

Muhimbili University of Health and Allied Sciences, Dar es Salaam, Tanzania



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2014 Journal articles, Conference Proceedings, Book Reports, Thesis and Dissertations

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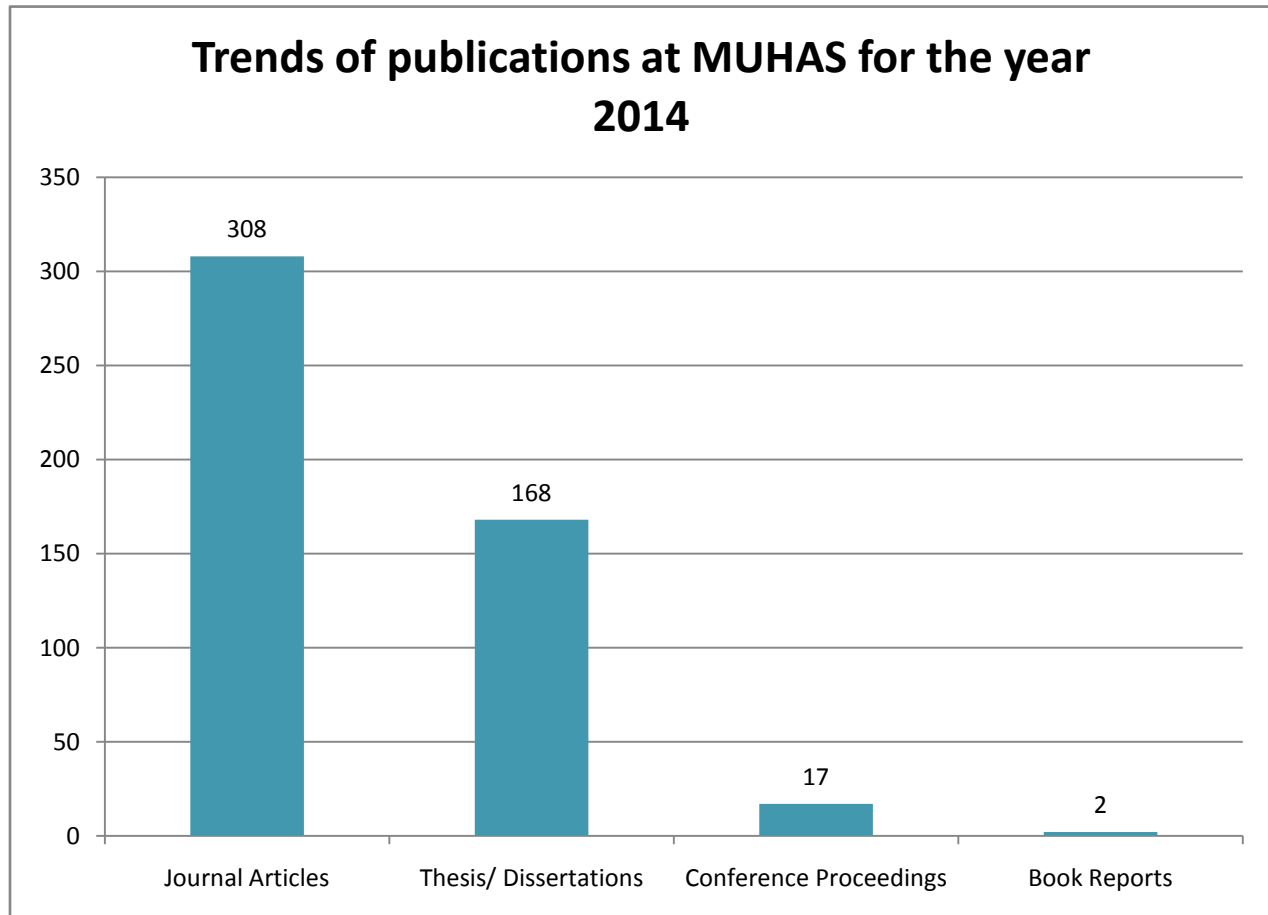
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Information to readers

This bulletin is intended to provide information on research by members of Muhimbili University of Health and Allied Sciences, Dar es Salaam, Tanzania. It provides summaries of publications during the proceeding calendar year, including dissertations, thesis, journal articles and conference proceedings. Members are requested to provide the Editor with summaries of their publications and ongoing research in electronic form for inclusion in the Bulletin. Abstract should be limited to 200 words.

Editorial

The current volume (Volume 17 No.1) contains total of 495 abstracts (308 journal articles, 168 Dissertations, 17 Conference proceedings and 2 book/research report published in 2014.



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1. **Abbas A, Hussain M, Iqbal M, Arshad S, Rasool S, Shafiq M, Yaqub N. Barriers and Reforms for Promoting ICTs in Rural Areas of Pakistan. In Design, User Experience, and Usability. User Experience Design for *Everyday Life Applications and Services*. 2014; 391-39.**

Pakistan is a developing country and peoples of more than 50,000 areas, cover 64% of the whole population, belong to rural. ICTs are the essence of this modern age but unfortunately, the services of ICTs have failed to trickle down the rural masses of Pakistan. We believe that the inadequacy of infrastructure, i.e., behavioral, cultural and social barriers, is debarring ICTs to strengthen its roots in the rural areas. The most vital task is to wipe out this digital division to change the patterns of thoughts and behaviors of the masses of rural areas. In Pakistan many efforts are in the pipeline to reveal the concrete paybacks of ICTs for rural population. The need of the hour is to do so in a way that makes economic reimbursements. This paper deals with the potential barriers barring ICTs in far wide areas of the Pakistan, various fruitful steps taken by the Government of Pakistan to introduce ICT reforms, various policies framed for boosting ICTs and computer literacy in rural areas.

2. **Abdulhalim MM. Incidence And Types Of Medication Errors In The Management Of Inpatients With Chronic Cardiac Failure At Muhimbili National Hospital Dar-Es-Salam. Master of Pharmacy (Clinical and Hospital Pharmacy) *Dissertation* 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam**

Background: Chronic cardiac failure (CCF) is one of the major causes of high morbidity and mortality in Tanzania. Patients with CCF often have other diseases and require adequate multiple drug treatment, which is important for optimum prognosis. Medication error (ME) is a common problem facing hospitals both in developed and developing countries. The likelihood of ME to occur during the management of CCF is high due to high number of medicines, which must be taken at the same time and this may lead to poor treatment outcome. **Aim of the study:** The main aim of the study was to determine the types and frequencies of medication errors among patients with CCF admitted at Muhimbili National Hospital (MNH). **Methodology:** This was a prospective

observational study that included 100 adult male and female patients with the diagnosis of CCF at medical wards at MNH. Observations were made on admission, post admission, during hospital stay and on discharge. Information was extracted from eligible patients' medical records, drug charts, laboratory test results and personal interview with patients. The obtained information was recorded in case report form (CRF). After reviewing and recording data from medical records, the investigator examined drug treatment prescribed by the intern, resident or specialist and noted the type of ME committed. Any new changes by another prescriber during the hospital stay were also examined. Upon receiving laboratory results, the investigator re-examined the cases for potential drug and abnormal electrolyte interaction. On discharging, the investigator examined prescriptions and also interviewed patients on types of non pharmacological advices given to them by hospital staff. Specially designed check list, patients' interviews and drug charts were used to determine drug administration errors. The ability of a block pharmacist to detect prescription errors was determined from medication issued for each patient according to patient file. **Results:** During a follow up of 201 person days, 71 patients were observed with medication error (incidence rate, 35 per 100 person days of observation). Most of medication errors were due to prescription errors (80.2%), followed by dispensing error (16%) and lastly by drug administration error (4%). Most frequency of ME were observed during hospital stay (40%), followed by admission (25%). Among commission errors potential drug and drug interaction, 81 (22.7%) and potential drug and abnormal electrolyte interactions 80 (22.4%) were the most common. Potential drug and abnormal electrolyte interaction was the major error undetected by block pharmacist contributing to 45%, followed by inappropriate starting dose (23.1%) and drug of choice appropriate to the condition not written (23.7%). The mean duration of hospital stay was shorter for those without medication error (mean days 6.75 95%CI 5.1 8.45) compared with those with medication error and those with errors (mean days 11.2 95%CI 8.87 13.5). Patients discharged with symptom had more ME (93.1) compared to those without symptoms (58%) and the association was significant ($P = 0.001$). **Conclusion:** From the study, it can be concluded that the incidence of medication error is fairly high. Controlling for such errors may lead to improvement in patient care. The pattern of ME suggests that prescription errors were the major type of error. Of these prescription errors,

errors leading to drug and drug interactions and drug with abnormal electrolyte interactions are the most common. Clinicians at MNH need to consider laboratory results while treating these patients. Producing laboratory results on time may be necessary to avoid these interactions.

3. **Aboubrahim A, Ibrahim T, Nath P. Probe of new physics using precision measurement of the electron magnetic moment. *Physical ReviewD*. 2014; 89(9): 093016.**

The anomalous magnetic moment of the electron is determined experimentally with an accuracy of 2.8×10^{-13} and the uncertainty may decrease by an order of magnitude in the future. While the current data are in excellent agreement with the standard model, the possible future improvement in the error in $\Delta a_e = a_{e, \text{exp}} - a_{e, \text{theory}}$ has recently drawn interest in the electron anomalous magnetic moment as a possible probe of new physics beyond the standard model. In this work we give an analysis of such physics in an extension of the minimal supersymmetric standard model with a vector multiplet. In the extended model the electroweak contribution to the anomalous magnetic moment of the electron includes loop diagrams involving in addition to the exchange of W and Z, the exchange of charginos, sneutrinos and mirror sneutrinos, and the exchange of neutralinos, sleptons and mirror sleptons. The analysis shows that a contribution to the electron magnetic moment much larger than expected by m_e^2/m_μ^2 scaling of the deviation of the muon anomalous magnetic moment over the standard model prediction, i.e., $\Delta a_\mu = 3 \times 10^{-9}$ as given by the Brookhaven experiment, can be gotten within the minimal supersymmetric standard model (MSSM) extension. Effects of CP violating phases in the extended MSSM model on the corrections to the supersymmetric electroweak contributions to a_e are also investigated. The analysis points to the possibility of detection of new physics effects with modest improvement on the error in $\Delta a_e = a_{e, \text{exp}} - a_{e, \text{theory}}$.

4. **Abrahão AL, Marques D, de Senna MAA, Aboud S, Andrade M, de Souza ÂC. Working within Groups of Teachers: *Teaching and Learning Implications in Health Services*.2014.**

In Brazil, the Ministry of Health has been encouraging change in the way teaching and learning takes place in undergraduate health programs. One of such programs is the Teaching Program at the Workplace in Health (PET-Saúde). At Universidade Federal Fluminense, in Niteroi/Rio de Janeiro, we have chosen multidisciplinary groups (a tutor – professor; two students from each of the following professions/teaching programs: medicine, nursing, nutrition, odontology, pharmacy and physical education; and six professionals from different areas in health). The objective of this paper is to describe the experience of multidisciplinary groups as we approached teaching interdisciplinarily. Methodologically, we have proposed, within the PET groups, a diagnosis approach of a given health region, with the intention of developing devices to deal with the population's health. This study began in 2009 and has been developed in the last four years. We have had a professor of pharmacy teaching and coaching students of medicine, nursing, and so on.... Teaching took place in service, and not in the classroom. The professional who is in practice participates in the student's preparation while acting, caring for health system users. Professors, students and professionals have thus been working in multidisciplinary groups for training and practicing in interdisciplinary health care. Our intention is that our students', professors' and health professionals' preparation is enhanced simultaneously, while health assistance is improved as well. We have concluded that the process of teaching must be understood in a participatory way, focusing on the daily work of health services. That is why it is necessary to leave the protected environment of the classrooms and aim at the world of the workplace, where professional, individual and collective behaviors and actions are consolidated. Interdisciplinarity has become an important concept in pedagogical approach in the development of our health professionals.

5. **Ahmad N, MuhdYusoff F, Ratnasingam S, Mohamed F, Nasir NH, MohdSallehuddin S, Aris T. Trends and factors associated with mental health problems among children and adolescents in Malaysia. *International Journal of Culture and Mental Health, (ahead-of-print)*.2014; 1-12.**

Studying trends in mental health morbidity will guide the planning of future interventions for mental and public health services. To assess the trends in mental health problems among children and adolescents aged 5 through 15 years in Malaysia from 1996 to 2011, data from the children's mental health component of three population-based surveys was analysed using a two-stage stratified sampling design. Mental health problems were assessed using the Reporting Questionnaire for Children. The prevalence of mental health problems among children and adolescents aged 5 through 15 years showed an increasing trend from 13.0% (95% Confidence Interval [CI]: 11.5–14.6) in 1996 to 19.4% (95% CI: 18.5–20.3) in 2006 and 20.0% (95% CI: 18.8–21.3) in 2011. In 2011, male children and adolescents and those who were in less affluent families were significantly associated with mental health problems. The findings indicate that even though mental health problems among children and adolescents in Malaysia are increasing, the rate of increase has decreased in the past five years. Socially and economically disadvantaged groups were most vulnerable to mental health problems.

