instant coffee, instant cereal, instant noodle , cake, bread, biscuits/cookies/ wafer and mixed dishes. Two numbers of each item of food were collected and sent to Nutrition Research Laboratory. The same package food products from two different grocery outlets were bought. For mix dishes, the same dishes from two sellers were bought. Foods were analyzed for macronutrients (protein and fat) in Nutrition Research laboratory, Department of Medical Research by standard methods. The mean \pm SD contents of calories of fried fish ball, fried meat ball, fried packaged snack foods were 234.08 ± 38.2 , 212.9 ± 34.8 , 514.6 ± 70.7 , The mean \pm SD contents of calories of fast foods like fried chicken, hamburger, pizza , donuts, french fries were 292.1 ± 112.9 , 306.65 ± 34.9 , 262.2 ± 5.4 , 418.05 ± 49.9 and 286.5 ± 70.0 respectively. Although calories content of foods were vary from 220 to 510, these foods contain 40-50% contribution of fat to total calories. Cakes, breads biscuits/cookies have caloric content of 414.9 ± 45.5 , 390.8 ± 59.1 , 471.1 ± 53.1 respectively. The nutrient contents of instant noodles, instant coffee mix and mixed dishes (e.g. Malar-hin, Myae-oo-hmyi-she) were also analysed for nutrient contents. Vitamin and mineral contents, sugar, sodium and fatty acid profiles of these foods still needed to analyze to give full information about nutrient contents of foods to update the food composition table.

Serum high sensitivity C-reactive protein levels in centrally obese normotensive dippers and non-dippers

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Nocturnal dipping of arterial blood pressure is the part of normal circadian pattern. The blunted nocturnal fall in blood pressure is associated with increased risk of cardiovascular diseases. Inflammatory markers are also associated with the future development of cardiovascular diseases. The purpose of this study was to investigate the inflammatory markers (hsCRP) levels in centrally obese, normotensive dippers and non-dippers. A total of 38 centrally obese, normotensive subjects (19 dippers and 19 non-dippers) between 18-40 years of age participated in this study. Twenty-four hour ambulatory blood pressure recording was taken every 30 minute interval noninvasively with an automatic device. Dippers and non-dippers were differentiated according to the calculated dipping percentage. ELISA method was used to assess serum high sensitivity C-reactive protein levels. There was no statistically significant difference in serum hsCRP levels between normotensive dippers and non-dippers. But, according to American Heart Association and U.S. Centers for Disease Control and Prevention, hsCRP level of ≥ 3.0 mg/L is regarded as high cardiovascular risks group. In this study, 68% of the non-dippers and 47% of dippers were involved in high cardiovascular risks group. Moreover, there was a significant negative correlation between serum hsCRP and nocturnal dipping percentage of ambulatory blood pressure ($p < 0.05$). Therefore, inflammation might be related to the non-dipping status of centrally obese, normotensive subjects.

The effect of aqueous and ethanolic extracts of *Gynura Procumbens* (Lour.) Merr. leaves on membrane Glucose Transporter – 4 (GLUT-4), Akt/PkB, and AMPK levels in 3T3-L1 adipocytes

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In recent years, the worldwide interest in herbal products has grown significantly for using alternative drugs for treating diabetes mellitus. The previous *in vivo* animal studies showed

the antihyperglycemic effect of the leaves of *Gynura procumbens* (Lour.) Merr (Myanmar name Pyar-Hmee Yut) extract which was comparable with the drug metformin. The present study aimed to find out the peripheral glucose utilization effect of aqueous and ethanolic extracts of this plant leaves using *in vitro* model with 3T3-L1 adipocytes cell culture and to elaborate the possible mechanism whether its action in insulin signaling is through PI3 kinase downstream protein Akt/PKB dependent pathway or AMPK mediated pathway downstream target protein AMPK (AMP-activated protein kinase). Dried-leave-samples were successively extracted with soxhlet apparatus by non-polar to polar solvent, pet ether (40°C-60°C), chloroform, ethanol and distilled water. The peripheral glucose utilization was detected by GLUT-4 expression in 3T3-L1 adipocytes cell culture by ICC (Immunocytochemistry) and the targeted downstream protein Akt/PKB and AMPK was determined by Western Blot method. It was found that water extract and ethanolic extract increased GLUT-4 protein expression in 3T3-L1 adipocytes in comparable with metformin. In addition, ethanolic extract treated cells showed better GLUT-4 expression than water extract treated cells. The ethanolic extract treated cells and metformin treated cells exhibited significantly higher pAMPK/tAMPK ratio ($p=0.046$ and $p=0.05$) than Dimethyl Sulfoxide (DMSO) only treated cells. But the water extract treated cells showed no significant difference in pAMPK/tAMPK ratio when compared with Phosphate Buffered saline (PBS) only treated cells. The ratio of pAkt/tAkt of water and ethanol treated cells were not significantly different from PBS only treated cells, DMSO only treated cells and metformin. In conclusion, the leaves of *Gynura procumbens* have anti-hyperglycaemic effect similar to metformin and its possible mechanism of action may be through the AMPK mediated insulin signaling pathway.

Poster - 24

Hepatitis B and C viral infections among multi-transfused patients in Department of Clinical Hematology, Yangon General Hospital

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Transfusion Transmitted Infections continue to be a major risk in transfusions in many parts of the world. The transfusion-dependent patients are particularly at risk of acquiring those infections. This study was undertaken to estimate the prevalence of hepatitis B (HB) and C (HC) viral infections in multi-transfusion (≥ 10 blood units transfused) patients. A cross-sectional descriptive study was conducted in Department of Clinical Hematology, Yangon General Hospital in 2015. A total of 156 multi-transfused patients were tested for HBsAg and anti-HCV by one step qualitative immune-chromatographic assay. Mean (SD) age of the study population was 32.5(18.1) year and about 64.1% were male gender. 46.2% of patients were 13-30 years age group, followed by 28.2% of 30-50 years age group, 17.9% of >50 years and children <13 years constituted about 7.7 %. The diagnosis of study populations mainly included leukemia ($n=45$), hemophilia ($n=37$), and thalassemia & hemolytic anemia

(n=38). The blood group transfused were group B (38.5%), O (29.5%), A (24.4%) and AB (7.1%). Duration of blood transfusion varied from one month to 46 years. About 53% (83/156) of patients had over one year duration of blood transfusion. Sero-prevalence for hepatitis B and C viral infection was 7.1% (11/156) and 2.5% (4/156) respectively. There was a statistically significance ($p=0.02$) of total mean units of blood transfusion between HC positive and negative patients (100.1 ± 71.2 vs 39.3 ± 49.2). Total mean units of blood transfusion in HB positive patients (63.2 ± 114.7) was higher than that of HB negative patients (39.2 ± 42.3) ($p=0.129$). Duration of blood transfusion was significantly related to HCV positivity (241.5 ± 220.8 months vs 71.7 ± 103.7 months) ($p=0.002$) but not to HBV positivity (93 ± 94.5 months vs 74.8 ± 111.6 months) ($p=0.60$). Only 14 patients gave history of complete HBV vaccination in this study, and ten out of 11 HB positive patients had no history of HB vaccination. Regarding the risk factors, there were no significant associated factors in this study. The findings highlighted that the screening and complete HB vaccination among multi-transfused patients should be carried out for prevention and control of those infections.

Poster - 25

Tumor visualization using three-dimensional phase-contrast X-ray computed tomograph

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Currently used conventional X-ray Computed Tomography (CT) are created from the differences in X-ray absorption. However biological soft tissue consisting of low atomic number such as H, C, N, O, does not enough X-ray absorption. Thus, high resolution soft tissue image is difficult without contrast agent. Since interaction of cross section of X-ray phase shift is approximately 1000 times higher than that of absorption for low atomic numbers, phase-contrast X-ray CT, used phase shift, enables to depict the internal structures of biological tissue without contrast agents. This study was aimed to determine the feasibility of using three dimensional phase contrast X-ray CT in detailed visualization of morphological structures in small animal tumors. Rat brain and testicular tumors were imaged by phase-contrast X-ray CT using two crystal X-ray interferometers without contrast agent. Two and three dimensional images of intra-tumor structures were reconstructed and compared with corresponding pathological pictures. Phase-contrast X-ray CT without contrast agent, enabled to clearly demonstrate the anatomical structures of rat's brain, including the cortex, caudate putamen, hippocampus, corpus callosum and the tumor located in the brain stem, and rat's testes including seminiferous tubules, tunica albuginea, blood vessels and interstitial tumors. The tumor were well differentiated from the surrounding normal tissue. Various pathological features of tumor, e.g., its cell density and microvasculature, and blood clots caused by hemorrhaging and/or hematomas, were clearly observed in three-dimensional images. Phase-contrast X-ray CT images resembled pathological pictures with a magnification of $\times 20$ in two dimensional image and tumor vascularity up to approximately 26 μm in diameter were clearly visible in three dimensional

image. Phase-contrast X-ray CT is able to depict the image, the tumor morphology and micro-vasculatures. Thus, this study highlighted that phase-contrast X-ray CT will become an essential tool for cancer research.

Poster - 26

Determination of monosodium glutamate content in different brands of chicken seasoning powder

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Addition of monosodium glutamate (MSG) or other seasoning powders to the food and curries has become a part of cooking practice in every household as well as in the food shops in Myanmar. High consumption of MSG (> the largest palatable range 60 mg/kg) has been known to cause Chinese restaurant syndrome, neurotoxicity in brain, obesity and metabolic defects like hypertension and diabetes mellitus. Given these potential side effects of MSG, this study aimed to find out the presence of MSG in different brands of chicken seasoning powders available in the markets. Three different brands of chicken seasoning powders commonly used and marketed in Myanmar were purchased at the supermarket and coded into A, B and C respectively. The qualitative detection of MSG in each sample was done by thin layer chromatography (TLC). TLC was performed on aluminum-backed silica gel 60 GF254 TLC plates used as stationary phase and a mixture of methanol–chloroform–formic acid (5:5:1) as mobile phase. The quantitative measurement of MSG concentration in each sample was done by High Performance Liquid Chromatography (HPLC). The samples were analyzed by HPLC method after deionized water extraction, using reversed phase C18 column, mobile phase was consisted of methanol: deionized water (60:40 v/v) followed by UV detection at 254 nm. The results revealed that all samples contained MSG indicated by using reference standard in TLC. The result by TLC was quantitatively confirmed by HPLC where mean MSG contents in samples A, B and C were 40.10 % ± 0.79, 46.22 % ± 0.04 and 62.88 % ± 0.57 respectively. In this study, the commonly used chicken seasoning powders contained a large amount of MSG in the range of 400- 630 g/kg (exceed the limit of 10 g/kg of food product). To prevent health related consequences of MSG consumption, people should aware of high MSG contents in chicken seasoning powders.