6. **Ahmad WM., Shafiq M, Halim N, Aleng NA. A Study of Triglycerides Level in Three Distinct Phases of Human Blood Pressure: A Case Study from Previous Projects. *Applied Mathematical Sciences*. 2014; 8(46): 2289-2305.**

In this paper we examined the regulatory roles of triglycerides level in three distinct phases of human blood pressure. We used one way ANOVA approached to distinguish the three distinct conditions, which is normal, borderline and hypertensive. According to our results, the systolic blood pressure highly significant different ($F(2, 997) = 3.595, p = 0.028$) across the three distinct phases. We also applied multiple linear regression (MLR) method in order to assess the associated factor of triglycerides level according to the three distinct phases as discussed in ANOVA analysis. In addition, we applied response surface methodology to examine the relationship between triglycerides and a set of quantitative experimental variables. The statistical analyses revealed that there are partially significant differences due to the different distinct phases of blood pressure. The associated factors of triglycerides were total of cholesterol, high density lipoprotein cholesterol and proconvertin. All the variables were statistically significant across the three main conditions. These initial findings from three distinct phases denote that there a negative

association between triglycerides level and HDL cholesterol. This finding shows that the factor of triglycerides level might be a valuable marker of atherosclerosis in three distinct phases of blood pressure.

7. **Ahmed SF, Mansour AM, Klena JD, Husain TS, Hassan KA, Mohamed F, Steele, D. Rotavirus Genotypes Associated with Acute Diarrhea in Egyptian Infants. *The Pediatric infectious disease journal*.2014; 33: S62-S68.**

Background: Before the introduction of rotavirus vaccine in Egypt, information on the burden of disease and the circulating rotavirus genotypes is critical to monitor vaccine effectiveness. **Methods:** A cohort of 348 Egyptian children was followed from birth to 2 years of age with twice-weekly home visits to detect diarrheal illness. VP7 and VP4 genes were genotyped by reverse-transcription polymerase chain reaction and DNA sequencing. **Results:** Forty percentages of children had rotavirus-associated diarrhea at least once by their second birthday. One hundred and twelve children experienced a single rotavirus diarrheal episodes (RDE) at a median age of 9 months; while 27 infants had their second RDE at a median age of 15 months and 1 infant had 3 RDE at the age of 2, 16 and 22 months. Of the 169 RDE, 82% could be assigned a G-type, while 58% had been identified a P-type. The most prevalent genotype was G2 (32%), followed by G1 (24%) and G9 (19%). G2P [4] rotavirus episodes were significantly associated with fever ($P = 0.03$) and vomiting ($P = 0.06$) when compared with other genotypes. G2 strains were the predominant genotype causing 50% of the second RDE while G9 represented 25% of the second RDE. **Conclusions:** Genotypes identified are similar to those detected globally except for absence of G4. Our finding that 75% of the second RDE were due to G2 and G9 indicates a possible reduction in natural protection afforded by these types compared with G1, where 90% of G1 cases did not experience a second exposure, indicating greater protection against recurrent symptomatic infection.

8. **Ally JA. Effect of age at presentation on short term outcome of the ponseti method in the management of congenital talipes equinovarus. Master of Medicine (Orthopaedics and Traumatology) *Dissertation* 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Congenital talipes equinovarus (CTEV) also known as clubfoot is one of the most common congenital conditions presenting at the paediatric orthopaedic clinics at MOI and CCBRT. Historically the treatment of clubfoot evolved from gentle manipulation to aggressive forced manipulation and finally radical surgeries with evidence of unfavourable outcome. Currently non-operative management with the Ponseti method is advocated and has shown high success rates. The age factor has been shown by most authors to have no significant effect on treatment but some still think otherwise. **Objective:** The main aim of this study was to look into the effect of the initial age of presentation at the clinic on short term treatment outcome of the Ponseti method among patients with CTEV. **Methodology:** A prospective, descriptive cross sectional study, was conducted at MOI- paediatric orthopaedic clinic and CCBRT hospital in April 2013-March 2014. 170 children met the inclusion criteria and were enrolled. Children were studied from the beginning of treatment to when they had achieved correction by manipulation and casting sufficiently to require Steenbeek foot abduction brace or tenotomy and a final cast. Data was collected using a structured questionnaire and a validated assessment tool then coded, entered and analysed using SPSS version 16 program. **Results:** 75.9% of children seen were 0-6 months of age, their ages ranged from 1 week to 48months old. The male to female patient's ratio was 1.6:1. The distribution of bilateral and unilateral cases was 47.1% by 52.9% respectively. Overall success rate with the Ponseti treatment in manipulation and casting was 99.4%, 42.9% required tenotomy and one patient needed extensive soft tissue release. Majority of patients (79.2%), below 25 months of age achieved correction faster, 1-5 castings, compared to children 25months and above. **Conclusion:** The success rate with Ponseti treatment among all age groups was high the age at initial treatment favours good short term outcome with the Ponseti method of treatment of clubfoot with fewer sessions of manipulation and castings.

9. **Alex BJ. Blood Utilization among Elective Adult Urological and General Surgical Patients at Muhimbili National Hospital Dar es Salaam. Master of Medicine (General Surgery) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: Transfusion of blood is often a life-saving measure in surgical patients. Many a time, blood units routinely ordered before elective surgery are not utilized, but as they are held in reserve, they are unavailable for other patients who might be in urgent need for transfusion. Over-ordering of blood may be a common practice in some hospitals including MNH. Surgeons sometimes order blood cross-matching only on the basis of habit, tradition and medico legal aspects. This can lead to problems in blood bank inventory management, incur expenditures for reagents, and result in unnecessary laboratory work and extra costs. It may also impose storage problems, loss of half life and hence wastage of blood. Therefore, blood ordering strategy is considered the mainstay of improving utilization of blood while maintaining safety. **Objectives:** The aim of this study is to audit blood utilization among elective adult urological and general surgical patients and to recommend Maximum Surgical Blood Ordering Scheme for MNH. **Methodology:** A descriptive cross sectional study was carried out to determine the practice of blood transfusion in adult urological and general surgical patients undergoing elective surgery at Muhimbili National Hospital between March 1st, 2013 and October 31st, 2013 for whom intraoperative and /or postoperative transfusion was anticipated and preoperative blood requisition was made. The blood requisitioning practices for elective general surgical and urological procedures were compiled and reviewed using structured questionnaire and different transfusion indices were calculated such as transfusion probability (%T), cross-match to transfusion ratio (C/T ratio) and transfusion index (TI). MSBOS was estimated for each procedure and the data were analyzed using SPSS software version 16. **Results:** Blood utilization was only 27% at MNH for adult urological and general surgical elective operations. Blood utilization was insignificant in most of routine elective urological and surgical operations suggesting cross-matching of blood was unnecessary, which resulted in loss of nearly 73% of technician's working hours. **Conclusion:** A Blood ordering pattern should be established. In order to reduce unnecessary cross-matching, MSBOS has to be estimated for each operation. For operations which showed insignificant blood use, type and screen can be done to avoid over cross-matching of blood which have been shown to be irrational, cost ineffective and result in loss of technician's working hours.

10. Alex W. Magesa. **Married Men's Perceptions and Practices on Contraception in Mpanda District, Tanzania. Master of Public.Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: Previous studies that have attempted to explore factors contributing to low contraceptive prevalence have relied on female respondents who identified their male partner's unsupportive practices as being a stumbling block. Consequently, despite men's role in determining utilization of reproductive services, very few studies in Tanzania have involved men themselves in understanding their perception and practices on contraception. Therefore, this study intended to fill this gap in knowledge. **Methods:** A cross-sectional study using both quantitative and qualitative techniques. Semi-structured questionnaires were administered to participants in four (4) villages. Four focus group discussions were conducted in each of these areas. Quantitative data were entered into the computer and analyzed using SPSS. Data were summarized using frequencies and percentages. Chi square test was done to test for associations between variables. Thematic approach was used to analyze qualitative data. **Results:** Awareness among married men on contraceptive was high to 81% of the participants. About 48% of married men participated on this study were aware of male centered methods and 2% of them were aware of women centered methods. On perception 68.4% of married men favored the use of family planning. There was low utilization of family planning among married men only 31.6% used male centered family planning methods. Married men they don't like to accompany their partners on clinic visits due to long waiting time, distance from health facility and feeling that they have nothing to do at clinics. **Conclusion and recommendation:** This study has demonstrated awareness – practice gap. That is, despite being aware of contraceptives majority of men who participated in this study indicated that they do not engage in contraception. Nevertheless, there are some men who indicated to be supportive to their partners – implying a window of hope for utilizing some positive minded men as change agents toward improving uptake of contraceptive.

11. Ali K, Fajehi M, Rifai D, Adimah R, Ibrahim T. Long Distance Wireless Monitoring Security House System. *Australian Journal of Basic & Applied Sciences*. 2014; 8(4).

The improvement of utilization wireless systems in the technology of security and automation such as security house system, wireless communications, productions monitoring process and wireless sensor applications have contributed a large transformation in Global Mobile Communication System (GSM) recently. It is very silent in facilitating and enhancing better performance both in the industry and our daily lives. This paper presents a wireless monitor and control alarm system based on GSM. This system uses microcontroller AT89C51 as the MCU, infrared sensor and a PIR sensor (SN-PIR) to sense the human movement at living room. The operation of proposed system is more efficient and accurate in long distance monitoring by using GSM as a wireless devices from the conventional or alarm system. System design was tested at the room and the data analysis for time response and efficiency of sensor used has being taken. The testing result show that the distances for data sending are more widely and fasting response in any sensor are triggering.

12. Ali Z, Shafiq M, Asadabadi SJ, Aliabad HR, Khan I, Ahmad I. Magneto-electronic studies of anti-perovskites NiNMn₃ and ZnNMn₃. *Computational Materials Science*.2014; 81: 141-145.

Density functional theory is used to investigate the structural, electronic and magnetic properties of the anti-perovskites NiNMn₃ and ZnNMn₃. The calculated structural parameters are found consistent with the experimental results. The spin-polarized calculations of the electronic properties show metallic nature of these compounds. Furthermore the magnetic phase for each compound is optimized, which reveals that both of these compounds prefer anti-ferromagnetic phase. The calculated effective magnetic moments are also found consistent with the experimental values. The studies presented in this paper confirm the magnetoresistive nature of these compounds.

13. **Ally TI. Assessment Of Knowledge, Perception And Reporting Of Adverse Drug Reactions Among The Health Care Professionals In Dar Es Salaam And Coast Region, Tanzania. Master of Science (Pharmacy) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: Spontaneous reporting of Adverse Drug Reactions (ADRs) is considered as a cornerstone of pharmacovigilance. However, its success depends on the co-operation among consumers and the Health Professionals (HCPs) and motivation among the health workers. Under-reporting of ADRs by health workers has remained a common problem, apparently because of lack of awareness, poor knowledge and negative perception toward ADRs. Despite the primacy of ADRs, there has been a research vacuum in this area of study, which prompted the researcher to embark on this study with a view of assessing the Knowledge, perception and reporting of adverse drug reactions among the Health Care Professionals in Health Facilities, using the cases of Dar -es - salaam and Coast Region in Tanzania. **Aim of the Study:** This study was undertaken to assess the knowledge, perception and reporting practice relating to ADR among HCPs in the public and faith based Health Facilities (HF). Specifically, the study aimed at identifying the factors associated with under reporting of ADRs. **Methodology:** A descriptive cross sectional survey was conducted involving 483 HCPs selected from regional hospitals in Dar –es- Salaam and Coast regions. The Special Package for Social Sciences (SPSS version 16) computer software was used for data entry to enhance data analysis and interpretation. Likewise, the Microsoft excel was used to complement the SPSS. **Results:** This findings of the study revealed that HCPs had limited knowledge of ADRs reporting. Only 6.6% of the respondents reported ADRs despite the fact that 71.4% of them were aware of ADRs. Moreover, there was no significant difference in the level of knowledge in regard to ADRs reporting among HCPs ($P > 0.05$). The majority (62.7%) of the HCPs had positive perception toward ADRs reporting. **Conclusion and Recommendations:** The HCPs demonstrated positive perception towards ADRs reporting practice, though they were not routinely reporting them. Given that both HCPs and patients play important role in ADR reporting, the Government, through the National Regulatory Authorities, has to devise some intervention measures aimed at enhancing ADRs reporting practice. This

will contribute towards ensuring availability of ADR reporting forms in the Health facilities.

14. Almuheid AT, Yousef S, Aboud S. Performance Evaluation of Quality Metrics for Single and Multi Cell Admission Control with Heterogeneous Traffic in WCDMA Networks. *International Journal of Engineering and Technology*. 2014; 4(1).

Call Admission Control (CAC) is one of the various radio resource management (RRM) congestion control functions in WCDMA systems. A lot of call admission control CAC algorithms are being used to keeping the interference below specific threshold level in order to improve the quality of service (QoS) and performance of the system . This paper performs deep analysis and evaluates the comprehensive differences between Single and Multi Cell Call Admission Control (SC-CAC and MC-CAC) algorithms in Wireless Coded Division Multiple Access (WCDMA) networks. MATLAB simulation model of a simple WCDMA system with CAC is implemented and analyzed to make a clear comparison between the two CAC algorithms in terms of outage probability, bit error rate (BER) and channel capacity which does not have an exact limit in WCDMA technique. Optimal power allocation water-filling formula is considered to calculate the maximum Shannon capacity over the fading channel. The simulation results show that MC-CAC has better performance scenario than the SC-CAC, therefore a lot of maximum values of capacity of Shannon's channel as well as minimum values of outage probability can be achieved by performing MC-CAC into the network. As a result this will improve the QoS. Three traffic classes (voice, multimedia and video) have been considered along different outage signal-to-interference ratio (SIR) thresholds. This paper shows that Multi Cell CAC has better features than Single Cell CAC in WCDMA networks.

15. Aloyce R, Leshabari S, Brysiewicz P. Assessment of knowledge and skills of triage amongst nurses working in the emergency centres in Dar es Salaam, Tanzania. *African Journal of Emergency Medicine*. 2014; 4(1): 14-18.

Background: The triage nurse in the emergency centre (EC) is the first person that a patient encounters and the triage nurses' knowledge has been cited as an influential factor in triage decision-making. The purpose was to assess the triaging knowledge and skills of

nurses working in the ECs in Dar es Salaam, Tanzania. **Methods:** Both descriptive cross-sectional and observational study designs were used and data was collected using a structured questionnaire, an observation checklist and a triage equipment audit record. The study population was all nurses (enrolled and registered) working within the EC of the national hospital and three municipal district hospitals in Dar es Salaam. Descriptive statistical data analysis was carried out using SPSS 13.0. **Results:** Thirty three percent (20/60) of the respondents were not knowledgeable about triage. Thirteen percent of the respondents reported that although they had attended workshops, there had been a lack of information on how to triage patients. More than half (52%) of the respondents were not able to allocate the patient to the appropriate triage category. Fifty eight percent (35/60) of the respondents had no knowledge on waiting time limits for the triaged categories. Among the four hospitals observed, only one had nurses specifically allocated for patients' triage. The respiratory rate of patients was not assessed by 84% of the triage nurses observed. No pain assessment was done by any of the triage nurses observed. Only one out of four ECs assessed had triage guidelines and triage assessment forms. **Discussion:** Nurses who participated in this study demonstrated significant deficits in knowledge and skills regarding patients' triaging in the EC. To correct these deficits, immediate in-service training/education workshops should be carried out, followed by continuous professional development on a regular basis, including refresher training, supportive supervision and clinical skills sessions.

16. **Alrashidi, A. E-learning in Saudi Arabia: A Review of the Literature. British Journal of Education, Society and Behavioural Science. 2014; 4(5): 656-672.**

Distance education and the use of digital information technologies are growing rapidly throughout the world, in cities as well as in remote areas. Distance education and distance learning refer to a variety of different learning methods [1]. However, communication can be conducted online via e-mail or on the designated course website Saudi Arabia has enthusiastically embraced distance learning, especially in recent years. This paper will discuss the new era that the government of Saudi Arabia is ushering in with its implementation of the distance learning system. Despite this progress, there have been many criticisms, fears, doubts, unanswered questions, and expressions of pessimism about

the value and ultimate success of the proposed distance learning system. The study was conducted to examine the literature regarding E-learning in kingdom of Saudi Arabia that influenced the implementation and integration of distance learning for higher education systems. The author attempts to use this literature review to demonstrate the cultural, social, and economic benefits of E-learning because it allows for the development of knowledge.

17. Amanda EK. Bacteremia Among Febrile Paediatric Patients With Malignancy Admitted At Muhimbili National Hospital From June 2012 To January 2013. Master of Medicine (Paediatric and Child Health) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.

Background: Bacteraemia is the presence of microbes (bacteria) in the blood with significant clinical consequences that include fever, chills, hypotension, and often hemodynamic instability and compromise. Limited data is available on infectious complications in Paediatric oncology patients in countries where most patients come from a rural area like Tanzania. In Africa not much has been recorded on bacteraemia in children with cancer, However the few countries where bacteraemia has been studied and published, there is evidence that cancer children get bacteraemia. Hence, evidenced based treatment is needed for better management of this group of children. There is a need to know the trends of the infecting bacteria to treat the specific organism that may grow in blood culture and not rely on empirical treatment that is now on the danger of resistance as observed in the Paediatric oncology wards. **Objectives:** To determine the prevalence of bacteraemia, aetiological agents and antimicrobial susceptibility patterns among paediatric patients with malignancies presenting with fever attending Muhimbili National Hospital in Dar es salaam, Tanzania. **Methods:** A descriptive hospital-based cross sectional study was conducted among paediatric patients with malignancy who presented with fever according to WHO definition of temperature $\geq 37.5^{\circ}\text{C}$ from June 2012 to January 2013. A structured questionnaire was used to obtain socio-demographic and clinical information including prior history of antibiotics. Blood specimen was collected under aseptic technique for culture and sensitivity and a complete blood count. Pure colonies were identified based on characteristic morphology, gram stain appearance and

standard commercially prepared biochemical tests, and thereafter antibiotic susceptibility testing was done. Data analysis was done using SPSS version 20.0. Multivariate Analysis was performed to identify predictors of outcome variable. A p-value of less <0.05 was considered statistically significant. **Results:** One hundred and forty five patients who met inclusion criteria were recruited into the study, of which 70 (48.3%) were male and 75(51.7%) were females, 60 (41.5%) were under five years while 85 (58.6%) were 5 to 18 years old. Seventy (48.3%) children had blood stream infections. The common aetiological agents were Coagulase negative staphylococcus (CoNS) 36 (51.4%), Staphylococcus aureus 8 (11.4%), Klebsiella spp 12 (17.1%) and Escherichia coli 7(10%). The microorganisms isolated were resistant to ampicillin 70(100%), cloxacillin 65 (92.9%), gentamycin 49(70%) and moderately resistant to ceftriaxone 38(54.3%). Of the bacteria organisms isolated, 92.6% were sensitive to amikacin and vancomycin. Fever was found to be independent predictor of blood stream infections. **Conclusions:** About half of the paediatric patients with malignancies had bacteraemia, with CoNS as the most cultured bacteria. There was a high resistance of the microorganism to the commonly used antibiotics like ceftriaxone, gentamicin, ampicillin and cloxacillin in paediatric oncology ward. Duration of cannula insitu was the significant predictor for bacteremia.**Recommendations:** Fever should be investigated by blood cultures and complete blood count in paediatric patients with malignancies. CoNS should not be regarded as contaminants but potential pathogen that needs to be managed thoroughly. With high in-vitro resistance to ampicillin and gentamicin, the findings from this study suggest that vancomycin and amikacin can be used as first line drugs. Paediatric patients with malignancies should have IV cannulas changed in 72 hours.

18. Ambrose IT. Clinical And Biochemical Outcomes In Patients With Prostate Cancer Undergoing Orchidectomy As Primary Therapy In Dar es Salaam. Master of Medicine (General Surgery) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.

Introduction: Prostate cancer is the most common malignancy in men and the second cause of mortality among cancer patients after lung cancer, with average age at diagnosis being 69.1 years though young men are not spared. In Tanzania the incidence was found

to be 8.9%. Prostate cancer is asymptomatic at early stages and therefore patients with prostate cancer are diagnosed at late stage. Patients present with lower urinary tract symptoms (LUTS) and bladder outlet obstruction (BOO) plus metastatic manifestations. Bilateral orchidectomy is the mainstay of treatment in our settings, therefore clinical and biochemical outcomes after bilateral orchidectomy are desirable in our patients so treated. Objective: To determine clinical and biochemical outcomes in patients with prostate cancer who undergoing bilateral orchidectomy as primary therapy at Muhimbili National Hospital and Tumbaini Hospital, Dar es Salaam, Tanzania. Method: This was a descriptive prospective hospital based study among patients who are already diagnosed with cancer of prostate by histology for a period of one year between January and December 2013. A written informed consent was obtained to participate in the study. The 90 histological proven prostate cancer patients were enrolled into the study with known Gleason grade and serum PSA. The study recruited in- and out- patients from the two hospitals. The patients' clinical features like LUTS, BOO; metastatic features and biochemical features like PSA recorded in structured questionnaire were assessed three months after bilateral orchidectomy. The patient's or relative's cellular phone numbers were recorded to facilitate follow up. Data analysis done using SPSS version 20 and chi square test were performed with level of significance taken to be P- value < 0.05. **Results:** Ninety patients were enrolled but eighty six patients data were finally analyzed. The mean age was 73+_9 and the age group 70-79 had majority of the patients (45%). Fifty nine of 86 patients (69%) presented with lower urinary tract symptoms (LUTS), 41.9% with bladder outlet obstruction (BOO), 10.5% with paraplegia, 52.3% with bone pain, and 24.4% with lumb0-sacral spine metastasis. There were significant improvements of the symptoms of LUTS, BOO and metastatic symptoms three month after bilateral orchidectomy. The majority of the patients (94.2%) had PSA above 10ng/ml. It reduced by 44.2% three months after bilateral orchidectomy while Gleason' grade showed association with lumbo-sacral spine metastasis. **Conclusion:** There was significant improvement in lower urinary tract symptoms, bladder outlet obstruction and metastatic manifestations in patients with prostate cancer three months after bilateral orchidectomy. Bilateral orchidectomy significantly lowered serum PSA to normal level. Therefore,

bilateral orchidectomy is an effective intervention in treatment of advanced prostate cancer.

- 19. Aminkeng F, Ross CJD, Rassekh SR, Brunham LR, Sistonen J, Dube MP, Hayden MR. Higher frequency of genetic variants conferring increased risk for ADRs for commonly used drugs treating cancer, AIDS and tuberculosis in persons of African descent. *The pharmacogenomics journal*. 2014; 14(2): 160-170.**

There is established clinical evidence for differences in drug response, cure rates and survival outcomes between different ethnic populations, but the causes are poorly understood. Differences in frequencies of functional genetic variants in key drug response and metabolism genes may significantly influence drug response differences in different populations. To assess this, we genotyped 1330 individuals of African (n=372) and European (n=958) descent for 4535 single-nucleotide polymorphisms in 350 key drug absorption, distribution, metabolism, elimination and toxicity genes. Important and remarkable differences in the distribution of genetic variants were observed between Africans and Europeans and among the African populations. These could translate into significant differences in drug efficacy and safety profiles, and also in the required dose to achieve the desired therapeutic effect in different populations. Our data points to the need for population-specific genetic variation in personalizing medicine and care.

- 20. Amritbir SN. Needle Stick Injuries and Adherence to Universal Precautions. *Medicine (General Surgery) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.***

An estimated 12 billion injections are administered each year worldwide. Each year, according to the World Health Organization (WHO) estimates, over three million people are injured by accidental needlesticks. Across Africa and Asia, implementing safety regulations can be very challenging as their problems are distinctly unique. Although most healthcare professionals are aware of the danger of sharp injuries, steps to ensure prevention are usually minimal. This is not only due to the lack of understanding of the potential dangers but also because of the limited availability and the limited financial capabilities of securing devices with incorporated safety devices. Over 80% NSIs are

preventable. The most effective means of preventing the transmission of blood-borne pathogens is to prevent exposure to NSIs. Primary prevention of NSIs is achieved through the elimination of unnecessary injections and elimination of unnecessary needles. The implementation of education, Universal Precautions, elimination of needle recapping, and use of sharps containers for safe disposal have reduced NSIs by 80%, with additional reductions possible through the use of safer needle devices. **Broad Objective:** To determine the prevalence, causal factors of NSIs and adherence to universal precautions in MNH and MOI operating suites. **Materials and Methods:** Design: A hospital based cross-sectional study. Setting: The study was conducted in main operating Suites of Muhimbili National hospital and Muhimbili Orthopedic Institute. Participants: All surgeons, their assistants and operating room nurses utilizing the services of Muhimbili Operating Theatres (MNH and MOI) were requested to participate in the study. 211 HCWs from various surgical departments were enrolled in the study. **Results:** A total of 211 healthcare workers participated in this study. Of these, 145 (68.7%) did not report any needle stick injury and 66 (31.3%) reported to have sustained needle stick injuries. So, the prevalence of needle stick injury in MNH and MOI was 31.3%. The highest frequency and prevalence of NSIs is amongst resident doctors (31.81%), followed by senior doctors (28.78%), intern doctors (15.15%), operating room nurses (13.63%) and medical officers (10.60%). Among 66 participants who sustained NSIs, (a). The most common causative factor was found to be Suture Needles 54 (81.82%), followed by Hollow-bore Needles 9 (13.63%) and Scalpels 3 (4.55%). Lancets did not account for any needle stick injury. (b). The most common circumstance attributing to injury was found to be Inappropriate Instruments 46 (69.70%), followed by Tiredness 12 (18.18%) and Others 8 (12.12%). Among the 8 who indicated others, 3 were in hurry, 3 occurred accidentally, 2 inadequate spaces. (c). Thirty two (48.48%) did not report the incident, 29 (43.94%) reported to the appropriate operating suite in charge, 2 (3.03%) reported to colleagues, 1 (1.51%) reported to Infection Control Unit, 1 (1.51%) reported to Emergency Department and 1 (1.51%) reported to Physician. (d). Thirty eight (57.57%) did not check their serostatus after NSI. (e). Majority 63 (95.45%) did not start Post Exposure Prophylaxis and only 3 (4.5%) started Post Exposure Prophylaxis. (f). Forty six (69.69%) tested the serostatus of the patient and 20 (30.30%) did not check the serostatus

of the patient after NSI. **Conclusion:** This study has shown that • the prevalence of NSIs amongst HCWs at main operating theatres at MNH and MOI is 31.3%. This is a high number and indicates that HCWs are commonly exposed to accidental NSIs, not just once but on multiple occasions. • The frequency of NSIs is highest amongst resident doctors (31.81%), followed by senior doctors (28.78%), intern doctors (15.15%), operating room nurses (13.63%) and medical officers (10.60%). • The most common instrument which leads to accidental NSIs was Solid Suture Needles (81.82%). • The most common circumstance leading to NSIs was Inappropriate Instruments (69.70%) mostly poorly functional worn out needle holders. • The rate of non-reporting was 48.48%, which is very high. • The Knowledge and understanding of universal precautions is partial, and universal precautions compliance is suboptimal amongst HCWs at MNH and MOI Main Operating Suites.