The surveillance of malaria transmission in South-East Myanmar

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Myanmar contributes the major malaria burden in the Greater Mekong Sub-Region (GMS) and aims to eliminate malaria by 2030. Over the past decade, malaria prevalence in Myanmar has declined dramatically and accurate mapping of malaria transmission and populations at risk are important to inform malaria elimination activities. The objective of this study was to explore the malaria transmission in South-East Myanmar by different diagnostic methods to better inform malaria elimination programs. A longitudinal study of malaria exposure was undertaken in 114 villages in 8 townships in South-East Myanmar between April 2015 and February 2016. Village Health Volunteers (VHV) performed 26,125 Rapid Diagnostic Tests (RDT) for spot diagnosis, and collected 10,860 Dried Blood Spots (DBS) to determine previous exposure to *Plasmodium* spp. by serology (IgG antibodies measured by Enzyme-linked Immunosorbent Assay). RDT positivity for *Plasmodium* species was very low (<1%) but more than 50% of samples tested positive for IgG against *Plasmodium* spp. antigens. Median antibody levels were highest amongst those who tested positive for malaria by RDT. However, many people who did not test positive for malaria by RDT were positive for high levels of anti-malarial antibodies. Antibody levels are higher in migrant and forest dweller populations compared to residents. The high antibody levels most likely represent higher malaria transmission in the areas prior to recent substantial reductions in malaria prevalence. The combined use of RDT and serology may be a useful tool for malaria surveillance in areas where the prevalence of malaria detected by RDT alone is low. VHV can be trained to collect RDT and DBS for serology and parasite genetics for surveillance purposes. Seroprevalence was very high and further longitudinal research is required to determine the suitability of serosurveillance to track recent declines in malaria transmission in elimination settings that will inform the elimination program to fine-tune the interventions.

Can we prevent newborns from HIV infection?:

Situation of mother-to-child transmission of HIV in Myanmar

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Over 90% of new HIV infections among infants and young children occur through mother-to-child transmission of HIV. It is critical and essential to strengthen HIV prevention and stop new

infection from occurring among children. In Myanmar, there was little information about vertical transmission rate and its associated factors based on longitudinal cohort of pregnant mothers. Longitudinal data records of HIV positive pregnant women from 108PMTCT sites from 15 states and regions of Myanmar during 2012 and 2014 were compiled and secondary data analysis was done. Qualitative interviews were conducted with service providers from different levels and HIV positive mothers. A total of 3,372 longitudinal data records of HIV positive pregnant women were included in the study. Age of pregnant women ranged from 15 to 49 years with the mean age of 29.01 (± 5.8) years. Over one-third (35.3%, 1191/3372) of spouse were receiving HIV testing, in which 61.2% were found positive. Therefore, 61.2% of couples were sero-concordant among those who were tested. Among those who have delivered, 34% (683/1996) of the children received PCR test for early infant diagnosis (EID), of which 13% (88/683) were detected as HIV positive. Over one-fourth 27% (544/1996) completed antibody test and 12.3% (67/544) were identified as HIV positive. Higher proportion of children who have not received Nevirapine were infected with HIV comparing to those who have received Nevirapine (21.8% vs. 6.5%, $p < 0.001$). According to PCR result, higher proportion of infants born from sero-concordant couples were HIV infected than those infants from sero-discordant couples although it was not statistically significant (10.5% vs. 9.2%; $p = 0.28$). Providers mentioned limited PCR facility for EID and the problem of loss to follow up as the barriers for successful EID testing service implementation in Myanmar. Similarly, difficulty in accessing EID is also stated as a challenge by positive mothers. EID testing rate is very low and mothers should be encouraged to receive EID testing since it is very crucial for further care and treatment. Ensuring anti-retroviral prophylaxis to children is also suggested for reducing vertical transmission of HIV in Myanmar.

Poster - 29

Effective implementation of the WHO framework convention on tobacco control in Japan

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Noncommunicable diseases (NCDs) are a major cause of mortality and national health expenditures in Japan. Because it is estimated that tobacco smoking is the largest contributor to death due to NCDs in Japan, it is crucial to promote tobacco control. For the last decade, the Japanese Ministry of Health, Labour and Welfare (MHLW) has used the WHO Framework Convention on Tobacco Control (FCTC) to implement tobacco control measures. The National Health and Nutrition Surveys showed that the smoking rate has gradually declined in Japan. This decline resulted from tobacco regulations and knowledge dissemination concerning the negative health effects of traditional cigarette use, which, thus, increased consumer awareness. On the other hand, recently, many kinds of novel tobacco products have been sold on the Japanese market by tobacco industries. Then options for smokers have increased. Snus, which is a portion-packed, oral, smokeless tobacco product, is placed between the lip and gum without burning the product during use. Japan Tobacco Inc. launched the sale of snus in Japan in 2013. Snus contains nicotine (which causes dependence), carcinogens, and other toxic substances, and is not a safe alternative to smoking. Smokeless tobacco has been classified by the International Agency

for Research on Cancer (IARC) as carcinogenic to humans (Group 1). Electronic cigarettes have been gaining popularity. However, we have observed that the generated vapors contained various carbonyls including formaldehyde, acetaldehyde, acetone, acrolein, glyoxal, and methylglyoxal. Some electronic cigarettes generate high amounts of carbonyl compounds at concentrations higher compared to those in traditional cigarettes. There was a relationship between some tobacco related biomarkers and smoking topography of the Japanese smokers. Regulation of tobacco products in accordance with Articles 9 and 10 of the FTC is essential for tobacco control. Governmental supervision is required for enforcement of the regulations governing the design, contents, and emissions of these kinds of tobacco products with the aim of protecting and promoting public health. Because novel tobacco products including electronic cigarettes are not harmless, and their potential impact on public health is not clear, their regulation should be tightly integrated into tobacco control policies.

Poster - 30

Larvicidal and repellent properties of *Citrus hystrix* DC fruit (တောရောင်ခါးသီး) extracts against *Aedes aegypti* mosquitoes

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The present study aimed to evaluate the larvicidal and repellent activity of ethanol extracts of dry fruit, internal fruit materials and peels of *Citrus hystrix* DC against *Aedes aegypti*. The 3rd and 4th stage larvae of *Aedes aegypti* collected from North Dagon Townships, Yangon Region and Thanbyuzayet Township, Mon State were exposed for 24 hours in various concentrations of ethanol extracts of different parts of the *Citrus hystrix* fruit. The dry fruit extract resulted in significantly higher 96 to 100% mortality ($P < 0.05$) when compared to the mortality (80-90%) caused by internal material of *Citrus hystrix* fruit at the concentration of 0.15gm/100ml against *Aedes* larvae of North Dagon. The mortality of *Aedes* larvae in peel extract was found to be 92-96%. Although all kinds of *Citrus hystrix* DC extracts were very sensitive to *Aedes* larvae collected from Thanbyuzayet, 100% mortality was found at 0.1gm/100ml on peel and fruit extract. The LC50 and LC90 values were 0.0142, 0.0276 and 0.0138, and 0.0522, 0.1045 and 0.0515 g for peel, internal material and fruit extract. The highest repellency activity of complete protection time of *Citrus hystrix* DC dose 0.0002g/cm² was found to be dry fruit extract followed by peel extract and lowest activity was found internal fruit materials extracts. These three extracts provided 100%, 97.52% and 92.15% protection from bite for 30min and 96.72%, 86.25% and 80.25% protection for 60 min and 88.52%, 80.1% and 73.52% protection for 90min, against *Aedes aegypti*. These extracts did not cause dermal irritation when applied to human and animal skins. The findings of the present study revealed that the ethanol extract of the fruit of *Citrus hystrix* DC has strong larvicidal and repellent activity on *Aedes* mosquitoes as a good source of preparations for pest control especially mosquito control.

Maternal health in a remote setting: are there any knowledge gaps for timely help-seeking during pregnancy?

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Health interventions for problems related to maternal health require complex and an integrated approach. To maximize the translation of research findings into policy and practice, this cross-sectional study focused 521 households with under-five children randomly selected from 40 villages of three townships, Kayah State, at the end of 2014. The major objective was to explore the awareness, knowledge and experiences related to maternal health during pregnancy. Very few respondents were aware of quality services for pregnancy. Alarming, nearly 60% of respondents (307/521) were unable to mention the danger signs in pregnancy that might hamper seeking help from skilled providers. Less than 15% of respondents recognized vaginal bleeding and swollen in face, body, and hands as important. The awareness of severe headache and fits, severe vomiting, fever and no movement of fetus were negligible. Among those respondents who could mention the danger signs, their main preference as the first place to seek treatment was rural and sub-rural health centers (44.6%). This was followed by the state hospital (53/213; 24.9%) being equipped for an emergency obstetric care. Consistent with their awareness of quality services during pregnancy at rural health center and sub-center, 64.9% of respondents mentioned their experiences of antenatal care (ANC) by midwives. Nearly 71% of respondents reported the frequency of ANC of more than two times by skilled providers and 93.7% of them had received tetanus toxoid injection. Around 91% of respondents stated that they had either bought or provided with iron tablets during their last pregnancy. Findings indicated that there was a need to improve awareness raising activities related to danger signs in pregnancy. Moreover, challenges to improve an access to quality ANC required attention. Promoting ANC by skilled providers more than at present was essential to avoid unnecessary consequences. Misconceptions and misunderstanding regarding maternal health beliefs still existed and practices to enhance the women's health during pregnancy was to be attempted further. Challenges for an access to quality care required detailed exploration and further decisions for pragmatic solutions. Findings are useful for evidence informed priority setting and policy decisions for investment and resources allocation in universal health coverage.

Poster - 32

Red cell deformability in type 2 diabetic patients with nephropathy*Haymar Soe Win, Thae Nu Htwe and Ohnmar***Department of Physiology, University of Medicine 1, Yangon**

The study was carried out to determine the red cell deformability (RCD) in type 2 diabetic patients with nephropathy, and to find out the relationship between RCD and severity of diabetic nephropathy. Type 2 diabetic patients (n = 44) were grouped into normo-albuminuria, microalbuminuria and macroalbuminuria according to urine albumin excretion. These patients were also grouped according to estimated glomerular filtration rate level as the patients with normal eGFR, low eGFR and very low eGFR. Red cell deformability was determined by whole blood filtration method and expressed as red cell deformability index (RCDI). Urine albumin excretion was determined by hemocue system and expressed as urine albumin creatinine ratio (UACR). Serum creatinine level was determined by Jaffe's colourimetric test and eGFR was calculated. The RCDI(%) of the diabetic patients with normoalbuminuria, microalbuminuria and macroalbuminuria were 95.53 ± 2.2 , 93.07 ± 4.3 and 89.57 ± 3.8 respectively. The RCDI of the diabetic patients with macroalbuminuria were significantly lower than those of the diabetic patients with normo-albuminuria ($p=0.001$) and microalbuminuria ($p=0.035$). But there was no significant difference in RCDI between the patients with normoalbuminuria and microalbuminuria. The RCDI(%) of patients with normal eGFR, low eGFR, very low eGFR were 94.69 ± 3.2 , 91.38 ± 4.0 and 89 ± 4.2 respectively. The RCDI of patients with very low eGFR were significantly lower than that of normal eGFR ($p=0.001$). There was no significant difference in RCDI between patients with normal eGFR and low eGFR and also between patients with low eGFR and very low eGFR. There was a significant negative correlation between RCDI and UACR ($r = -0.673$, $n = 44$, $p = 0.000$). A significant positive correlation was found between RCDI and eGFR ($r = 0.584$, $n = 44$, $p = 0.000$). The results showed that RCD was reduced in diabetic patients with impaired renal function. It could be concluded that reduction in red cell deformability might be involved in pathophysiology of renal function impairment in the patients with diabetic nephropathy.

Poster - 33

Plasma malondialdehyde level, serum high sensitivity C-reactive protein level and cognitive ability in elderly people*Nay Chi Oo, Moe Phyu Phyu Aung and Ohnmar***Department of Physiology, University of Medicine 1, Yangon**

Oxidative stress and low grade inflammation is associated with cognitive impairment in aging. The study aimed to determine plasma malondialdehyde (MDA) level and serum high-sensitivity C-reactive protein (hs-CRP) level in elderly people with normal cognitive ability,

elderly people with minor cognitive impairment and elderly people with dementia, to compare both parameters among three studied groups, and to find out the relationship between each of these two parameters and cognitive ability in the elderly. This study was carried out in elderly people with normal cognitive ability (n=24), elderly people with minor cognitive impairment (n=22) and elderly people with dementia (n=24). Cognitive ability was assessed by Mini Mental State Examination (MMSE) and the cut-off score for dementia was $MMSE \leq 23$, that of minor cognitive impairment was $MMSE 24-27$, and that of normal cognitive ability was $MMSE \geq 28$. Plasma MDA and serum hs-CRP were determined by spectrophotometric method using thiobarbituric acid and enzyme linked immunosorbent assay respectively. Plasma MDA level of the elderly people with dementia ($2.64 \pm 0.66 \mu\text{mol/L}$) was significantly higher than that of elderly people with normal cognitive ability ($1.26 \pm 1.03 \mu\text{mol/L}$), ($p < 0.001$) and those with minor cognitive impairment ($1.86 \pm 1.10 \mu\text{mol/L}$), ($p < 0.05$). There was a significant negative correlation between plasma MDA level and MMSE score ($r = -0.469$, $p < 0.001$, $n = 70$) in all elderly people. The median and interquartile range of serum hs-CRP level of the elderly people with normal cognitive ability, those with minor cognitive impairment and those with dementia were $2.03 (0.89-4.06)$, $2.95 (0.95-4.34)$, and $4 (1.45-8.65) \text{ mg/L}$ respectively. There was no significant difference in serum hs-CRP level between three studied groups. A weak significant negative correlation was seen between serum hs-CRP level and MMSE score ($\rho = -0.247$, $p < 0.05$, $n = 70$) in all elderly people. The present findings indicated that oxidative stress might be involved in pathogenesis of cognitive impairment but the role of low grade inflammation in cognitive impairment was still equivocal.

Poster - 34

Glucose intolerance effect on high-fat diet intake mice by *Undaria pinnatifida*; Wakame

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In recent years, lifestyle-related diseases have become a social problem in the world because they affect the healthy life expectancy. We thought, edible seaweed that has been eaten since ancient times in Japan, may be effective in prevention of lifestyle-related diseases. *Undaria pinnatifida*; Wakame are a popular edible alga in Japan. Therefore, we investigated the effect of Wakame on glucose metabolism using mice with high fat diet. We revealed depress the chronic hyperglycemia state and any effect on the various organs by eating a high-fat diet with Wakame. We compared the effect on glucose metabolism between two groups as high fat diet feeding group (HC) and high fat diet with Wakame feeding group (HW), using glucose tolerance tests. Glucose tolerance test was carried out in

1,3 and 5 months after starting of experimental diet. In result, the maximum peak of the blood glucose level was observed after 15 minutes in HC and after 30 minutes in HW after one month feeding. In addition, we obtained blood samples at 0, 30, 60, 90, and 120 min for determination of plasma glucose and represented area under the curve reflects the sugar metabolic capacity (Δ AUC). Δ AUC was 1822.3min · mg/L in HC and 1281.5min · mg/L in HW. Δ AUC in HW was significantly lower than that in HC ($p = 0.003$). After three months feeding, the value of Δ AUC was found to be significantly lower in the HW compared to HC. After five month feeding, Adiponectin, reduced by lipid metabolism abnormality, was measured using an immunological test ELISA method. The Adiponectin value of HW (25.4 μ g/ml) was higher than that of HC (23.7 μ g/ml). It suggests that Adiponectin production increased by feeding Wakame might be reduced the risk of vascular disorders. From these results, the glucose metabolism abnormalities caused by chronic hyperglycemia state and high-fat diet, is expected to be suppressed by eating Wakame.

Poster - 35

Antibody status of children under 3.5 years of age after immunization with Pentavalent Vaccine according to EPI Schedule

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Pentavalent vaccine (against Diphtheria, Pertussis, Tetanus, Viral Hepatitis B and *Haemophilus influenza* Type b) was introduced in Myanmar since November, 2012 by incorporating in Expanded Programme on Immunization (EPI). Combination vaccines reduce not only the workload of immunization programme but also the risk for the child by decreasing the number of injections and the cumulative exposure to preservatives and stabilizers that may contribute to adverse events. This study aimed to assess the antibody status of children less than 3.5 years of age after complete immunization with pentavalent vaccine according to EPI Schedule. One hundred and twenty children attending to Yankin Children Hospital included in this study after excluding the diagnosis which assumed to effect the immunity (like congenital or acquired immunodeficiency, malnutrition, diseases needing blood or blood product transfusion or immunosuppressive therapy). Quantitative enzyme immunoassays were performed for Anti-Diphtheria toxoid IgG, Anti-Bordetella pertussis IgG, Anti-Tetanus toxoid IgG, Anti-HBsIgG and Anti-Hib-PRPIgG. There were 75.8%, 90.8% and 88.3% of the children in this study had protective antibody titres (more than 10 mIU/mL, 0.1 IU/mL and 0.1 IU/mL) for anti-HBs, Anti-Diphtheria toxoid and Anti-Tetanus toxoid antibodies respectively. The geometric mean titres were 158.04 mIU/mL, 0.57 IU/mL and 0.80 IU/mL (for anti-HBs, Anti-Diphtheria toxoid and Anti-Tetanus toxoid antibodies). Regarding for Anti-Bordetella pertussis, 57.5% of the children showed more than 15 U/mL antibody level and geometric mean titre was 27.24 U/mL. Antibody to *Haemophilus influenza* type b polysaccharide with level of more than 1 U/mL was found in 82.5% of children and geometric mean titre was 4.04 U/mL. Most of the children in this study showed protective antibody levels after complete immunization with pentavalent vaccine administered according to EPI schedule.

Breakfast habits, body weight and nutritional status of home and hostel students in University of Medicine, Mandalay*Sanda Kyaw¹, Win Yu Aung¹, Moh Moh Hlaing², Aye Aye Thein³ and Ohnmar¹*¹Department of Physiology, University of Medicine 1, Yangon²Department of Medical Research³Department of Physiology, University of Medicine 2, Yangon

Breakfast is an important meal of the whole day because it provides not only for the energy metabolism but also for the body weight control. The present study was conducted to explore the breakfast habits, body weight and nutritional status of home and hostel students. The participants were 2nd M.B.,B.S (1/2014 batch) of the University of Medicine, Mandalay involving male 140 in number and female 108 in number (18.23±0.74 year vs. 17.94±0.44 year). Out of 124 home staying students, 59.7% (n=74) were male and 40.3% (n=50) were female. Out of 124 hostel staying students, 53.2% (n=66) were male and 46.8% (n=58) were female. They expressed their eating habits mentioned in the questionnaires. Height was measured to the nearest 0.1cm using standard calibrated scale against a wall and weight was measured to the nearest 0.5 kg using bathroom scale weighing machine. Body Mass Index (BMI) was calculated as weight (kg)/ height (m²) and categorized according to BMI criteria by WHO 2007. Nutritional status of present study was underweight (12.9%, n=18 vs. 6.5%, n=7), normal weight (75%, n=105 vs. 84.2%, n=91), overweight and obese (12.1%, n=17 vs. 9.3%, n=10) for male and female students. Body weight of male students and height of both students staying at home were significantly higher than that of hostel staying students (p<0.01), while no significant difference in body weight between two female groups. There was no association between breakfast habits (frequency of main meal intake including breakfast, missing breakfast, choice of food for breakfast) and nutritional status of home and hostel students. The proportion of male students who have main meal intake including breakfast >2 times was found to be higher in home staying students than that of hostel staying students (70.3%, n=52 vs. 56.1%, n=37). Significant association was found between nutritional status and residence of male students and total students (p<0.05). The finding assumed that increased body weight in home staying male students might be due to frequency of main meal intake including breakfast more than two times per day.

Transvaginal and colour Doppler ultrasound in pregnant women with previous caesarean scar with placenta previa

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Caesarean section rates (CS) have continued to rise globally as well as nationally. The incidence of anterior placenta praevia and placenta accreta was significantly increased in those with previous caesarean scars. The aim of this study was to determine the detection of placenta accreta in pregnant women with previous CS with placenta praevia and to assess the accuracy of placenta accreta by transvaginal and colour Doppler ultrasound (USG). It is a hospital based prospective descriptive study of one year from 1st October, 2013. Total 50 patients with previous CS with placenta praevia who booked at or admitted to CWH (Central Women Hospital, Yangon) at 36 week and more gestational age were participated. Transvaginal and colour Doppler USG was done on those patients. Of the 50 cases, 39(78%) cases had one previous scar, 10(20%) had two previous scars and only one(2%) had three previous scars. Mean age group of this study was 32.32 years. Parity one group and previous one caesarean section scar group were the highest proportion. In this study, 29 cases (58%) had antepartum haemorrhage(APH). Out of 8 patients who were diagnosed by ultrasound as morbid adhesion of placenta praevia, 4 patients really had morbid adhesion and the other four had no morbid adhesion at caesarean sections. Proportion of correctly diagnose morbid adhesion of placenta praevia (Accuracy or Percentage Agreement) was 92%. Four cases of placenta accreta had to undergo hysterectomy as a life-saving procedure but one maternal death was found due to uncontrolled PPH with morbid adhesion of placenta with Rh negative mother. Women with placenta praevia and previous CS are at high risk for developing placenta accreta. Antenatal imaging techniques should be considered in any situation where any part of the placenta lies under the previous scar, but the definitive diagnosis can be made only at surgery. If there is imaging evidence of pathological adherence of the placenta, delivery should be planned in an appropriate setting with adequate resources.