21. **Anna WM. Perceptions towards Physical Violence against Children and Its Associated Factors in Temeke Municipal, Dar Es Salaam, Tanzania. Master of Public Health Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: Violence against children (VAC) has become a serious public health problem all over the world. Physical violence against children (PVAC) is one form or category of Violence against children which exposed most children to social and health consequences. Most of children are experiencing physical violence in homes, schools, institutions, work places and in prisons. A physical violence affect child's physical, mental, and impairs their ability to learn and socialized. It undermined their development, their adulthoods and being good parents later in their life. In most severe cases can lead to death. **Objective:** The main objective of this study was to determine the magnitude, perception of teachers and parents/guardians on physical violence against children and its associated factors among primary school age from 10 to 15 years of age in Temeke District. **Methods:** A Cross-sectional descriptive both qualitative and quantitative study conducted from April to May 2014. Data were collected using self-administered questionnaire and in depth interviews. Dependent variable was experience on physical violence and independent variables were age, gender of primary school children. In depth

interview was conducted to key informant (teachers and parents/guardians) on physical violence perception until the information gathered are almost repeated or saturated. Data was analyzed using excel spread sheet software then transferred to Statistical Package for Social Science for quantitative and for qualitative Content analysis was used. **Results:** A total of 400 primary school children were confirmed by their parent through signing the consent form to participate in the study. Their age range from 10 to 15 years (52.7% boys and 47.3% girls) median 13 and standard deviation of 0.86. The magnitude of physical violence was (70%) of which 69.2% were boys and 70.9% girls ($p>0.05$). Thirty six point eight percent (35.5% boys and 38.1% girls) said sisters were the leading on practiced physical violence and followed by bothers (22.2%), aunt (17.5%) uncle (10.8%), mothers (6.8%) and fathers (6%) respectively. Therefore sisters are perceived to be the leading perpetrator of practicing physical violence than the rest by (36.8%). 7. This study revealed that behavior, undisciplined and misconducts are main factors that contribute to physical violence against children. Also academic performance, school attendances seems to be the second leading factors followed by social cultural factors. These social culture factors are breakage of home and school rules, missed classes, and not performing home duties, unaccomplished school duties assigned by teachers or parents at home. Also study found out that teachers and parents or guardians perceived application of physical violence in form of corporal punishment is the best approach for behavior correctness but without causing harm to a child. Use of actions like (slapped, pushed, hit with a fist or punched, kicked, or whipped or threatened with a weapon such as heavy objects or knife) are not appropriate for discipline or behavior correctness although majority of people are used to. **Conclusion:** Physical violence against children is being practiced in form of corporal punishment by teachers, parents and guardians for correcting behavior. Children are experiencing high physical violence where by perception of teachers, parents and guardians in execution of physical violence in form of corporal punishment are completely different, and hence the children also perceive it differently. A need of reframe the physical punishments known as corporal punishment are of great importance for community to have common understanding for behavior correction.

22. **Arafa SK. Factors Affecting the Supply Chain of Medicines for Neglected Tropical Diseases in Mkuranga District Coast Region-Tanzania. Master of Science (Pharmaceutical Management) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: Neglected Tropical Diseases (NTDs) are a set of infectious diseases arising from a diverse group of parasitic worms and bacteria. About one billion people are affected by these diseases due to lack of access to safe water and sanitation, causing disability; blindness and severe disfigurement. The government of Tanzania has committed itself to improve the health of its citizens, thus setting a vertical program for these diseases, which most of them are readily preventable. Most of the medicines used in this program are donated by World Health Organization (WHO) and other donors and are distributed during Mass Drug Administration (MDA). The performance of this system had never been evaluated in Tanzania. **Objective:** To identify the factors affecting the supply chain of medicines for NTDs in Mkuranga district, Coast region-Tanzania. **Methodology:** The study was a cross-sectional qualitative study involving all personnel in the supply chain of NTDs from NTDCP to community level. This study was conducted in Mkuranga district, Coast region. Data collection was done by using an interview guide whereby face to face interviews were recorded and notes taken. Data analysis was done by organizing data, breaking it into manageable units, synthesizing it, searching for patterns, discovering what is important and what is to be learned. **Results:** In this study factors described were lack of communication, team work and capacity building in all parts of this supply system. But also lack of education to community members about the importance of taking these medicines and inefficiency of MSD's Epicor9 System were among other factors that affect the supply system of NTDs medicines. **Conclusion:** The lack of communication, team work and capacity building in all parts of the supply system and the community member's lack of education about the importance of taking NTD medicines were among the major factors affecting the supply system. Therefore it is recommended that the government through the program should make efforts to increasing public awareness about NTDs medicines and making sure that all stakeholders and the community in general work as a team and make this supply chain efficient.

23. Arrey TO. **The Effect of I.V Lignocaine on Cardiovascular Responses Due To Laryngoscopy and Intubation among Elective Surgery Patients at Muhimbili Orthopedic Institute, Tanzania. Master of Medicine (Anesthesiology) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: Cardiovascular changes during laryngoscopy and end tracheal intubation have been a challenge for decades. These are transient, self-limiting and innocuous in healthy individuals, but would be devastating to patients with co-morbidities like cardiovascular diseases and cerebrovascular diseases. **Broad objective:** To evaluate the effects of plain intravenous (I.V) lignocaine on cardiovascular responses due to laryngoscopy and end tracheal intubation, among patients undergoing elective surgery at Muhimbili Orthopedic Institute (MOI). **Methodology:** A prospective randomized, single blinded controlled study, between I.V bolus lignocaine and placebo was conducted. The study was conducted at MOI, and all patients were ASA II and I. Standard induction and maintenance of anesthesia was done, after which the patients were intubated. And three minutes prior to intubation, 1.5mg/kg I.V bolus plain lignocaine was given to the patients in the drug group while 0.9 % normal saline was given to the patients in the control group. The changes in blood pressure (BP) and heart rate (HR) were recorded for the first 5 minutes using automated BP measuring device. **Results:** Systolic blood pressure (SBP) in the control group rose after the first minute post intubation, then decreased gradually to values below baseline. While SBP in the drug group decreased from first minute post intubation to values below baseline. The diastolic blood pressure (DBP) in both groups decreased from first minute post intubation to values below baseline. The mean arterial pressure (MAP) in both groups increased in the first 3 minutes post intubation, after which it decreased in the 4th and 5th minute to values below baseline. The HR in both groups increased from first minute post intubation and remained higher than the baseline value throughout the study period. **Conclusions:** We observed a consistent change in the HR due to lignocaine effect. The increase in HR that was high enough to cause CV complication (>20% baseline) was observed consistently in the control group, throughout the study period. There was also a change seen in the SBP due to lignocaine effect. In both the HR and SBP changes observed, there was a protective effect seen in the lignocaine group. The lignocaine group had a lesser increase in HR, and a decreased SBP

that was seen particularly after 1st minute post intubation, compared to the control group. In the other parameters such as DBP and MAP, no change was seen between both groups.

24. **Arwa A. Prevalence and Risk Factors of Tuberculosis in Patients Attending Diabetic Clinics in Dar Es Salaam, Tanzania. Masters of Medicine (Internal Medicine) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: With an estimation of infection amongst one thirds of the world's population, Tuberculosis is the second leading cause of death from an infectious disease worldwide, after the human immunodeficiency virus (HIV). Patients with diabetes mellitus have been found to have a higher than average risk of contracting Tuberculosis. There is contradictory information about the clinical presentation of TB in diabetic patients their radiological presentation, sputum conversion rates, drug resistance patterns and treatment outcomes. Nevertheless, the relative odds of increasing the risk of developing TB in Diabetic patient's ranges from 2.44 to 8.33 in many case-control studies compared with non diabetic patients. However, there is no recent data on the prevalence and risk factors of tuberculosis in diabetic patients in Dar Es salaam, Tanzania. **Objective:** This study aimed to determine the prevalence and risk factors of TB in patients attending diabetic clinic in Dar es Salaam, Tanzania **Methods:** A descriptive cross sectional hospital based study for a period of six months, April 2013 through October 2013. During this period, patients attending the outpatient MNH and Temeke diabetic clinics were enrolled and screened for tuberculosis using a screening tool. The data included demographic data, screening questions for TB, anthropometric measurements and clinical information. Blood for FBG, glycated hemoglobin, and determine test was obtained. A diagnosis of TB was made according to national tuberculosis and leprosy program me and if the patients presented with clinical symptoms suggestive of TB and at least one of the following: a positive sputum smear on Ziehl Nielsen for acid fast bacilli (AFB), chest radiographic findings suggestive of TB and a positive gene Xpert/RIF-TB. The collected data was recorded, cleaned, validated and finally analysed using SPSS version 16.0. **Results:** A total of 601 diabetic patients were enrolled into the study. The mean age (\pm standard deviation) of the study

participants was 53 years (± 12.49) years. The prevalence of tuberculosis among diabetic patients was 3.3% in Dar Es Salaam, Tanzania. In univariate analysis it was found that those diabetic patients with uncontrolled HbA1c were 36 times more likely to develop tuberculosis compared to those diabetic patients who had controlled glycated hemoglobin ($p < 0.001$). Male gender (AOR: 4.02; 95% CI: 1.13-14.25), increased number of people per room (AOR: 44.28; 95% CI: 10.29-190.54), low BMI (AOR: 21.75; 95% CI: 3.03-156) and contact with TB patients in the family (AOR: 9.28; 95% CI: 2.76-31.15) were independently associated with the development of tuberculosis in patients attending diabetic clinics.

Conclusion and Recommendation: This study has revealed that tuberculosis among diabetic patients is several times higher than in general population. Tuberculosis was occurring more among those who were aged 40 years and above, male gender, no or low income and those with poor glycemic control. Male genders, overcrowding, low BMI and previous history of TB contact were independent risk factors for occurrence of TB in diabetic patients. Therefore, screening of diabetic patients for tuberculosis during follow-up is necessary.

25. Auld AF, Agolory SG, Shiraishi RW, Wabwire-Mangen F, Kwesigabo G, Mulenga M, Ellerbrock TV. Antiretroviral therapy enrollment characteristics and outcomes among HIV-infected adolescents and young adults compared with older adults—seven African countries, 2004-2013. 2014.

Although scale-up of antiretroviral therapy (ART) since 2005 has contributed to declines of about 30% in the global annual number of human immunodeficiency (HIV)-related deaths and declines in global HIV incidence, estimated annual HIV-related deaths among adolescents have increased by about 50% and estimated adolescent HIV incidence has been relatively stable. In 2012, an estimated 2,500 (40%) of all 6,300 daily new HIV infections occurred among persons aged 15-24 years. Difficulty enrolling adolescents and young adults in ART and high rates of loss to follow-up (LTFU) after ART initiation might be contributing to mortality and HIV incidence in this age group, but data are limited. To evaluate age-related ART retention challenges, data from retrospective cohort studies conducted in seven African countries among 16,421 patients, aged ≥ 15 years at enrollment, who initiated ART during 2004-2012 were analyzed. ART enrollment and

outcome data were compared among three groups defined by age at enrollment: adolescents and young adults (aged 15-24 years), middle-aged adults (aged 25-49 years), and older adults (aged ≥ 50 years). Enrollees aged 15-24 years were predominantly female (81%-92%), commonly pregnant (3%-32% of females), unmarried (54%-73%), and, in four countries with employment data, unemployed (53%-86%). In comparison, older adults were more likely to be male ($p < 0.001$), employed ($p < 0.001$), and married, ($p < 0.05$ in five countries). Compared with older adults, adolescents and young adults had higher LTFU rates in all seven countries, reaching statistical significance in three countries in crude and multivariable analyses. Evidence-based interventions to reduce LTFU for adolescent and young adult ART enrollees could help reduce mortality and HIV incidence in this age group.

26. Azhar S, Shafiq M, Niazi S. Lifestyle and Environmental Factors Associated With Insulin Resistance in Children. 2014.