Effects of Aflatoxin B1 induced toxicity on rat liver

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Department of Medical Research

Aflatoxin B1(AFB1) is a potent hepatotoxic and hepatocarcinogenic mycotoxin that induces lipid peroxidation in rat liver. AFB is secondary toxic fungal metabolites produced as *Aspergillus flavus* and *A. parasiticus*. It is associated with aflatoxicosis and hepatocellular carcinoma. An experimental study based on laboratory animal especially (36) numbers of three months old male albino rats that separated into 6 groups including untreated control

group and five study groups. AFB1 was administered through intraperitoneal route by different concentrations viz., 20, 40,60,80 and 100 ppm respectively for 8 days. After completion of the treatment, the blood samples were collected from all rats for determination of liver enzymes (AST and ALT).All liver samples were sacrificed to continue tissue processing and staining by Haematoxylin and eosin for observation of histological changes of rat liver. In control untreated group, liver enzymes and histological findings are apparently within normal range and normal liver cellular pattern. Liver enzymes results of 20 ppm AFB1 treated group have the highest level (AST>210 U/L and ALT>110 U/L) and the lowest level (AST < 200 U/L and ALT <100 U/L) in 40, 60, 80 and 100 ppm AFB1 treated group. Histology findings showed the lowest score (<3) observed with mild parenchymatous degeneration characterized by granular appearance of hepatocytes cytoplasm in lowest concentration treated group of 20ppm AFB1. Other four groups of serially higher concentration of AFB1 treated have high score (>3) characterized by serially significant cytoplasmic visualization with disseminated necrotic cells, central vein dilation, congestion of sinusoids and haemosiderin pigmentations in hepatocytes and periportal area fibrosis. AFB 1 has significant increased in lipid peroxidation in liver during which significant reduction of liver enzymes and mitochondrial dysfunction that indicates impaired liver functions. The biochemical and histological analysis of rat liver showed AFB1 had seriously toxic to the rat liver after treated with AFB1 high contents but liver enzymes have no seriously increased in that group because of impairment of liver function, denaturation of protein structure and developed to liver cancer. The concurrent exposure of AFB1 has disturbed metabolic actions on rat liver and increase the risk of liver cancer.

Poster - 39

Differentiation of *Aedes aegypti* and *Aedes albopictus* eggs using scanning electron microscope

Min Min Win, Than Than Swe, Khin Kant Kaw Oo, Maung Maung Mya, Kyaw Soe, Win Pa Pa Naing, Moh Moh Htun, Khin Saw Aye and Kyaw Zin Thant

Department of Medical Research

Aedes aegypti and *Aedes albopictus* are common arboviral mosquitoes causing the fatal diseases globally. However these two vectors are biologically similar, the differences in morphology of egg between these two mosquitoes are very limited in Myanmar. In this study, the morphology of *Ae.aegypti* and *Ae.albopictus* eggs were described using scanning electron microscopy (SEM). *Ae.albopictus* eggs were smaller and taper at the posterior end. But the micropylar disc of *Ae. aegypti* was wider and had incomplete circular sectors. *Ae.albopictus* had a narrower circular disc without sectors. Outer chorionic cells enclosing both large central tubercle and peripheral tubercles were also different between these two species. Furthermore, the exchorionic networks in *Ae. albopictus* were narrow, prominent, solid wall like whereas they were interwoven, reticulated and extremely wide in *Ae.aegypti*. The morphological analysis of the eggs attributes of *Ae. aegypti* and *Ae. albopictus* using SEM enables the differentiation of the species and may be helpful in understanding the egg biology.

Application of Loop mediated isothermal amplification (LAMP) and Polymerase Chain Reaction (PCR) methods in diagnosis of Pulmonary Tuberculosis

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Molecular assays based on nucleic-acid-amplification techniques such as Polymerase-Chain-Reaction (PCR) have been developed for rapid diagnosis of tuberculosis (TB) and are being implemented in developing countries. Loop-mediated-isothermal-amplification (LAMP)-method is a manual assay that requires one hour to perform and can be read with the naked eye or under LED trans-illuminator. Recently, World-Health-Organizations (2016) recommend that TB-LAMP can be used as a replacement for microscopy for the diagnosis of pulmonary TB in adults with signs and symptoms of TB. This study was aimed to explore application of LAMP and PCR methods in diagnosis of Pulmonary TB. A cross-sectional descriptive study was performed. A total of 110 sputum samples comprising 55 samples each of smear-positive and smear-negative of new pulmonary TB cases were collected from TB Diagnostic Center, Lathar Township, Yangon in 2014. Among them, 59.1% (65/110) were males and 40.9% (45/110) were females. Age distribution of TB cases were between the age of 21-30 years (20%), 41-50 years (19.1%), 61-70 years (17.3%), 51-60 years (15.5%), 31-40 years (14.5%), <20 years (7.3%), 71-80 years (4.3%) and >80 years (1.8%). After decontamination of the sputum samples with the mixture of sodium hydroxide and sodium citrate solution, DNA extraction was performed using TB Beads with magnet, Microsens Medtech Ltd, Kyokuto which takes only 30 minutes to perform and do not need to centrifuge the samples. Then, TB-LAMP and TB-PCR using IS6110 primers tests were performed to detect *Mycobacterium tuberculosis* DNA. Among 55 smear-positive cases, *Mycobacterium tuberculosis* DNA was detected by LAMP method in 51 cases (92.7%) and by PCR method in 48 cases (89.3%). Among 55 smear-negative cases, *TB bacilli*-DNA could be detected by LAMP method in 25 cases (45.5%) and by PCR method in 18 cases (32.7%). Limitation of the study was that culture method which takes about up to 8 weeks was not included. Although TB bacilli were not found in the sputum-smear, both molecular techniques could detect *Mycobacterium tuberculosis* DNA. Diagnosis of TB using molecular methods, LAMP and PCR method are fast, efficacious and sensitive method. This study found out that TB-LAMP is more superior to TB-PCR in diagnosis of *Mycobacterium tuberculosis*.

Relationship between serum leptin level and insulin resistance in persistent obese and current obese people*Thin Thin Yu¹, Sanda Kyaw² and Ohnmar²*¹Department of Physiology, University of Nursing, Yangon²Department of Physiology, University of Medicine 1, Yangon

Adiposity and duration of obesity are important for development of type 2 diabetes. The present study aimed to investigate the relationship between serum leptin and insulin resistance in persistent obese and current obese people. This study was a cross-sectional study carried out in persistent obese subjects (n=46) and current obese subjects (n=48)(BMI ≥ 25 , duration of obesity >15 and ≤ 15 years) from Sanchaung and Dagon Township, Yangon. Serum leptin and serum insulin levels were determined by ELISA method. Fasting plasma glucose level was determined by Glucose oxidase, phenol, 4-aminophenazone (GOD-PAP) method. Although serum leptin level was not statistically significant between persistent obese and current obese groups, serum insulin was significantly different between 2 groups ($18.94 \pm 10.67 \mu\text{IU/mL}$ vs. $14.79 \pm 7.10 \mu\text{IU/mL}$) respectively ($p < 0.05$). HOMA-IR of the persistent obese group was significantly higher than that of the current obese group [median value (interquartile range) 4.46 ($3.00-5.44$) vs. 3.40 ($2.66-4.57$)]. Based on HOMA-IR values, 36 out of 46 subjects (78.26%) in the persistent obese group and 37 out of 48 subjects (77.08%) in the current obese group had insulin resistance. Mean HOMA β -cell function in the persistent obese group was $179.28 \pm 84.54\%$ and that of current obese group was $148.31 \pm 72.57\%$. A difference in HOMA β -cell function between persistent obese and current obese subjects was marginally significant ($p = 0.06$). In addition, there was a significant association between duration of obesity and HOMA β -cell function; current obesity having about 3 times (OR: 3.73, 95% CI=1.23-11.32) increased risk of β -cell function impairment. Correlation between serum leptin and HOMA-IR of all subjects in the present study was weak but statistically significant (Spearman's $\rho = 0.240$, $n = 94$, $p < 0.05$). Therefore, the present findings indicated that those with longer duration (i.e. persistence obesity) might be related to insulin resistance more. However, those with lesser duration (i.e. current obesity) were found to be related more with impairment of β -cell function. It seems that a rise in adiposity within short duration is more likely to be associated with impairment of β -cell function.

Entomological Surveillance at high malaria prevalence villages under cover of fixed and mobile clinic of quality diagnosis and standard treatment project, Myanmar Medical Association

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National agreement on malaria elimination is a Malaria Free Myanmar in 2030. The efforts towards elimination can be accelerated through combinations of interventions adapted to local conditions and responding to local needs through a multi-sectorial approach. Adequate malaria case-based surveillance and investigation is required to enable elimination. Improved entomological surveillance and investigation is required to support evidence based vector control operations and accelerate elimination. To access the prevalence of malaria main vector in areas under cover of fixed and mobile clinic of Quality Diagnosis and Standard Treatment Project, Myanmar Medical Association, the entomological surveillance has been carried out at 12 townships, Palaw, Bokepyin, Kyun Su, Tayetchaung, Tanintharyi and Ye Phyu townships in Tanintharyi region, Beelin in Mon State, Homalin and Barmouk in Sagaing Region, Paletwa in Chin State and Thabeikkyin in Mandalay Region. Preliminary analysis show that *Anopheles dirus* is the main vector in Beelin, Ye Phyu, Tayetchaung, Tanintharyi, Kyin Su and Bokepyin, the highest number in Tanintharyi followed by Kyun Su. The another main vector, *Anopheles minimus* was collected in Beelin, Tabeikkyin, Banmauk, Ye Phyu, Tanintharyi, Bokepyin and Palaw, highest in Banmauk followed by Tabeikkyin. The *Anopheles annularis* was found in high density in Ye Phyu Township. Larva survey was also conducted. *An. Minimus* were breed in well in Tabeikkyin and Banmauk township. *An. dirus* were found in the wells of Ye Phyu, Tayetchaung, Palaw, Kyun Su, Tanintharyi and Boke Pyin. *An. Minimus* was collected by outdoor light trap in Beelin, Tabeikkyin and Palaw. Anopheles adults mosquitoes were not collected by Indoor light trap, which will be the effective use of Long Lasting Insecticide treated Net. Mon State and Mandalay Region will start pre elimination activities that this study pointed out the importance of entomological surveillance.

Effects of perinatal exposure to a phosphate ester flame retardant on novel object recognition ability and memory function-related gene expression in adult mice

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Phosphate esters are commonly used in consumer and industrial products in order to reduce flammability. Very limited studies have been conducted to detect the toxicity of phosphate ester flame retardants in next generation. The present study was designed to examine the effects of gestational and lactational exposure to a phosphate ester flame retardant having estrogenic activity on memory function and related gene expressions in adult mice. C57BL/6J pregnant mice (gestational day 11) were purchased from CLEA, Japan (Tokyo, Japan). Offspring of male and female mice were given the phosphate ester flame retardant having estrogenic activity (trixyl phosphate; TXP) subcutaneously daily from embryonic day 14 to delivery to dam and from delivery to postnatal day 9 to pups. Dams were given TXP at the dose of 500 µg/0.2 ml/day during gestational period and pups were given TXP at the dose of 50 µg/20 µl/day during postnatal period. The control mice were given sesame oil on the same schedule. Novel object recognition test which composed of 2 habituation phases, one training phase and one test phase was performed in 13 week-old male and female mice. After completion of behavioral test, the hippocampus from each mouse was removed and examined for the expression level of memory function-related genes using real-time RT-PCR. Body and brain weights were not different between groups. As a result of the novel object recognition test, the discrimination ability between novel and familiar objects was significantly impaired in both male and female mice exposed to TXP. The mRNA expression levels of memory function-related genes such as the N-methyl-D aspartate (NMDA) receptor subunits NR1 and NR2B, and their signaling pathway genes Ca²⁺/calmodulin-dependent protein kinase (CaMK)-IV and cAMP response element-binding (CREB)-1 were significantly upregulated in the hippocampus of the mice of both sexes exposed to TXP. Our findings indicate the possibility that the developmental exposure to a phosphate ester flame retardant impairs novel object recognition ability in mice by modulating the expression level of NMDA receptors and related signaling pathway genes in the hippocampus. Further studies are needed to elucidate translocation of TXP to the developing brain and how TXP affects neuron and glial cell development.

Drinking, dependency and diseases: Alcohol drinking pattern, dependency and diseases among male in-patients at Medical Units of Yangon General Hospital

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In 2012, the global non-communicable diseases (NCD) - related burden of deaths, net years of life lost (YLL) and net disability adjusted life years (DALYs), (3.4%, 5.0% and 2.4%), respectively can be attributed to alcohol consumption. Alcohol dependence, NCD itself, is also linked with other disease categories. The report on national survey of diabetes mellitus and risk factors for NCD in Myanmar conducted in 2014 reported that 38.1% of the male respondents were current drinkers while 20.3% were engaged in heavy episodic drinking. The cross-sectional study aimed to identify the reported prevalence of alcohol drinking, alcohol drinking pattern and alcohol dependency was conducted in 2016 among male patients admitted to medical units of Yangon General Hospital. It also determined common diseases in male drinkers. Face-to-face interviews with 121 male patients and record review of hospital register to find out their diagnosis were conducted. CAGE test was done to find out alcohol dependency. Age of respondents ranged from 13 years to 93 years (mean age=54 years, SD=17.66). About 82% were married and 18% were single. About 40% of them had history of their parents drinking alcohol and 72% had friends who drink alcohol. Reported prevalence of drinking alcohol beverages among male patients was 0.65 (65%), among whom 63 (90%) drunk alcohol and 7 (10%) drunk beer. About 14 (16%) had heavy episodic drinking, 16 (20%) had heavy drinking and 52 (67%) had binge drinking. About 25 (35%) of the male drinkers had experience of cutting off drinking alcohol. Alcohol dependency was found in 32 drinkers (41%). The most common diagnosis among male drinkers was stroke (34, 44%), followed by alcoholic liver disease (8, 9%), ischaemic heart diseases (6, 6.4%) and Tuberculosis (6, 6.4%). This study highlighted that there was a high prevalence of alcohol drinking in male in-patients and majority were admitted to hospital for strokes. Therefore, there should be an effective intervention for control of alcohol drinking which could prevent morbidity of NCD.

Assessment of non-communicable diseases (NCDs) risk factors among the selected military personnel in Bago Region

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The global burden and threat of non-communicable diseases (NCDs) constitutes a major public health challenge throughout the world. The World Health Organization (WHO) estimates that NCDs account for 59% of death in Myanmar in 2014. The overall prevalence of diabetes in Myanmar was 12% with 11.7% in men and 12.8% in women. This study aimed to explore the risk factors for hypertension and diabetes among the selected military personnel in Bago Region. Hospital based cross-sectional descriptive study was conducted among the military personnel aged 50 years and above. Face-to-face interview was carried out by using pre-defined questionnaire to identify socio-demographic characteristics, risk behavior and treatment seeking practice. Physical measurements were carried out by three trained nurses and biochemical measurements were performed in the laboratory according to the WHO steps wise approach. Among 901 respondents, mean age was 55 years (range 50-60) and mean military service year was 34 (14-42). There were 451 (50.1 %) of the respondents who smoked tobacco and 47% used smokeless tobacco. A 63.7% had history of drinking alcohol and 58.3% were currently drinking alcohol within 12 months. Regarding vigorous physical activities, 21.3% of the respondents took in their work place and 34.9% took in their leisure time. Regarding moderate physical activities, 60% of the respondents took in their work place and 61.9% took in their leisure time. For the sedentary life-style, mean sitting hour was (5.2±3.2). About 37.3% recognized that they had history of hypertension and 4.4% had history of diabetes. Mean BMI and waist-hip ratio was 23.1 and 1.24 respectively. Mean SBP was (127.8±18.4) (range 81-220) and mean DBP was (80.6±12.5) (range 40-155). In biochemical measurement, mean random blood sugar (RBS) and total cholesterol were (123.3±45.0) and (159.7±19.5) respectively. In this study, prevalence of Hypertension and risk factors for NCDs are prevalent among the study population in Bago Region. Effective smoking cessation and responsible alcohol-intake advocacy programs should be introduced into the work place in order to change their risky life style.

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Identification of the potential radiation risk of indoor radon in old buildings of Pabedan Township, Yangon Region

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Radon is the second leading cause of lung cancer after cigarette smoke in United States. Nowadays, indoor air radon concentration has become a public health concern worldwide. Radon is a heavy gas and tends to accumulate in basements or in other low places in the buildings. In this cross-sectional study, indoor radon concentration was measured in ground floors of 50 old buildings from Pabedan Township in Yangon Region and then calculated the level of Annual Effective Dose of indoor radon. Pabedan Township was selected purposively as it is the most crowded area and there have a lot of old buildings. Fifty ground floors in Pabedan Township were randomly selected by lot drawing. Permission was obtained from householders (resident) of that selected buildings (apartment). Radon concentration in indoor air was measured directly using by RAD7 Electronic Radon Detector in living room of ground floor. Some behaviors of the inhabitants that can affect indoor radon concentration were asked a short interview for 5 minutes to householder(resident). The calculated values of radon concentrations and Annual Effective Dose varied from $3.0 \pm 1.3 \text{ Bqm}^{-3}$ to $84.8 \pm 7.0 \text{ Bqm}^{-3}$ and 0.076 mSvy^{-1} to 2.16 mSvy^{-1} respectively. The mean value of radon concentration was 18.8 Bqm^{-3} and Annual Effective Dose was 0.5 mSvy^{-1} . Radon concentration in 26% of the buildings (13/50) was higher than 48 Bqm^{-3} which is action level set by Environmental Protection Agency's National Emission Standards for Hazardous Air Pollutants (NESHAPs). Increased radon concentration ($<48 \text{ Bqm}^{-3}$) was found out in apartments with smaller size (42%) with poor ventilation (less windows, no air-conditioners or exhaust fans) (96%). Radon concentration of apartments with bare concrete floor ($84.8 \pm 7.0 \text{ Bqm}^{-3}$) was higher than the other floor types. This study highlighted the need for action plan for reduction of radiation risk to prevent detrimental long term respiratory disorders in the people living in radon polluted air.

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Assessment of body composition in children by using stable isotope method

Aye Aye Maw, Yin Yin Win, Khin Thida Wai, Sandar Aung, Naw Myat Su Mon, Moh Moh Hlaing, Ko Ko Zaw and Theingi Thwin

Department of Medical Research

Body composition assessment is useful procedure for the study of nutritional status in children. High levels of body fat are associated with increasing health risks. This study aimed to validate the measurement of body fat percentage by anthropometry is relation to stable isotope method. Adiposity is estimated through many body composition methods, such as under water weighing method, bioelectrical impedance analysis (BIA) and deuterium oxide

dilution (stable isotope) method. A cross sectional study was conducted on the 48 healthy children (36 boys and 12 girls) within 8 to 10 years old residing in Yangon. Anthropometric measurements (body weight and height) and collection of three saliva samples (pre dose and two post dose) were carried out. The percentage of body fat was calculated from total body water (TBW) which was measured deuterium oxide dilution method in the Fourier Transform Infrared Spectrometry (FTIR). The mean weight (kg) and height (cm) of 36 boys and 12 girls were 24.46 ± 3.72 Vs. 21.38 ± 2.53 kg and 126.56 ± 8.10 Vs. 123.48 ± 5.33 cm. Mean fat percentage calculated from stable isotope method (FTIR) were $18.5 \pm 3.61\%$ for boys and $22.33 \pm 4.66\%$ for girls respectively. According to BMI weight-for-age (WHO, 2007), 32 were normal weight, one was overweight and 3 were underweight among boys where as for girls, 10 were normal weight and 2 were underweight, no overweight and obese girls. The fat percentage of overweight boy was 21.72. In children with normal weight, the fat percentage of boys and girls were 18.62 ± 3.61 and 22.22 ± 5.14 respectively. According to fat percentage calculated from FTIR, 11 boys (30.6%) and 7 girls (58.5%) had high fat percentage. The findings showed that even in normal weight girls, the mean body fat percentage (22.2) was higher than cut-off points for obesity, i.e. > 21 and one thin boy and thin girl had high fat percentage. Therefore, measurement of body fat percentage is more applicable than body mass index in assessment for body composition.

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Effect of some estrus synchronization techniques on reproductive ability of laboratory rats (*Rattus norvegicus*) in DMR

Aye Win Oo, Mu Mu Win, Than Myat Htay, Khin Hnin Yi, Mya Mya Sein, Tint Zaw Maung, San San Myint and Win Maw Tun

Department of Medical Research

Rats and mice are spontaneous ovulators, i.e., they do not need the presence of males to induce ovulation. There is some evidence the stimulation from male rodents can induce and or/hasten ovulation. The induction of a synchronous estrus and ovulation resulting in a high level of fertility has long been the goal of agricultural researchers. Different estrus synchronization techniques were applied as Group 1 using teaser male (using fence barrier), Group 2 using bedding materials with teaser male droppings and Group 3 with no connection with male. Estrus stage of female rats from all groups was checked daily in the morning. Each group included five males and fifteen females. One male and three females in each cage were performed. For the Group 1, fertility rate (100%), pregnancy rate (100%), litter size (12.4); for the Group 2, fertility rate (100%), pregnancy rate (100%), litter size (9.86); for the Group 3, fertility rate (100%), pregnancy rate (100%), litter size (7.86) were observed. According to the record, Group 1 was faster than to reach synchronizing estrus cycle. This study highlighted Group 1 synchronization technique is the best way to achieve large number of offspring and it is reliable and useful for production, supply and demand balance of laboratory rats in Department of Medical Research.