Sedentary life style, environmental changes and dietary habit like sitting against TV and internet, junk food, no exercise or physical activity causes Obesity. This study was carried out on 100 overweight children, age between 5-16 years of either gender. Patients were selected according to their life style and history of diabetes. Their Body Mass Index (BMI), and waist hip ratio (W/H) was measured by following the criteria of the national heart lung and blood institute. Normal ranges of BMI and waist hip ratios of children are same as adults but calculation is different. BMI and waist hip ratio in children is calculated by Z score. Fasting blood sugar (FBS), insulin and insulin resistance were analyzed in both genders separately. The statistical analysis of anthropometrics study was noted in both the genders of children. It was observed that body mass index was slightly increased in boys 28.05 ± 0.33 than girls 27.94 ± 0.34 with non-significant P value ($P > 0.05$), whereas W/H was significantly increases in girls 1.399 ± 0.08 when compared with boys 1.89 ± 0.074 , but with non-significant P value ($P > 0.05$). FBS was increased in girls 160.04 ± 2.55 when compared with boys 151.96 ± 2.32 with highly significant P value ($P < 0.001$), whereas same level of insulin and insulin resistant (IR) was observed in both cases of children i.e. insulin in boys 5.82 ± 0.24 and girls 5.77 ± 0.25 and insulin

resistance in boys 1.88 ± 0.061 and girls 1.82 ± 0.054 with highly significant P value ($P < 0.001$).

27. Aziza MR. Impact of Pima Point of Care Cd4 T-Cell Count Analyzer on Initiation and Monitoring Of HIV-Infected Patients on Antiretroviral Therapy in Arusha Tanzania, 2013-2014. Master of Science (Epidemiology and Laboratory Management) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.

Background: CD4 T cell count is an indicator of immunological status and it used as eligibility criterion for initiation of HIV-infected patients on ART by WHO disease staging. Prompt CD4 T cell count testing is proper for early initiation on ART. Limited access and delayed turnaround time to obtain CD4 T cell count results have resulted into late initiation of ART and poor patient monitoring. Roll out of point-of-care (POC) CD4 T cell count devices-PIMA analyzer was implemented during the first quarter of 2012 and completed at the end of 2012 with initial deployment in 125 sites. Pima analyzer is a portable device designed for both laboratory and non-laboratory settings and can be operated by healthcare professionals with no or minimal laboratory experience there by reducing turnaround time of CD4 T cell count results from more than 2 weeks to about 20 minutes. **Objective:** To determine the impact of utilization of POC CD4 T cell count PIMA analysers on uptake of CD4 testing and ART initiation of eligible patients in health care centres in Arusha **Methods:** The study was comparative cross sectional conducted from October 2013 to December 2013. A total of 10 health centres including 5 with CD4 T cell count Pima analyzer and 5 without Pima analyzer was included. Two hundred ninety four patients attending care and treatment clinics and 10 Health care workers were enrolled. Data on socio-demographic and clinical characteristics were collected using structured questionnaires. Analysis was done by Epi Info (version 3.5.4), Stata (version 11.2) and Microsoft Excel. Continuous variables were reported using mean and median while categorical variables were reported in proportions. Chi-square test, risk ratio and 95% confidence intervals (CI) was used to compare outcomes between the two groups. A multiple logistic regression model was used to determine the independent factors associated with early initiation of ART. Factors with P value < 0.05 were considered

significant. **Results:** A total of 294 HIV infected patients were enrolled in this study, of these, 166 (56.5%) were females. The overall mean age of patients was 35.7 years \pm 12.3(SD), 111(37.8%) were on ART while 95 (32.3%) were newly diagnosed patients. Of the newly diagnosed patients, 74 (77.8%) were eligible for ART initiation, 40 (54.1%) from Pima containing sites and 34 (45.9%) from non Pima containing sites. Pima sites initiated all 40(100%) patients earlier compared to 4(11.2%) early initiation in non Pima containing sites ($p < 0.001$). Median days between first CD4 T cell count test being done to ART initiation in Pima sites was reduced to 1day (IQR1-3) as compared to 21 days (IQR) 16-26) in non Pima sites ($p < 0.001$). **Conclusions:** and recommendations: POC CD4 T cell testing showed positive impact on increasing access to CD4 T cell testing; it significantly reduces time from diagnosis to ART initiation of eligible patients which in turn will improve wide accessibility of ART, quality of care and survival of HIV-infected patients on treatment.

28. Balandya BS, Pembe AB, Mwakyoma HA. Cervical pre-malignant lesions in HIV infected women attending care and treatment centre in a tertiary hospital, Dar es Salaam, Tanzania. *East African journal of public health.* 2014; 8(3): 185-189.

The aims of this study was to determine proportion of HIV infected women with cervical pre-malignant lesions; and compare the use of Visual Inspection of the cervix after application of Acetic acid (VIA) and Papanicolau (Pap) smear in screening for cervical premalignant lesions in HIV positive women attending Care and Treatment Centre (CTC) at Muhimbili National Hospital (MNH), Dar es Salaam, Tanzania. A total of 316 women aged 18-70 years had a Pap smear taken for cytology, followed by spraying onto the cervix with 4% acetic acid and then inspecting it. Cytology was considered negative when there was no Cervical Intraepithelial Neoplasia (CIN) lesion reported from the Pap smear taken, and positive if CIN lesion 1, 2 or 3 was reported. Detection of a well-defined, opaque acetowhite lesion close to the squamocolumnar junction or close to the external cervical os constituted a positive VIA. Out of 316 women, 132 women had acetowhite lesions on VIA, making the proportion of abnormal cervical lesions to be 42.4%. One hundred and one out of 312 women (32.4%) had CIN lesions detected on Pap smear. The proportion of agreement between these two tests was 0.3. The proportion of

agreement was moderate in women with advanced WHO HIV clinical stage of the disease and in women not on ART (Anti Retroviral Therapy). Women with CD-4 count less than 200 cells/mm³ had more abnormal cervical lesions. There is considerable proportion of HIV positive women with premalignant lesions of the cervix. Considering the proportion of HIV women with abnormal lesions and the difficulty in logistics of doing Pap smear in low resource settings, these results supports the recommendation to introduce screening of premalignant lesions of the cervix using VIA to all HIV infected women.

29. Balandya E, Miller AD, Beck M, Liu J, Li H, Borducchi E, Barouch DH. Adenovirus Serotype 26 and 35 Vectors Induce Simian Immunodeficiency Virus-Specific T lymphocyte Responses in Foreskin in Rhesus Monkeys. *Journal of virology*. 2014; 88(7): 3756-3765.

Foreskin is the principal site of heterosexual HIV-1 infection in men. However, little is known about HIV-1-specific immune responses or inflammation in foreskin. To the best of our knowledge, no previous studies have assessed immune responses to candidate HIV-1 vaccines in foreskin. Using the rhesus monkey model, we show that intramuscular immunization with adenovirus serotype 26 and 35 vectors expressing SIV antigens elicited durable SIV Gag-specific CD4⁺ and CD8⁺ T cell responses in foreskin that were detectable for more than 1 year following vaccination. Gag-specific CD4⁺ and CD8⁺ T cells were also detectable in foreskin of SIV- and SHIV-infected animals and were at least comparable in magnitude to those in peripheral blood. However, unlike peripheral blood T cells, the majority of foreskin T cells exhibited transitional memory or effector memory phenotype and expressed higher levels of the activation markers CD69, HLA-DR, and CCR5, although vaccination did not further enhance foreskin CD4⁺ T cell activation. These findings suggest that systemic vaccination strategies can elicit potentially important SIV-specific cellular immunity in foreskin. Further characterization of vaccine-elicited immune responses and inflammation in foreskin is warranted. Importance: We demonstrate here the induction of SIV-specific cellular immune responses in foreskin by adenovirus serotype 26 and 35 vaccine vectors. Foreskin T cells were more activated than peripheral blood T cells, but foreskin T cells were not further

activated by vaccination. These findings suggest that alternative serotype adenovirus vectors induce potentially important immune responses in foreskin.

30. **Baraka JN. Prevalence Of Asymptomatic Malaria Infection And Use Of Different Malaria Control Measures Among Primary School Children In Morogoro Municipality. Master of Science (Tropical Disease Control) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: Malaria is still a public health problem in Tanzania affecting all age groups. Effective malaria control requires frequent evaluation of effectiveness of different malaria interventions. Schools and school-age children provide a complementary, inexpensive framework for planning, monitoring and evaluating malaria control compared to household cluster surveys in sub-Saharan Africa. **Broad objective:** The broad objective was to determine the current prevalence of asymptomatic malaria infection, anaemia and use of different malaria control measures among primary school children in Morogoro municipality. **Methodology:** This cross-sectional study was conducted in 5 primary schools in Morogoro municipality. Multistage cluster sampling and simple random sampling methods were used to obtain primary schools and study participants respectively. Finger prick blood samples were collected for Plasmodium parasite detection (by mRDT) and hemoglobin level assessment by Easy Touch® GHb system machine. A questionnaire was administered to assess use of insecticide treated nets (ITNs) and ant malarial drugs. **Results:** A total of 317 (90.6%) out of 350 primary school children from 5 out of 60 public schools with mean age 9.9 years ranges 6-13 years from standard one to six participated in the study. The prevalence of asymptomatic malaria was 5.4% (95% CI: 3.3 – 8.6%) and anaemia was 10.1% (95 CI: 7.2-13.9%). In logistic regression, children aged 6-9 years were 1.2 times to be affected with malaria than those aged 10-13 years (OR=1.231, P-value= 0.68), while males were less affected (OR<1). Proportion of ITNs used the night before interview was 90.6% (95% CI: 86.3-93.9%) while that of ACTs used in treatment of uncomplicated malaria was 71.9% (95% CI: 66.2-77.1%). **Conclusion:** Less than 6% of primary school children in Morogoro municipality were infected with Plasmodium falciparum, and about 10% were anaemic. Majority of school children reported use of ITNs and ACTs for malaria control.

Our findings provide a rationale of using schools and school children to assess effectiveness of malaria interventions.

31. Baumgartner JN, Green M, Weaver MA, Mpangile G, Kohi TW, Mujaya SN, Lasway C. Integrating family planning services into HIV care and treatment clinics in Tanzania: evaluation of a facilitated referral model. *Health policy and planning*. 2014; 29(5): 570-579.

Background: Many clients of HIV care and treatment services have unmet contraceptive needs. Integrating family planning (FP) services into HIV services is an increasingly utilized strategy for meeting those unmet needs. However, numerous models for services integration are potentially applicable for clients with diverse health needs. This study developed and tested a ‘facilitated referral’ model for integrating FP into HIV care and treatment in Tanzania with the primary outcome being a reduction in unmet need for contraception among female clients. **Methods:** The facilitated referral model included seven distinct steps for service providers. A quasi-experimental, pre- and post-test, repeated cross-sectional study was conducted to evaluate the impact of the model. Female clients at 12 HIV care and treatment clinics (CTCs) were interviewed pre- and post-intervention and CTC providers were interviewed post-intervention. **Results:** A total of 323 CTC clients were interviewed pre-intervention and 299 were interviewed post-intervention. Among all clients, the adjusted decrease in proportion with unmet need (3%) was not significant ($P = 0.103$) but among only sexually active clients, the adjusted decrease (8%) approached significance ($P = 0.052$). Furthermore, the proportion of sexually active clients using a contraceptive method post-intervention increased by an estimated 12% ($P = 0.013$). Dual method use increased by 16% ($P = 0.004$). Increases were observed for all seven steps of the model from pre- to post-intervention. All providers ($n = 45$) stated that FP integration was a good addition although there were implementation challenges. **Conclusion:** This study demonstrated that the facilitated referral model is a feasible strategy for integrating FP into HIV care and treatment services. The findings show that this model resulted in increased contraceptive use among HIV-positive female clients. By highlighting the distinct steps necessary for

facilitated referrals, this study can help inform both programmes and future research efforts in services integration.

32. Beard JH, Oresanya LB, Akoko L, Mwangi A, Mkony CA, Dicker RA. Surgical Task-Shifting in a Low-Resource Setting: Outcomes after Major Surgery Performed by Nonphysician Clinicians in Tanzania. *World journal of surgery*. 2014; 38(6): 1398-1404.

Background: Little is known about the breadth and quality of nonobstetric surgical care delivered by nonphysician clinicians (NPCs) in low-resource settings. We aimed to document the scope of NPC surgical practice and characterize outcomes after major surgery performed by nonphysicians in Tanzania. **Methods:** A retrospective records review of major surgical procedures (MSPs) performed in 2012 was conducted at seven hospitals in Pwani Region, Tanzania. Patient and procedure characteristics and level of surgical care provider were documented for each procedure. Rates of postoperative morbidity and mortality after nonobstetric MSPs performed by NPCs and physicians were compared using multivariate logistic regression. **Results:** There were 6.5 surgical care providers per 100,000 populations performing a mean rate of 461 procedures per 100,000 populations during the study period. Of these cases, 1,698 (34.7 %) were nonobstetric MSPs. NPCs performed 55.8 % of nonobstetric MSPs followed by surgical specialists (28.7 %) and medical officers (15.5 %). The most common nonobstetric MSPs performed by NPCs were elective groin hernia repair, prostatectomy, exploratory laparotomy, and hydrocelectomy. Postoperative mortality was 1.7 % and 1.5 % in cases done by NPCs and physicians respectively. There was no significant difference in outcomes after procedures performed by NPCs compared with physicians. **Conclusions:** Surgical output is low and the workforce is limited in Tanzania. NPCs performed the majority of major surgical procedures during the study period. Outcomes after nonobstetric major surgical procedures done by NPCs and physicians were similar. Task-shifting of surgical care to nonphysicians may be a safe and sustainable way to address the global surgical workforce crisis.