Community participation of malaria research in Myanmar*Janie Anne Zuber, Zaw Win Thein, Poe Poe Aung and Myaing Myaing Nyunt***Institute for Global Health Myanmar, University of Maryland Baltimore**

Active participation of local communities in research is important for the applicability of research data, and a dynamic approach is required for seeking community participation successfully. Understanding factors that influence the ability and willingness to participate may help maximize the quality and efficiency of research data collection. We have evaluated two common factors, refusal to participate and non-availability, during a large malaria surveillance in Myanmar and its border with China and Bangladesh. Prior to the study initiation, community outreach activities were conducted. Households in the community were selected using a multistage cluster sampling method, with up to 8 participants from each household invited to enroll, and informed about the study team visit at least 24 hours prior. Informed consent or assent was obtained from adult or children aged 10–17 years, respectively, and adult consent for children aged 2–9. For those who were unwilling or unable to participate in the study or unavailable at the time of study recruitment, a short questionnaire was administered to assess a reason for refusal or unavailability. Data analysis is expected to be completed by the end of 2016. Preliminary analyses indicated that about 9854 individuals from 42 rural villages in ten States/Regions of Myanmar were invited to join the study, and 2110 (21.4%) did not participate (non-participants). 305 of the non-participants refused to participate and 1,805 were unavailable. At least 582 non-participants (28%) were children. Refusal to participate was more common in children ages 2-7 whereas unavailability was more common among children ages 8-17. Approximately 20% of the targeted populations were non-participatory. Refusal rates were particularly pronounced among young children. The reasons were incompletely or poorly documented. Further research is needed to understand the pattern of community participation in research, and to develop strategies to improve it. Pragmatic methods are needed for elucidating which factors most significantly influence the decisions for research participation.

Ultrasensitive detection of asymptomatic malaria using dried blood spots*Kayvan Zainabadi¹, Matthew Adams¹, Zay Yar Han², Hnin Wai Lwin², Kay Thwe Han², Christopher V. Plowe¹ and Myaing Myaing Nyunt¹*¹Institute for Global Health, Division of Malaria Research,
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Southeast Asian countries are committed to eliminating artemisinin-resistant *Plasmodium falciparum* malaria in the region by 2025. Recently, ultrasensitive PCR techniques capable of detecting ultralow parasitemias have been used to select target populations for mass drug administration to eliminate malaria infections in asymptomatic carriers who may represent a transmission reservoir. However, these techniques require the use of either venous blood

or preserved capillary blood. An ultrasensitive test for malaria infection that can be done using dried blood spots (DBS) would have potential to be scaled up for widespread surveillance. Here we report an optimized method for the highly sensitive detection of *Plasmodium falciparum* and *P. vivax* infections using DBS that is both high-throughput and cost-effective, with a similar sensitivity to methods based on whole blood. Laboratory experiments demonstrate a lower limit of detection (LoD) of 20 parasites/mL for DBS collected on Whatman 3MM papers and of 23 parasites/mL for Whatman 903 Protein Saver cards, about 5,000-fold more sensitive than rapid diagnostic tests and similar to the 16-22 parasites/mL reported for other non-DBS ultrasensitive methods. We validated the sensitivity of the method in two field studies in Myanmar that took place during the wet and dry season. Nearly identical prevalence estimates of subclinical malaria were obtained from DBS samples as with preserved capillary blood samples, as well as with an independent ultrasensitive method using venous blood samples. These data validate the utility of DBS for use in asymptomatic surveillance studies. We are currently using DBS-based ultrasensitive PCR for large-scale surveillance studies across Myanmar in support of malaria elimination.

Poster - 51

Assessment of risk of malnutrition of elderly people living in the Yangon Region

Mya Ohnmar, Moh Moh Hlaing, Sandar Tun, Khin Mittar Moe San, Myat Myat Thu, Wah Wah Win, Khin Hnin Wint Phyu, Yin Yin Aye and Hla Phyo Lin

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Elderly are generally at greater risk of malnutrition than the younger adults. Malnutrition in elderly is common and results in many negative health outcomes. Nutritional assessment of the elderly to detect malnutrition or risk of malnutrition is essential to avoid adverse nutrition-related outcomes. So, this study aims to find out the risk of malnutrition of elderly people living in the selected townships in Yangon Region. A cross sectional descriptive study was conducted in the period from November 2015 to October 2016. Three hundred and sixty-three elderly living in the Lanmadaw Township, South Okkalapa Township and North Dagon Township were involved in this study. The data were collected with a structured questionnaire included socioeconomic characteristics and Mini Nutritional Assessment (MNA). The MNA can detect malnutrition or risk of malnutrition before severe weight loss. The MNA consists of 18 self-reported questions derived from four parameters of assessment: anthropometric assessment (weight, height, upper arm circumference and calf circumference), general assessment, dietary assessment and self-assessment administered. In this study there were 129 male (35.5%) and 234 (64.5%) female elderly with a mean age of 69.6 years (SD 7.7). The mean body mass index BMI was 23.64 (SD 5). The mean body weight and height of elderly male were 60.43 Kg and 162.34 cm and that of elderly females were 54.22 Kg and 149.94 cm respectively. According to MNA, 21 (5.8%) were malnourished (MNA < 17 points), 124 (34.2%) at risk for malnutrition (17-23.5 points) and 218 (60.1%) well nourished (MNA > 23.5 points). The mean MNA score was 24. About 11% of elderly ≥ 80 years were malnourished vs. 2.9% of elderly in age group 60-69 years ($p < 0.001$). Elderly females were more likely to be affected by malnutrition than males (6.8% vs 3.9%). These results highlighted that assessment of risk of malnutrition is essential to early diagnosis and

prevents adverse nutrition related outcomes in older people and enhances their well-being and quality of life.

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Barriers to accessing harm reduction services by people who inject drugs in Kachin State: Experiences, perspectives and opinions

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The operations research study elaborated the accessibility to harm reduction services among people who inject drugs (PWID) in Namtee and Hopin townships in Kachin State in 2015-16. The study was conducted using qualitative methods, among PWID, family member and service providers. Objectives addressed the barriers/facilitators in accessing harm reduction services among PWID, acceptance and utilization of services and provider perspective on these areas by conducting group discussions with PWID, In-depth interview with positive PWID and Key-informat-interviews with service providers. Findings indicated that due to targeted HIV preventive programs ,HIV knowledge have increased among the PWID, including the modes of transmission, common misconceptions, and prevention by using clean needle and syringes. For HIV Counseling and Testing (HCT), most participants got tested at Drop-In-Centres(DIC) or NGO clinic/hospital. Positive drug users in Hopin are more accessible to ART service delivered by NGO clinics, and those in Namtee mostly go to Myitkyinar for getting ART from public sector. Indirect costs associated with accessing ART in Myitkyina were a burden for PWID, and are supported by some NGOs. Sharing of needles/syringes practice is low in study populations, and there is increased accessibility to needle and syringe programs through DICs or mobile outreach approach. High uptake of HIV testing is observed. Accessibility to HCT is mainly associated with the visits to DICs. Considerably high proportion of PWID were HIV positive and majority were on ART. Linkage of Methadone service to HIV prevention services was found, and so it is important that more and more PWID are accessible to MMT. Outpost and outreach services promote utilization of services for those PWID who have geographical barrier, however, they are still limited. Expansion of different options(satellite harm reduction services, collaboration with MMT services) with a package of harm reduction services will be beneficial for those PWIDs who face barriers. Geographical availability of harm reduction services seems not to be proportionate with widespread prevalence of drug use problem and high prevalence HIV/AIDS among PWID in Kachin State . Therefore, strategies to enhance accessibility to HCT services among the non DIC visitors through outreach and outpost approaches should be strengthened. Advocacy and collaboration among NGOs, CBOs and narcotic task force should be further promoted, as legal enforcement is one factor affecting the accessibility to harm reduction services.

Effect of traditional drug “Eve (ဓဝ)” on wound healing in laboratory rat model

**Nyi Nyi Win, Khin Phyu Phyu, Aye Win Oo, Mi Mi Htwe, Khine Khine Lwin, Wah Wah Aung,
Mu Mu Sein Myint, Zaw Myo Tint and Phyo Wai Zin**

Department of Medical Research

Wounds are the result of injuries to the skin that disrupt the other soft tissue. Healing of a wound is a complex and protracted process of tissue repair and remodeling in response to injury. Various plant products have been used in treatment of wounds over the years. The aim of wound care is to promote wound healing in the shortest time possible with minimal pain and discomfort. In the present study, the objective was to determine the effects of traditional drug lotion, Eve (ဓဝ), on wound healing in laboratory rat model. For in-vitro antibacterial activity of Eve, the standard method of agar disc diffusion was used. Bacterial strains (*Escherichia coli* ATCC, *Staphylococcus aureus* and *Pseudomonas* species) were grown in Mullar Hinton Broth (Hi media) incubated (3-4hr) at 37°C and 0.1ml of broth was spread on Mullar Hinton Agar (Hi media). Paper disc (6mm in diameter) containing 30µl of Eve was placed on the Mullar Hinton agar medium. Diameters of zone of inhibition after 24-48h of incubation at 37°C were 13, 12 and 10 mm in disc containing Eve for *S. aureus*, *E. coli* and *P. spp* respectively, whereas 30, 30 and 25 mm in disc containing standard Ciprofloxacin (5µg) for *S. aureus*, *E. coli* and *P. spp* respectively. For in-vivo test, forty five male albino rats were divided into three groups of fifteen animals. Group I animals were kept without treatment. Group II animals were treated with standard antiseptic (Septidine). Group III animals were treated with Eve lotion. Application mode was topically, once daily for 14 days. First, each rat was anaesthetized with ketamine intra-peritoneally. An excision was done about 1.5-2 cm in highest diameter on the disinfected area of the inter-scapula skin surface. The wounds were also infected by the bacteria described (one strain for one group) of the rats. After 48 hours incubation period of wound, the wound area of each animal was measured daily by ruler for progressiveness. According to the in-vivo and in-vitro test, antibacterial activity of Eve was most potent on *Staph. Aureus* and then followed by *E. coli* and *Pseudomonas*.