33. Bechard L, Duggan C, Touger-Decker R, Parrott J, Rothpletz-Puglia P, Byham-Gray L, Mehta N. The impact of nutritional status on morbidities in mechanically ventilated critically ill children in PICUs (1024.8). *The FASEB Journal*. 2014; 28(1): 1024-8.

Introduction: Hispanics are at increased risk for obesity, which places them at increased risk for a variety of health conditions, including cancer. Risk factors for both obesity and cancer include limited access to healthy affordable foods. This problem is especially prevalent in low-income communities such as rural towns. This study assessed the availability of healthful foods and food environment scores in two rural towns with large percentages of Hispanic residents in Eastern Washington State. Experimental Procedures: Store inventories were collected in 14 food stores (3 grocery and 11 convenience stores) from July-August 2013 using the Nutrition Environment Measures Survey. We recorded data on availability of a variety of fresh fruits, vegetables, whole grain bread, lean ground beef, low-fat hot dogs, baked or low-fat chips, and low sugar cereal. Food environment scores were generated for stores, which consisted of a composite score of availability of healthy food, quality, and price. **Results:** Convenience stores comprised 79% of food stores. Availability of specific healthful items differed between grocery and convenience stores with all the grocery stores (100%) selling at least 1 fresh fruit compared to 27% of the convenience stores. More grocery stores also had fresh vegetables (100% vs. 18%), whole grain bread (100% vs. 36%), lean ground beef (100% vs. 9%), low-fat hot dogs (100% vs. 9%), baked or low-fat chips (67% vs. 0%), and low sugar cereal (67% vs. 18%). Grocery stores, however, were slightly less likely to be stocked with 100% fruit juice (67% vs. 73%), while more stocked with diet soda (100% vs. 91%) than convenience stores. Out of a possible maximum food environment score of 62, grocery stores scored 29 while convenience stores scored 3.64. **Conclusions:** Convenience stores make up a large proportion of available food sources in rural towns and have limited stocks of healthful foods. The low food environment scores of both grocery and convenience stores are indication that stores have room for improvements. Increasing the variety of healthy food offerings in food stores could be the first step in improving the food environment in rural towns.

34. Bekele E, Bodmer WF, Bradman N, Craig IW, Makani J, Povey S, Ababa E. Molecular genetics research in sub-Saharan Africa: how can the international community help? *The HUGO Journal*. 2014; 8(1): 2.

Background: Opportunities provided by rapidly increasing access to educational resources, clinical and epidemiological data, DNA collections, cheaper technology and financial investment, suggest that researchers in sub-Saharan Africa outside South Africa (SSAOSA) could now join the genomics revolution on equal terms with those in the West. **Findings:** Current evidence, however, suggests that, in some cases, various factors may be compromising this development. One interpretation is that urgent practical problems, which may compromise motivation, aspiration and ambition, are blocking opportunity. **Conclusions:** Those wishing to help should support the SSAOSA scientists both at the level of extending collaboration networks and in stimulating academic leadership at national and institutional levels to ensure adequate resources are allocated. Members of organisations representing the international community of human geneticists, such as HUGO, have a significant responsibility in supporting such activities.

35. Bernard KD. Pre- Hospital Experiences Of Adult Trauma Patients Triaged To Resuscitation Level Of Care At Emergency Medicine Department, Muhimbili National Hospital, Dar es Salaam, Tanzania. Master of Medicine (Emergency Medicine) *Dissertation* 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.

Background: In hospital emergency care is a continuous sequence with pre-hospital emergency care systems. Pre-hospital care has been shown to reduce the morbidity and mortality of trauma patients worldwide. Tanzania has no formal pre-hospital Emergency Medical Services (EMS). Currently little is documented in Tanzania about the pre-hospital experiences of trauma patients. **Aim of study:** To characterize the experiences of adult trauma victims from site of injury to arrival at Muhimbili National Hospital (MNH) Emergency Medical Department (EMD). **Methods:** This was a mixed-method descriptive cross sectional study conducted from June to November 2013 at the MNH EMD, a public tertiary care centre with approximately 35,000 EMD visits per year. Questionnaires and semi-structured interviews were used to obtain information from injured adult patients

triaged to resuscitation level care at MNHEMD. **Results:** A total of 440 patients were surveyed. Data was complete on 367 and these are included in the analysis. The median patient age was 33.46 years (range 15 to 75). Three quarters were in age group 15 to 44 years. Road traffic accidents were responsible for almost three-quarters of all the trauma patients seen. Almost all the trauma victims seen at MNH EMD were rescued by lay rescuers, the majority of whom were unrelated bystanders (58.3%) followed by relative or friend (15.2%). No trauma victim reported receiving formal pre-hospital care like intravenous fluid or analgesics. The informal assistance given by lay rescuers included lifting or shifting to safe place (90%), bleeding control (8.2%) and Splinting (3.5%). Private car, commercial transport and police car transported 42.2%, 38.4% and 18% of trauma victims, respectively, to first health facility. **Conclusion:** All trauma victims seen at MNH-EMD arrived at their first health facility through an informal network of lay responders, the majority of whom were unrelated bystanders. This data demonstrates that the burden of pre-hospital care in Dar es Salaam city has been left entirely to lay people. A feasibility study to assess if lay rescuers can be trained to provide pre-hospital care in Dar es Salaam city is recommended.

36. Bertoldo F, Silvestris F, Ibrahim T, Cognetti F, Generali D, Ripamonti CI, Santini D. Targeting bone metastatic cancer: Role of the mTOR pathway. *Biochimica et Biophysica Acta (BBA)-Reviews on Cancer*. 2014; 1845(2): 248-254.

One of the great challenges of cancer medicine is to develop effective treatments for bone metastatic cancer. Most patients with advanced solid tumors will develop bone metastasis and will suffer from skeletal related events associated with this disease. Although some therapies are available to manage symptoms derived from bone metastases, an effective treatment has not been developed yet. The mammalian target of rapamycin (mTOR) pathway regulates cell growth and survival. Alterations in mTOR signaling have been associated with pathological malignancies, including bone metastatic cancer. Inhibition of mTOR signaling might therefore be a promising alternative for bone metastatic cancer management. This review summarizes the current knowledge on mTOR pathway signaling in bone tissue and provides an overview on the known effects of mTOR inhibition in bone cancer, both in in vitro and in vivo models.

37. Beugnet F, Bourdeau P, Chalvet-Monfray K, Cozma V, Farkas R, Guillot J, Rinaldi L. Parasites of domestic owned cats in Europe: co-infestations and risk factors. *Parasites & vectors*. 2014; 7(1): 291.

Background: Domestic cats can be infested by a large range of parasite species. Parasitic infestations may cause very different clinical signs. Endoparasites and ectoparasites are rarely explored in the same study and therefore multiparasitism is poorly documented. The present survey aimed to improve knowledge of the prevalence and risk factors associated with ecto- and endoparasite infestations in owned cats in Europe. **Methods:** From March 2012 to May 2013, 1519 owned cats were included in a multicenter study conducted in 9 veterinary faculties throughout Europe (Austria, Belgium, France, Hungary, Italy, Romania and Spain). For each cat, ectoparasites were checked by combing of the coat surface associated with otoscopic evaluation and microscopy On cerumen samples. Endoparasites were identified by standard coproscopical examinations performed on fresh faecal samples. Risk factors and their influence on parasitism were evaluated by univariate analysis followed by a multivariate statistical analysis (including center of examination, age, outdoor access, multipet status, and frequency of treatments as main criteria) with logistic regression models. **Results:** Overall, 50.7% of cats resulted positive for at least one internal or one external parasite species. Ectoparasites were found in 29.6% of cats (CI95 27.3-32.0%). *Otodectes cynotis* was the most frequently identified species (17.4%), followed by fleas (15.5%). Endoparasites were identified in 35.1% of the cats (CI95 32.7-35.7%), including gastro-intestinal helminths in 25.7% (CI95 23.5-28.0), respiratory nematodes in 5.5% (CI95 4.2-7.0%) and protozoans in 13.5% (CI95 11.8-15.3%). *Toxocara cati* was the most commonly diagnosed endoparasite (19.7%, CI95 17.8-21.8%). Co-infestation with endoparasites and ectoparasites was found in 14.0% of the cats, and 11.9% harbored both ectoparasites and gastro-intestinal helminths. Age, outdoor access, living with other pets, and anthelmintic or insecticide treatments were significantly associated with the prevalence of various parasites. **Conclusions:** This survey demonstrates that parasitism is not a rare event in European owned cat populations. The prevalence of multi-parasitism is significantly greater than expected by

chance and hence there is tendency for some individual cats to be more prone to infestation by both endo- and ectoparasites due to common risk factors.

- 38. Bhave S, Eslami R, Jacob M. Sparse spectral deconvolution algorithm for noncartesian MR spectroscopic imaging. *Magnetic Resonance in Medicine*. 2014; 71(2): 469-476.**

Purpose: To minimize line shape distortions and spectral leakage artifacts in MR spectroscopic imaging (MRSI). **Methods:** A spatially and spectrally regularized non-Cartesian MRSI algorithm that uses the line shape distortion priors, estimated from water reference data, to deconvolve the spectra is introduced. Sparse spectral regularization is used to minimize noise amplification associated with deconvolution. A spiral MRSI sequence that heavily oversamples the central k-space regions is used to acquire the MRSI data. The spatial regularization term uses the spatial supports of brain and extracranial fat regions to recover the metabolite spectra and nuisance signals at two different resolutions. Specifically, the nuisance signals are recovered at the maximum resolution to minimize spectral leakage, while the point spread functions of metabolites are controlled to obtain acceptable signal-to-noise ratio. **Results:** The comparisons of the algorithm against Tikhonov regularized reconstructions demonstrates considerably reduced line-shape distortions and improved metabolite maps. **Conclusion:** The proposed sparsity constrained spectral deconvolution scheme is effective in minimizing the line-shape distortions. The dual resolution reconstruction scheme is capable of minimizing spectral leakage artifacts.

- 39. Bintabara D. Individual Birth Preparedness, Complications Readiness and Its Association with Place of Delivery among Recently Delivered Women in Chamwino District, Dodoma Region. Master of Science (Applied Epidemiology) *Dissertation* 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Introduction: Unacceptably high maternal mortality rates remain a tough challenge in many developing countries like Tanzania. Individual Birth Preparedness and Complications Readiness (IBPACR) are among the effective strategies to increase use of skilled providers at birth which is the key intervention to decrease maternal mortality.

The aim of this study is to assess prevalence of IBPACR and its association with place of delivery among the recently delivered women in Chamwino district, Dodoma region. **Methods:** A cross sectional study was carried out among recently (two years prior to survey) delivered women in November 2013 at Chamwino district, Dodoma region. Interviewer-administered questionnaires were used to collect information. Women were asked whether they followed the five basic steps of IBPACR during pregnant. Those who took at least three out of five steps were regarded as had IBPACR. Data were analyzed by EPI info version 3.5.4 and STATA version 11.2. Binary and multiple logistic regressions were used to identify the predictors of IBACR. The ethical approval was obtained from MUHAS Research Ethics Committee. **Results:** A Total of 428 women were interviewed. The median age was 26.5 years with range of 16 to 50 years. Slightly over half 249 (58.2%) of the respondents were considered as having IBPACR. After controlling for clustering and confounding effect, the likelihood of having IBPACR was greater among women with at least primary education (AOR = 2.26, 95% CI; 1.39, 3.67), employed spouse (AOR = 2.18, 95% CI; 1.46, 3.25), early booking for ANC (AOR = 2.03, 95% CI; 1.11, 3.72), at least four ANC visits, (AOR = 1.94, 95% CI; 1.17, 3.21) and knowledge of key obstetrics danger signs (AOR = 4.16, 95% CI; 2.32, 7.45). Also IBPACR was found to be significantly associated with health facility deliveries (AOR = 2.45, 95% CI; 1.12, 5.34). **Conclusion:** The prevalence of IBPACR in Chamwino district is about 58% but knowledge on obstetric danger signs was very low. Maternal education, date of ANC booking, No of ANC visits, spouse employment status and knowledge on danger signs were predictors of IBPACR. IBPACR was found to be associated with utilization of health facility for delivery. It is recommend that education on obstetrics danger signs and the importance of early initiation of ANC should be promoted to the community of Chamwino district.

40. **Bittner R, Bingener-Casey J, Dietz U, Fabian M, Ferzli GS, Fortelny RH, Chowbey P. Guidelines for laparoscopic treatment of ventral and incisional abdominal wall hernias (International Endohernia Society (IEHS)—part 1. *Surgical endoscopy*. 2014; 28(1): 2-29.**

Guidelines are increasingly determining the decision process in day-to-day clinical work. Guidelines describe the current best possible standard in diagnostics and therapy. They should be developed by an international panel of experts, whereby alongside individual experience, above all, the results of comparative studies are decisive. According to the results of high-ranking scientific studies published in peer-reviewed journals, statements and recommendations are formulated, and these are graded strictly according to the criteria of evidence-based medicine. Guidelines can therefore be valuable in helping particularly the young surgeon in his or her day-to-day work to find the best decision for the patient when confronted with a wide and confusing range of options. However, even experienced surgeons benefit because by virtue of a heavy workload and commitment, they often find it difficult to keep up with the ever-increasing published literature. All guidelines require regular updating, usually every 3 years, in line with progress in the field. The current Guidelines focus on technique and perioperative management of laparoscopic ventral hernia repair and constitute the first comprehensive guidelines on this topic. In this issue of Surgical Endoscopy, the first part of the Guidelines is published including sections on basics, indication for surgery, perioperative management, and key points of technique. The next part (Part 2) of the Guidelines will address complications and comparisons between open and laparoscopic techniques. Part 3 will cover mesh technology, hernia prophylaxis, technique-related issues, new technologic developments, lumbar and other unusual hernias, and training/education.

41. Blanco I, Mathai S, Shafiq M, Boyce D, Kolb TM, Chami H, Hassoun PM. Severity of Systemic Sclerosis-Associated Pulmonary Arterial Hypertension in African Americans. *Medicine*. 2014; 93(5): 177-185.

African Americans (AA) with systemic sclerosis (SSc) have a worse prognosis compared to Americans of European descent (EA). We conducted the current study to test the hypothesis that AA patients with SSc have more severe disease and poorer outcomes compared to EA patients when afflicted with pulmonary arterial hypertension (PAH). We studied 160 consecutive SSc patients with PAH diagnosed by right heart catheterization, comparing demographics, hemodynamics, and outcomes between AA and EA patients. The cohort included 29 AA and 131 EA patients with similar baseline

characteristics except for increased prevalence of diffuse SSc in AA. AA patients had worse functional class (FC) (80% FC III-IV vs 53%; $p=0.02$), higher brain natriuretic peptide (NT-pro-BNP) (5729 ± 9730 pg/mL vs 1892 ± 2417 pg/mL; $p=0.02$), more depressed right ventricular function, a trend toward lower 6-minute walk distance (263 ± 111 m vs 333 ± 110 m; $p=0.07$), and worse hemodynamics (cardiac index 1.95 ± 0.58 L/min/m² vs 2.62 ± 0.80 L/min/m²; pulmonary vascular resistance 10.3 ± 6.2 WU vs 7.6 ± 5.0 WU; $p < 0.05$) compared with EA patients. Kaplan-Meier survival estimates for AA and EA patients, respectively, were 62% vs 73% at 2 years and 26% vs 44% at 5 years ($p > 0.05$). In conclusion, AA patients with SSc-PAH are more likely to have diffused SSc and to present with significantly more severe PAH compared with EA patients. AA patients also appear to have poorer survival, though larger studies are needed to investigate this association definitively.

42. **Bleakley A, Hennessy M, Mally G, Romer D. Home smoking policies in urban households with children and smokers. *Preventive medicine*. 2014; 62: 30-34.**

Objective: We identified household, child, and demographic characteristics associated with not having a smoking ban and having a rule about smoking in the presence of children in an urban population. **Method:** We conducted a cross-sectional random digit dial telephone survey ($n = 456$) of Philadelphia parents in June 2012. **Results:** Forty-eight percent of homes reported a full smoking ban. In homes that allowed smoking, over half allowed smoking in front of children. Cigarettes smoked in the home decreased as the restrictiveness of the bans increased. Multinomial logistic regression analyses showed that compared to having a full ban, banning smoking only in the presence of children was associated with being African-American, having a child > 5 years old, and having an asthma-free child. These characteristics, as well as having both parents as smokers and not having an outdoor space, were also associated with not having any restrictions. **Conclusion:** It is possible that households attempt to reduce home smoking by limiting smoking in the presence of children. Health communication messages should be used to inform families about the lingering effects of SHS in the home even when smoking does not occur in the presence of a child.

- 43. Bongiovanni A, Ricci M, Riva N, Calpona S, Oboldi D, Pieri F, Ibrahim T. Pleural effusion in a patient with metastatic gastrointestinal stromal tumor treated with imatinib: case report. *Future Oncology*.2014; 10(15): 2423-2427.**

Gastrointestinal stromal tumors are rare malignancies characterized by c-kit and PDGFR- α mutations targeted by imatinib. Pleural effusion is a very rare side effect of imatinib treatment. A 65-year-old female with metastatic gastrointestinal stromal tumor developed electrolyte imbalance, severe peripheral edema and progressively worsening dyspnea 2 months after starting imatinib. Having excluded cardiovascular and pulmonary disorders, imatinib was discontinued and prednisone 25 mg orally daily was begun. The patient's condition improved substantially over the next 48 h with a progressive decrease in dyspnea and a reduction in pleural effusion and peripheral edema. All side effects had resolved within 1 month. In view of the partial response obtained, the patient re-started imatinib after a 1-week interruption. Prednisone was maintained and there was no further toxicity.

- 44. Bonita K. Mortality and Its Determinants during Pre-Treatment Period among HIV Adult Patients in Tanzania. Master of Public Health of the Muhimbili University *Dissertation* 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: HIV Care and Treatment services are guided by the National Care and Treatment Guideline. A recording and reporting system (paper and electronic) was developed to track those receiving services. Limited information is available on patients prior to the start of anti-retroviral therapy (ART), as most monitoring and evaluation of care and treatment programs concentrates on patients from ART initiation. Early initiation of antiretroviral therapy is desirable both in decreasing HIV transmission and having better treatment outcomes. In poor resource countries like Tanzania, delays in initiating ART is the reality. Greater understanding of the pre ART phase is crucial to help improve outcomes in HIV Care and determinants that affect the outcomes. **Objective:** The aim of this study was to assess the level of mortality and its determinants among HIV infected adults prior to ART initiation. **Methods:** A retrospective longitudinal analysis of more than 500,000 HIV infected adults enrolled in care was done

from November 2004 and December 2011 using Strata 12. Patient characteristics at time of enrolment were described. Mortality rates and their 95% confidence intervals were estimated. Cox Proportional Hazard models were used to assess determinants of death before they access ART. **Results:** From 348 health facilities, a total of 526,059 clients (67% females) enrolled for HIV Care services were assessed in the pre ART phase. Majority (85%) had working functional status, 82% had done a CD4 test by 3rd month since enrolment and TB screening was done in 93% of all visits. Overall mortality among adult pre ART care patients was 37.6 deaths per 1000 person years (95% CI 36.9 - 38.3). Independent predictors of pre ART mortality were WHO stage 3 (adjusted hazard ratio [AHR] = 2.37; 95% CI 1.94-2.90), WHO Stage 4 (ARR= 4.53; 95 % CI (3.64-5.64). Female sex, CD4 2:200 and weighing more than 45kg were significantly associated with a lower hazard of death. **Conclusion and Recommendations:** Mortality among patients who were eligible for ART before they accessed ART was high. Using routine electronic information to understand mortality and its predictors is resourceful for patient and program improvement. There is need to establish effective interventions targeting patients in the pre ART phase.

45. **Bosse G, Ngoli B, Leshabari MT, Külker R, Dämmrich T, Abels W, Spies C. Quality of health care and the need for assessment. *East African journal of public health.* 2014; 8(3): 199-204.**

Objective: In many hospitals of developing countries quality of care is below the expected standard to maintain patient safety. In 2006, health care experts from Tanzania and Germany collaborated on a set of indicators to be used as a hospital performance assessment tool. The aim of this study was to introduce this tool and check its feasibility for use in a Tanzanian regional hospital. **Methods:** Within the hospital, independent observers assessed quantitatively structural quality and the performance of health care encounter using an itemized scale from 0 (0%) to 2 (100%) for each defined item. Outcome parameters were taken from the annual hospital report. In addition, semi-qualitative interviews with staff and patients were held to a) assess staff knowledge of the treatment guidelines published by the Tanzanian Ministry of Health and Social Welfare (MoHSW), b) assess attitudes and user motivation and c) authenticate the quantitative

findings in a mixed-method triangulation approach. **Results:** Structural quality in maternity was at 75% of the expected standard, while process quality ranged from 36% (Care of the newborn with APGAR score < 4) to 47% (normal delivery procedure). Staff knowledge ranged between 64% and 87% with low motivation and commitment given as contributing factors. Outcome (maternal mortality) was 481/100,000 live births with an infant mortality rate of 10%. **Discussion:** The tool appeared to be feasible and effective in judging care quality. It provides a model for continuous quality improvement. Motivation of health care workers, a strong determinant of care process quality, might be improved by strengthening internal factors in health facilities. For conclusive validation, further studies using the tool must be conducted with larger numbers of institutions.

46. Brooks M, Bryant M, Shann M, Bukuluki P, , Lugalla J, Kwigigabo G Gender analysis of educational support programs for OVC in Uganda and Tanzania: are they helping girls in secondary school? *Vulnerable Children and Youth Studies*. 2014; 9(3): 206-219.

Gender plays an important role in education as most traditional societies give preference to boys over girls when it comes to educational opportunity. Increasing access to education for girls is important to the health and well-being of the individual, their future children, families, and communities. The objective of this paper is to understand the gender differences in educational outcomes for orphans and vulnerable children (OVC) attending secondary schools in Uganda and Tanzania. The study employed a four-year, retrospective record review utilizing both qualitative and quantitative methodologies. A total of 5738 student records were collected as part of the study. Students were grouped as “ever supported” OVC (receiving educational support from either a block grant or scholarship program during their secondary school education), “never supported OVC” (OVC students who did not receive any educational support), and “nonOVC students” (students identified by the school as neither orphaned nor vulnerable). Results of the study indicate that investment in secondary school education for OVC in Uganda and Tanzania can make a difference in educational outcomes, both for boys and girls. Although there was no gender difference in absenteeism or dropout rate among students those who received educational support, stark differences were found in secondary school

Year IV national examination pass rates with girls significantly less likely to pass compared to boys. The disparity in secondary school learning achievement between male and female students is of concern and warrants further investigation.

47. Brousse V, Makani J, Rees DC. Management of sickle cell disease in the community. *BMJ*. 2014; 348.

Sickle cell disease is characterised by unpredictable episodes of acute illness, progressive organ damage, and a lack of effective treatments. It is one of the most common inherited conditions, although its prevalence varies widely. Median life expectancy is currently 40-60 years in high income countries but much less in low income areas.^{1 2} It is associated with protean clinical complications. Patients present to all medical specialties and increasingly to general practitioners. This review aims to provide an evidence based update on how to manage patients with this disease in the community. It does not consider sickle cell trait, which is largely asymptomatic.

48. Bryan L, Ibrahim T, Zent R, Fischer MJ. The kidney research predicament. *Journal of the American Society of Nephrology*. 2014; ASN-2013121313. 2014.

Research funding from public and private sources has reached an all-time low. Economic conditions, sequestration, and a trend of low award success rates have created an imbalance between the supply of highly qualified research investigators and the availability of critically necessary research dollars. This grim environment continues to hinder the success of established investigators and deter potential investigators from joining the research workforce. Without action and support of innovative science, the future of the US health care system is in jeopardy, and its leadership role in medical research will decrease. This work discusses the effects of the decline in research funding, the plight of kidney research, and the impact of the American Society of Nephrology Grants Program on scientists. The ASN also calls on the entire nephrology community to rejuvenate the research environment, improve the lives of millions of people with kidney disease, and ultimately, find a cure.

49. Bulemela JC, Ngibarwa EN, Ramaiya K, Bizzari C. Prevalence of Undescended Testis and its Associated Factors among under-fives seen at Reproductive and Child Health Clinic in Ifakara, Tanzania. *Tanzania Medical Journal*. 2014; 26(2): 18-23.

Background: The diagnosis of undescended testis/cryptorchidism is missed and ignored by most clinicians following tendency of not performing genital examination in children unless asked by parents. The male sexual differentiation and development is important for the normal reproductive life span. Similarly, risk of carcinoma of testis will be prevented, if early diagnosis of undescended testis (UDT) is made. To aim of the study was to determine the prevalence of undescended testis, its characteristics and associated risk factors among children underfive.**Methods:** This was a hospital-based cross sectional study that was conducted at the Reproductive and Child Health Clinic (RCHC) of the St. Francis Referral Hospital (SFRH) from October 2011 to May 2012. The district hospital is located in Ifakara, southeast Tanzania, a city of 49,528 people. Among the estimated 4500 under-five male children in the district attending the RCHC for routine services, 616 children were physically examined their genitalia after consent from their caretakers. **Results:** The prevalence of the undescended testis (UDT) was 2.1% (13/616) with 12 children having unilateral UDT and one child with bilateral UDT. About 85% of families of recruited children own durable assets. A small proportion of children, 6.8% (49/616) were of low birth weight and 2.6% (16/616) were born prematurely. Among mothers who had preeclampsia, only 2.4% (1/41) of the children had UDT and none of eclamptic mothers' children had UDT. None of the children with UDT had exhibited evidence of birth asphyxia. In case of mothers who had been smoking or exposed to second hand smoking 5.4% (33/616) and those who have been binge drinking alcohol, 0.6% (4/616) of their children had UDT. Among mothers exposed to herbs during pregnancy only 3.2% (1/31) had UDT. None of the mothers had gestational diabetes or existing diabetes mellitus prior to conception.**Conclusion:** The prevalence of UDT in this rural setting has a pattern similar to that observed in previous studies in other areas. Efforts should be done to do genital examination by all clinicians. The associated factors exist but no statistically significant association was found and a long term follow up study is needed.