**The ordering and utilization of blood in Central Women Hospital,
Yangon, Myanmar**

**Zin Zin Thu¹, Thidar Aung², Khin Shwe Mar², Nyein Ei Khine¹, Aye Myint Oo¹, Hla Hla Win¹,
Saw Min Latt¹, Myo Myo Mon¹ and Kyaw Zin Thant¹**

¹Department of Medical Research

²Department of Medical Services

Over-ordering of blood is very common and leads to holding up of the blood bank reserve, ageing of the blood units and wastage of blood bank resources. This study we access on ordering and utilization of blood from 5 different wards in Central Women Hospital, Yangon, Myanmar. The study was approved by the Ethics Review committee at the Department of Medical Research, Ministry of Health and Sports, Myanmar. The research project was

carried out at the Blood Bank and Clinical Pathology Department, Central Women's Hospital, Yangon, Myanmar. Blood and blood component requesting forms of 721 women from the 5 different wards of Central Women's Hospital were included in this study. Blood and blood components order forms were collected and necessary information (gender, ward, diagnosis along with indications for transfusion, patients' blood group, hemoglobin, platelet count, etc.) were noted as followed with proforma. A total of 1542 units of blood and blood component requesting from of 721 patients from the 5 different wards of Central Women's Hospital, Yangon, Myanmar were included in this study. The actual usage of blood units per requested units in each wards were (24/ 335) 7.16 % in Obstetric ward, (190/ 431) 44.08% in Miscarriage patients ward, (43/ 210) 20.47% in Gynecological diseases ward, (70/ 142) 49.29% in Oncology ward and (35/ 424) 8.25 % in Emergency ward, respectively. We found that less than 10% of ordered blood units were actual used in Obstetric ward and Emergency ward. Blood transfusion is an important part of patient management. Indication for blood usage should be followed according to the blood order guidelines. This study found out the situation of blood ordering and utilization according to different specialty wards, Central Women's Hospital, Yangon, Myanmar. It will be great supported for the update of transfusion guidelines.

Poster - 55

The requisition and utilization of blood in Yangon General Hospital, Yangon, Myanmar

*Nyein Ei Khine¹, Thidar Aung², Cho Cho Nyunt², Aye Myint Oo¹, Hla Hla Win¹,
Zaw Min Latt¹, Myo Myo Mon¹, Khin Saw Aye¹ and Zin Zin Thu¹*

¹Department of Medical Research

²Department of Medical Services

Excess blood requests are a common problem in hospitals. Reservation of blood leads to blood wastage if the blood is not transfused. This study we access on requisition and utilization of blood from different wards in Yangon General Hospital, Yangon, Myanmar. The study was approved by the Ethics Review committee at the Department of Medical Research, Ministry of Health and Sports, Myanmar. The research project was carried out at the Blood Bank and Clinical Pathology Department, Yangon General Hospital, Yangon, Myanmar. Blood and blood component requesting forms of 1995 patients from the different wards of Yangon General Hospital were included in this study. Blood and blood components order forms were collected and necessary information (gender, ward, diagnosis along with indications for transfusion, patients' blood group, hemoglobin, platelet count, etc.) were noted as followed with proforma. A total of 6142 units of blood and blood component requesting from of 1995 patients from the different wards of Yangon General Hospital, Yangon, Myanmar were included in this study. The actual usage of blood units per requested units in each wards were 1337/1377 (97%) in Medical wards, 1632/2318 (70%) Surgical wards, 707/717 (98%) in Oncology wards, 207/543 (38%) in Orthopedic wards, 278/353 (78%) in Neurology wards, 159/260 (61%) in Specialties' wards, respectively. We found that more than 60% of ordered blood units were actual used in all wards of Yangon

General Hospital expect Orthopedic wards. Over ordering with minimal utilization squanders technical time, reagent and imposes extra expenses on patients. This study was conducted to assess blood ordering and utilization according to different specialty wards, Yangon General Hospital, Yangon, Myanmar. Blood ordering pattern for elective procedures needs to be revised and over ordering of blood should be minimized. Moreover, blood transfusion guidelines should formulate maximum surgical blood ordering policies for elective surgical procedures and conduct regular auditing. It will be great supported for the update of transfusion guidelines.

Poster - 56

Serological surveillance for malaria in 2015 malaria indicator survey

Kay Thwe Han¹, Aung Thi², Tom Hall³, Myo Win Htun¹, Ni Ni Zaw¹, Hnin Ohnmar Soe¹, Chris Drakeley³, Hannah Edwards⁴ and Kyaw Zin Thant¹

¹Department of Medical Research

²National Malaria Control Program

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⁴Malaria Consortium

In areas where malaria transmission is low, serological surveillance may provide additional information about the level of transmission and risk factors for exposure. Antibodies are made as part of immune response to infection and they are species specific and their prevalence increases with the age. Therefore seroconversion rate (SCR) reflects transmission intensity. In the context of the first Myanmar malaria indicator survey, more than 11700 blood samples from different malaria endemic areas were screened for the presence of antimalaria antibodies. Antibodies to *Plasmodium falciparum* merozoite antigen (Pf MSP-1), and apical membrane protein (Pf AMA-1), *Plasmodium vivax* (Pv MSP-1) and (Pv AMP-1) were measured by ELISA method. Preliminary analysis showed that about 20% of the samples were seropositive for *P.falciparum*. Age specific seroconversion rates identified two seroconversion rates and adults older than 15 years age were found 10 folds increase in exposure compared to children. Area specific seroconversion rates correlated with annual parasite index (API). Multiple logistic regression identified old age, low socio-economic status, living in rural areas and working in the forest as major risk factors for malaria.

***PREVIOUS
AWARD WINNERS***

Previous Award Winners

44th Myanmar Health Research Congress

Best Paper for Applied Research

Output towards input: Input for consideration of Rotavirus vaccine introduction in Myanmar by output from Rotavirus Sentinel Surveillance

Theingi Win Myat, Hlaing Myat Thu, Ye Myint Kyaw, Khin Mar Aye, Mo Mo Win, Thin Thin Shwe, Khin Khin Oo, Khine Moe Aung and Kyaw Zin Thant

Best Paper for Basic Research

Characterization of Hyaluronidase isolated from Russell's Viper (*Daboia siamnesis*) Venom of Myanmar

Thet Thet Mar, Win Aung, Zaw Myint, Lwin Zar Maw, Tin Ko Ko Oo and Nweni Aung

Best Paper for Health Systems Research

Every child count: The immunization status of mobile migrant children in Bogale and Mawlamyinegyun Townships, Ayeyarwaddy Region

Nyi Nyi Zayar, Wai Wai Han, Saw Saw, Zayar Lynn, Theingi Myint, Myo Myo Mon, Kyaw Myint Tun, Ye Ye Win and Kyaw Myo Htut

Best Poster

Are they disclosed? : Situation of HIV status disclosure among adolescents

Kyaw Min Htut, Myo Myo Mon, Lwin Lwin Ni, Aung Soe Min and Ni Ni Htay Aung

Young Researcher Award

Basic Research paper

Whole Genome Sequencing of Hepatitis B Virus (HBV) Strains from Myanmar

Nyi Nyi Win, Aung Zaw Latt, Kay Thi Aye, Hlaing Myat Thu, Yi Yi Kyaw and Kyaw Zin Thant

Applied Research paper

The role of delay in receipt of standard cardiac treatment in clinical outcomes of acute myocardial infarction patients admitted to Yangon General Hospital

Su Su Hlaing, KoKo Zaw and Nwe Nwe

Health Systems Research

Every child count: The immunization status of mobile migrant children in Bogale and Mawlamyinegyun Townships, Ayeyarwaddy Region

Nyi Nyi Zayar, Wai Wai Han, Saw Saw, Zayar Lynn, Theingi Myint, Myo Myo Mon, Kyaw Myint Tun, Ye Ye Win and Kyaw Myo Htut

43rd Myanmar Health Research Congress

Best Paper for Applied Research

Preliminary report on K 13 gene analysis of Plasmodium falciparum and therapeutic efficacy of Artemether-lumifantrine in uncomplicated falciparum malaria in Buthidaung, Rakhine State

Kay Thwe Han, Kyin Hla Aye, Myo Win Htun, Zay Yar Han, Nyi Nyi Win, Kay Thi Aye, Phyzo Zaw Aung, Myat Phone Kyaw and Kyaw Zin Thant

Best Paper for Basic Research

Cardioprotective Effect of Seed Juice Extract of Punicagranatum Linn. (Tha-Le) on Isoproterenol-induced Myocardial Infarction in Albino Rats

Nwe Nwe Than, Nu Nu Aye, Kyae Mone Htwe, Lae Lae Win, Khin Mi Mi Lay, Khaing Khaing Mar and Khin Phyu Phyu

Best Paper for Health Systems Research

Is it enough? Source, credibility and extent of reproductive health information among the youth in selected townships, Myanmar

Wai Wai Han, Saw Saw, Theingi Myint, Myo Myo Mon, Soe Moe Myat, Kyaw Myo Htut, Pyone Thuzar Nge, Yee Yee Win and San San Aye

Best Poster

Voices and Choices of youths for Reproductive Health services in rural and urban areas of Myanmar

Saw Saw, Theingi Myint, Wai Wai Han, Myo Myo Mon, San San Aye, Ye Ye Win, Pyone Thuzar Nge, Hla Thida Htun and Lwin Lwin Ni

Young Researcher Award

Basic Research paper

Molecular detection of Human Rhinovirus in under 5 children with acute respiratory infection attending Yangon Children Hospital, 2014

Nilu Zaw, Hlaing Myat Thu, Ye Myint Kyaw, Mo Mo Win, Kay Thi Aye, Aung Zaw Latt, Thida Kyaw, Aung Hlaing Phyto and Kyaw Zin Thant

Applied Research paper

Lipid lowering and antioxidant effects of atorvastatin and rosuvastatin in myanmar hypercholesterolemic subjects

Nilar Win Htut, Win Win May and May Hla Thwin

42nd Myanmar Health Research Congress

Best Paper for Applied Research

Development of a new monovalent ovine snake antivenom against Russell's viper (*Daboia siamensis*)

Aung Zaw, Khin Aung Cho, Kyi Kyi Thin and Mon Mon

Best Paper for Basic Research

Determination of Oncogenic Human Papillomavirus (HPV) genotypes in Anogenital Cancers by Polymerase Chain Reaction and Restriction Fragment Length Polymorphism (PCR-RFLP)

Mu Mu Shwe, Hlaing Myat Thu, Khin Saw Aye, Aye Aye Myint, Mya Thida, Khin Shwe Mar, Khin Khin Oo, Khin Sandar Aye and Kyaw Zin Thant

Best Paper for Health Systems Research

Challenges in Universal Coverage and Utilization of Insecticide treated bed nets among the Migrant Plantation Workers in Myanmar

Myat Htut Nyunt, Myat Phone Kyaw, Khin Thet Wai, Thar Tun Kyaw, Thaug Hlaing and Khin Myo Aye

Best Poster

Determination of djenkolic acid concentrations in different preparations of djenkol beans (Da-Nyin Thee) *Archidendron pauciflorum* Benth

Thet Thet Mar, Thaug Hla, Lai Lai San, Thin Thin Wah, Nilar and Myo Myo Kyaw

Young Researcher Award

Basic Research paper

Serum 25(OH)D3, calcium, phosphorus levels and bone mineral density in adult women

Ei Ei Hlaing, Khin Moe Moe Nwe and May Pyone Kyaw

Health Systems Research paper

Estimating cost of TB patient Self Help Groups in Hlaingtharyar Township, Myanmar

Wai Wai Han, Saw Saw, Thandar Lwin, Tin Mi Mi Khaing and Thet Aung

41st Myanmar Health Research Congress

Best Paper for Applied Research

Initial trial on Multiple Micronutrient sprinkle among children in Myanmar

May Khin Than, Htin Lin, Aye Aye Thaw, Htwe Htwe Yu, Lwin Lwin Yi, Hla Myint and Nilar Tin

Best Paper for Basic Research

Burkholderia pseudomallei isolates from melioidosis cases in Magway Region, Myanmar

Thae Thae Min, Kyi Kyi Thinn, Khin Myat Nwe and Tin Sabai Aung

Best Paper for Health Systems Research

Raising food safety by food safety training program to street food vendors in urban area of Yangon

Nay Soe Maung, Htin Zaw Soe, Aye Moe Moe Lwin, Myint Myint, Cho Cho Oo, Myint Thein, Than Than Aye, Wai Hnin Aye and Myo Myint Aung

Best Poster

Working together among Non Governmental Organizations and public health sector for community-based activities of HIV control in Myanmar

Saw Saw, Myo Myo Mon, Khin Ohnmar San, Le Le Win, Yin Thet Nu Oo, Myo Thant, Ko Ko Zaw, Thae Maung Maung and San Shwe

Young Researcher Award**Basic Research paper**

The determination of elemental concentration of soil and water in selected areas

Moe Moe Han, Ye Hein Htet, Tin Oo, Thaung Hla, Ohmar Oo, Myat Phone Kyaw, Mariam Bi, Ohmar Win and Ni Ni Maw

Health Systems Research paper

The burden of common childhood illnesses in peri-urban households: The multiple effects of multiple exposures to environmental conditions

Su Latt Tun Myint, Khin Thet Wai, Khaymar Mya, Phyu Sin Aye, Tin Tin Wai, Lwin Lwin Ni, Zin Mar Aye, Aung Soe Min and Phyu Thi

2011

Best Paper for Applied Research

Understanding malaria transmission and vector bionomics at a forest fringe hilly rural area incorporating Geographical Information System (GIS) application

Pe Than Htun, Myat Phone Kyaw, Sein Thaung, Sein Min, Sai Zaw Min Oo, Htun Min, Yan Naung Maung Maung and Thaung Hlaing

Best Paper for Basic Research

Detecting rotavirus genotypes in children under five years of age admitted for diarrhea in Yangon Children Hospital, 2010-2011

Hlaing Myat Thu, Theingi Win Myat, Khin Mar Aye, Kyu Kyu Khin, Htay Htay Tin, Mo Mo Win, Htin Lin, Thin Thin Shwe and Khin Khin Oo

Best Paper for Health Systems Research

Empowering TB patients in TB control activities through formation of self help groups: A process evaluation

Saw Saw, Wai Wai Han, Tin Mi Mi Khaing, Nay Htut Ko Ko, Thandar Lwin and Naing

Best Poster

Awareness and attitude towards medical ethics among medical registration license training attendees in 2011

Thein Thein Myint, San Shwe, Yin Thet Nu Oo, Wai Wai Myint and Pyae Mon Thaw

Young Researcher Award

Basic Research paper

Malaria antibody: Is it an alternative tool for estimation of local malaria transmission in malaria micro-stratified areas?

Khin Myo Aye, Myat Phone Kyaw, Thaung Hlaing, Khin Thet Wai, Myat Htut Nyunt, Myo Min, Soe Soe Han and Phyo Zaw Aung

Applied Research Paper

Field evaluation of HRP2 and pan pLDH based immunochromatographic assay in therapeutic monitoring of uncomplicated falciparum malaria

Myat Htut Nyunt, Myat Phone Kyaw, Kyu Kyu Win, Khin Maung Myint and Aung Kyaw Kyaw

Health Systems Research paper

Identifying requirements for targeted risk communication in prevention of dengue transmission in Mawlamyaing, Mon State, Myanmar

Pe Thet Zaw, Khin Thet Wai, Tin Oo, Hlaing Myat Thu, Zaw Win, Moe Thida, Tin Tin Wai, Aung Soe Min and Lwin Lwin Ni

2010

Best Paper for Applied Research

Prevalence and associated factors of curable sexually transmitted infections and antibiotic susceptibility pattern of *Neisseria gonorrhoeae* in highway coach drivers, Myanmar

Wah Wah Aung, Myo Thant, Khin Thet Wai, Mya Mya Aye, Phyu Win Ei, Thuzar Myint and Moe Thida

Best Paper for Basic Research

Pharmacokinetics of piperazine and clinical outcome of acute, uncomplicated falciparum malarial patients after administration of Piperamisinin, a locally manufactured ACT in Myanmar

Marlar Myint, Thaw Zin, Marlar Than, Yamin Ko Ko, Khine Kyi Han, Tin Tin Yee, Thin Sandi Htun, Yee Yee Tin and Than Than Nu

Best Paper for Health Systems Research

Sustainability oriented Action-Cum Research: Youth to youth peer education programme in Okkan Sub-Township, Yangon Division

Kyu Kyu Than, Thae Maung Maung, Poe Poe Aung, Than Tun Sein, Tin Tin Wai, Ko Ko Zaw, Yin Thet Nu Oo and Theingi Myint

Best Poster

Why has Dengue Hemorrhagic Fever (DHF) been transmitted during the dry season in Dala Township, Yangon Division?

Pe Than Htun, Hla Myint, Myo Khin, Ye Htut, Tin Htoo Hlaing, Swe Zin Win and Sein Thaung

Young Researcher Award

Applied Research Paper

Applicability of clinical and routine laboratory parameters in diagnosis of tuberculous meningitis

Win Lai May, Ei Ei Khin, Khin Saw Aye, Kyaw Oo and Han Win

Basic Research paper

Bacteriological profile of surgical site infections in Gynecological ward of North Okkalapa General Hospital

Phyu Win Ei, Wah Wah Aung, Khin Thet Wai and Mya Thida

Health Systems Research paper

Basic health staff needs in emergency obstetric care training in selected townships of Yangon Division

Thae Maung Maung, Kyu Kyu Than, Theingi Myint, Poe Poe Aung, Tin Tin Wai and Su Latt Tun Myint

2009

Best Paper for Applied Research

A simulated field evaluation of temephos, pyriproxyfen and *Bacillus thuringiensis israelensis* (BTI) against dengue vector *Aedes aegypti* in productive water containers

Pe Than Htun, Sein Thaug, Yi Yi Myint, Khin Myo Aye, Moe Thuzar Min, Thuzar Nyein Mu, Kyi Maw Than and Sai Zaw Min Oo

Best Paper for Basic Research

Pfmdr1 N86 alleles and in-vitro dihydroartemisinin sensitivity status of *Plasmodium falciparum* in Kawthaung and Butheedaung

Kay Thwe Han, Ye Htut and Kyin Hla Aye

Best Paper for Health Systems Research

Success and challenges of public-private mix DOTS initiatives in Myanmar:

A process evaluation

Saw Saw, Thida, Thandar Lwin, Tin Mi Mi Khaing, Bo Myint, Khin Sandar Oo, Cho Cho Myint and Thandar Min

Best Poster

Health and ecological assessment of pesticide residues in Inlay lake, Southern Shan State

Thaw Zin, Than Aye, Khin Chit, Khine Thin Naing, San Aye, Phone Myint, Moe Moe Aye and Thiri Aung

2008

Best Paper for Applied Research

Efficacy and safety of artesunate-amodiaquine versus artemether-lumefantrine for the treatment of uncomplicated *plasmodium falciparum* malaria in 4 sentinel sites (Rakhine, Kayin, Mon and Kachin States) in Myanmar

Myat Phone Kyaw, Ye Htut, Than Win, Nwe Nwe Oo, Kyin Hla Aye, Myat Htut Nyunt, Win Htut Linn and Khine Nyein Chan

Best Paper for Basic Research

Neutralizing efficacy of foreign antivenoms against Myanmar Russell's viper (*Daboia russelii siamensis*) and cobra (*Naja kaouthia*) venoms

Aye Aye Myint, Tun Pe, Kyi May Htwe, Khin Pyone Kyi, San Kalayar Htwe and Sandar Tun

Best Paper for Health Systems Research

Research-cum action: Fostering referral and health education of public private mix DOTS through operational research

Saw Saw, Tin Aye, Khin Swe Win, Myo Zaw, Thet Naing Maung, Yu Yu Lwin, Kyi Kyi Sein, Thyn Thyn and Sun Tun

Best Poster

Chemical contaminants in domestic fruits: Analysis using simple techniques and possible reduction of residues

Ohnmar May Tin Hlaing, Than Than Swe, Tin Nwe Htwe, Aung Myat Kyaw, Tin Tin Htike, Myo Myo Aye and San Aye

2007

Best Paper for Applied Research

Safety and immunogenicity of DMR recombinant hepatitis B vaccine

Myat Phone Kyaw, Khin Pyone Kyi, Myo Khin, Moh Moh Htun, Khin May Oo, Zaw Myint, Win Aung, Mon Mon Aung and Yin Yin Win

Best Paper for Basic Research

Potency assay of avian Russell's viper venom
Aye Aye Myint, Tun Pe and Sankalyar Htwe

Best Paper for Health Systems Research

Understanding referral of tuberculosis suspect patients from general practitioner's clinics to public tuberculosis centre in Myanmar
Saw Saw, Win Maung, Myo Myo Mon, Phyo Min Oo, Nyo Aung and San San Aye

Best Poster

Laboratory repellency effect of the indigenous plant *Cybopogon winterionus* Jowitt. (Zabalin-Hmwe) crude extracts on three important mosquito vectors
Sein Min, Pe Than Htun, Ei Ei Soe, Yan Naung Maung Maung, Sein Thaug, Khin Myo Aye and Yi Yi Myint

2006**Best Paper for Applied Research**

Serological response to chemoprophylaxis in extended contacts of leprosy a randomized controlled trial
Khin Nwe Oo, Nwe Nwe Yin, Tin Tin Han, Khin Thet Wai, Kyaw Myint and Maung Maung Gyi

Best Paper for Basic Research

Bacteriological evaluation of multi-drug resistant cases among category II treatment failure pulmonary tuberculosis patients
Wah Wah Aung, Kyu Kyu Than, Ti Ti, Ah Mar Sein, Myat Thida, Aye Aye Maw, Khine Zar Win and Win Maung

Best Paper for Health Systems Research

Effect of community involvement in DOTS implementation of TB program in Bago Division (An intervention study)
San Shwe, Thin Thin Yee, Kyaw Oo, Ti Ti, Win Maung, Hlaing Myint, Aye Tun and Nyein Nyein Aye

Best Poster

Study on factors influencing the treatment outcome of tuberculosis treated by 4-FDC
Khin Chit, Thaw Zin, Kyu Kyu Than, Win Mg, Ti Ti, Myo Zaw, Kyi May Htwe and Kyi Kyi Myint

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