50. **Bukini DA. Mbe. The Ethical Challenges in the Consenting Process When Conducting Genomic Research in Low Literacy Settings. Master in Public Health Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: Genomic researches have proven to be valuable tools in identifying genetic variants that have a role in disease causation. The value of conducting these type of researches cannot be underestimated in developing countries where there is high disease burden. However, there is a need to identify, analyze and address specific ethical challenges arising when conducting genomic researches in populations with lower literacy level in order to protect the research participants and interest of scientists in these particular settings. **Objective:** The study explored challenges associated with obtaining a valid informed consent when conducting genomic research in individuals with low literacy level. **Methodology:** The methodology was based on qualitative data involving focus-group discussions, in-depth interviews as well as observation of the consent process. Research team and research participants involved in the Sickle cell Disease study at Muhimbili National Hospital were the target group. The data obtained from the FGDs and IDIs were transcribed into meaningful codes depending on the nature of the responses and were analyzed using thematic analysis. **Results and Discussion:** Findings indicated that literacy level was not a key factor influencing participant understandings, adequacy of the information provided to the participants and the methods used to communicate the information were the contributing factors. Preferred mode of provision of the information was through video or group sessions in the presence of nurses or doctors to ensure comprehension of the information. Benefits of the research and return of results were considered by participants to be more important sections during the consenting process than others. **Recommendations:** The findings from this study will be used to develop a tool to guide the researchers in eliciting informed consent in the context of genomic research. Regular sessions to remind and update the researchers and research participants are also recommended for good clinical practices and protection of the research participants.

51. **Bruno PF. Femoral Shaft Fractures; Short Term Treatment Outcome among Patients Treated With Sign Fin Nail Atmuhimbili Orthopedic Institute (Moi). Master of Medicine Orthopedics and Trauma Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam**

Objective: To assess short term clinical outcome among patients with stable femoral shaft fractures treated with SIGN Fin nail at Muhimbili orthopedic institute.

Methodology: A cross-sectional study was conducted at Muhimbili orthopedic institute from March 2013 to March 2014, whereby 44 patients, aged 15 years and above with stable femoral shaft fracture treated by SIGN Fin nail were enrolled. Of these, one patient was lost to follow up, while 43 patients were analyzed. The researcher used a structured questionnaire to collect data from the participants. Patients were recruited immediately after surgery, whereby post-operative radiographs and patient's clinical assessment on lower limb alignment were evaluated. Then each patient was followed up for a minimum of 6 months post operatively. In follow up visits, state of the wound, limb length discrepancy, mal-rotation deformity, range of motion of the knee joint and callus formation were assessed. The clinical functional state of the patient such as weight bearing states, limping, pain (VAS score), activities level, anxiety and ability to self-care was also interviewed. The obtained data were analyzed by SPSS version 20. **Results:** The mean age was 30 ± 9.9 ranging from 16 to 56 years with male to female of 3:1 and motorcycle injuries were the leading cause of injuries 43.2%. The mean duration of surgery (operation time) was 53.8 ± 17 , ranging from 20 to 100 minutes. The average time to callus formation was 12 weeks, ranging from 6 weeks to 6 months. The rate of complete callus formation was 18.6% of patients at 6 weeks, 74.4% of patients at 12 weeks and 95.2% of patients at 6 months post-operative. The highest clinical function outcome were attained from 12 weeks to 6 months. Delayed union occurred in 2 (4.7%) of patients. Deep infection was observed in one patient (2.3%). There was no patient with rotation malalignment of more than 5° , two patients (4.7%) had shortening of 2 cm, one with varus angulation more than 10° . Two patients 4.7% were re-operated to achieve proper union due to mal-union, and nail migration into the knee joint as a result of faulty fixation (missing screws). **Conclusion:** SIGN Fin nail can effectively be used in the treatment of transverse femoral shaft fractures. The short term clinical outcome are encouraging,

however a large sample size, comparative study with a prolonged follow up is needed to strongly prove its effectiveness.

52. Byela EK. Cranial Sonographic Findings In Infants With Hydrocephalus At Ultrasound Unit, Muhimbili National Hospital, Dar Es Salaam Tanzania. Master of Medicine (Radiology) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam

Background: Hydrocephalus is accumulation of cerebrospinal fluid in the cranium due to an imbalance between its production and absorption. This forces the ventricles to enlarge, which in turn exerts pressure on the surrounding brain tissue, causing the brain tissue to shrink and the head to enlarge. Hydrocephalus is associated with a raised intracranial pressure. There are two types of hydrocephalus, a non-communicating and communicating hydrocephalus. These two types occur depending on whether it is a reabsorption problem or a blockage somewhere within the ventricular system. Hydrocephalus is a relatively common neuropediatric condition, with an incidence of about 0.9 per 1,000 births. **Objectives:** To evaluate cranial sonographic findings in infants presenting with hydrocephalus attending ultrasound unit at MNH in July to December 2013. This will help in determination of the most common type of hydrocephalus in infants attending ultrasound unit at MNH. **Methodology:** This was cross sectional descriptive study whereby a sample of 80 subjects was taken. A short interview was conducted by Chief investigator. The associated factors of hydrocephalus were identified. Ultrasound machine (Phillips, HP5000, Eindhoven, Best, and Netherlands) with 2-5MHZ frequency curve-linear transducer was used for every patient. The scanning was done through the standard anterior fontanelle using coronal and saggital projections applying standard techniques. The size of lateral ventricle was measured at the level of foramen of Monro. The mean diameter of anterior horn of lateral ventricle of more than 2.5mm +/- 0.7mm for both right and left lateral ventricle was considered hydrocephalus and the type of hydrocephalus was noted. Collected data was analyzed using SPSS programme version 17. For the continuous data mean and standard deviation were considered while for the categorical data proportions were computed. The association between hydrocephalus and associated factors was established using chi square to establish the statistical significance.

Results: The study included 80 infants with hydrocephalus, male to female ratio of 1.1:1 ranging from 1 to 10 months with mean age of 3.4 months. 37 (46.2%) infants were aged 2 or less months. Non communicating hydrocephalus was the most common type (77.5%). Most infants (76.2%) were of birth weight more than 2500gms. 61 infants (76.2%) were delivered with normal type of delivery and infants born at term were three times more compared to preterm infants (75%). Non communicating hydrocephalus presented three times more regardless of sex, birth weight, gestation age and mode of delivery. However there was no statistical significant difference between types of hydrocephalus and sex ($p=0.437$), birth weight ($p=0.754$), gestation age at delivery ($p=0.763\%$) neither mode of delivery ($p= 1.00$). **Conclusion:** Cranial ultrasound has a role in detection of hydrocephalus and subsequent identifying hydrocephalus into two types; communicating and non communicating hydrocephalus. Non communicating hydrocephalus was the most common type (77.5%). The study found no statistically significant difference between types of hydrocephalus and birth weight, mode of delivery and gestation age at delivery. **Recommendation:** More training is needed so as to produce more paediatric neurosurgeons, sonologists and radiologists. Other study to be conducted on a larger scale using MRI or CT so as to detect the most prevalent cause of hydrocephalus in our setting. There is a need for large retrospective epidemiological study to be done so as to recruit large number of patients, prevalence of the disease to be obtained and associated factors with the disease in our environment be clearly obtained.

53. **Byomuganyizi M. The Scope Of Elective Surgical Procedures And Its Implications On Postgraduate Training at MNH, Dar Es Salaam, Tanzania Master of Medicine (General Surgery) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: Little is documented on the availability of surgical care both globally and locally. Majority of the countries have no data on surgical volume. Recent years have experienced the epidemiological transition, the multiplicity of surgical disorders among the increasingly noted. The increasing role of surgery therefore has been of paramount importance. Limited access to surgery can undoubtedly lead to significant morbidity and mortality. Training in surgery among other things relies on exposure and hands-on

learning by students, on a variety of procedures. The importance of adequate volume of surgeries to that end cannot be questioned, in line with the level of students' involvement. Yearly volume of surgery both at surgeon and hospital level has been found to be among parameters with significant influence on patient outcome as measured by length of hospital stay, mortality and complication rate. Thus an understanding of the quantity and distribution of surgical interventions is essential to guide efforts to improve its safety, address shortages of such services and improve on various aspects of training in surgery. Scope of surgical services is part of the components of quality assurance in general surgery and an important one especially in developing countries where resources are limited. **Objectives:** The aim of this study was to determine the scope of elective surgical procedures and its implications on postgraduate training at MNH, DSM. **Methodology:** This hospital based descriptive study looked into the volume of elective surgical procedures and the level of postgraduate involvement at MNH, DSM; from April to December 2013. It cut through general surgery, urology, cardiothoracic surgery, pediatrics surgery, as well as plastic and reconstructive surgery. The data were analyzed using SPSS software. **Results:** A total 2315 procedures were performed on the 2214 studied patients during the 9 months study period at MNH from April to December 2013. Majority of the patients were males, 1414 (63.9%) patients with M: F ratio of 1.76:1. The age ranged from 2 days to 112 years with a mean of 39.5 ± 26.1 years. The most common age group was over 50 years at 1% and the paediatric age group was at 22%. The overall average number of procedures month was 257.2, and the overall average number of procedures per day was 12.9. The ten performed procedures in order of occurrence were 290 (13.1 %) urethroscopies iopsy \pm EUA, followed by 161 (7.3%) skin graftings, 108 (4.9%) TURPs, 111 (4.8%) Es, 104 (4.5%) mastectomies, 87 (3.9%) BSOs/ orchidectomies, 76 (3.4%) DVUs, 70 (3.1%) open prostatectomies, 68 (2.9%) rigid oesophagoscopies plus exploratory rotomies respectively, and finally 56 (2.6%) thyroidectomies. Of the 2315 performed ~eries, residents participated in 72.1 % of the procedures. The predominant residents' was that of first assistant in 1214 (54.8%) procedures, followed by role as surgeon in (25.8%) procedures, and finally the second assistant role in 355 (16%) procedures. **Conclusion:** The surgical output found at MNH and the overall residents' participating this study period was at relatively low levels.

Recommendations: It appears important to conduct larger studies and surveys looking factors associated with the observed surgical output and residents' participation with aim of optimizing theatre utilization and increasing surgical output at MNH and easing residents' involvement in all aspects of surgery especially for the role as a ~eon, an important aspect in general surgery training.

54. **Chambongo PE. Community Perception and Vaccination Uptake in Ileje District Council, Mbeya Region. Master of Science (Applied Epidemiology) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: Globally, it is estimated that about 22.4 million children under one year of age were not vaccinated with a third dose of pentavalent antigen, and 70% of them lives in Africa. Tanzania is one of the countries in Africa contributing significantly to the number of unvaccinated children. Ileje district is one of the districts in Tanzania with consistently low vaccine uptake (69% Pentavalent) for more than five years. The study aimed at determining community perceptions toward vaccination services in Ileje district council and its relationship with vaccine utilization. **Method:** The study was a cross sectional conducted in Ileje district from 14th October to 17th December 2013. A total of 380 mothers with children between 12 to 23 month of age were included in the study. A multistage random sampling technique was used to obtain study units. A structured questionnaire was used to collect the data. Data analysis was done using EPI INFO statistical program version 3.5.4 and statistical significance was assessed at 95% confidence interval. Descriptive analysis was used to obtain descriptive information of the respondents where by bivariate and multivariate analysis was done to identify factors influencing vaccination uptake. **Results:** The mean age of the mothers interviewed was 27 years (SD 6.5 years) while that of children surveyed was 16 months (SD 3.6 months). Full vaccinated children were 270 (71.1%) and partial vaccinated were 110 (28.9%). predictors of high vaccine uptake included Child being born in the health facility (AOR 15.4 95% CI 8.7 – 27), Negative perception on the vaccinator-client relationship (AOR 1.97, 95%CI 1.07-3.6) and Perceived satisfaction with vaccinator-client relationship (AOR 3.2, 95%CI 1.24 – 8.38), while predictors of reduced uptake included younger age of a child (AOR 0.56, 95%CI 0.3 – 0.99) and perceiving negatively on the severity of the vaccine preventable diseases (AOR 0.5 95%CI 0.27 – 0.95). **Conclusion:**

Vaccination uptake in Ileje district council can be improved by eliminating some of the negative perception and promoting positive perception factors.

55. **Chinenere FD. Overweight and Obesity among Adolescents: Burden and Associated Factors; A Case Study of Babati, Manyara, Tanzania. Master of Public Health Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Introduction: Childhood and adolescent overweight and obesity have increased dramatically globally in the recent years. Though initially thought to be a problem of developed countries, studies have shown that this is not the case as developing countries have also been affected. Childhood overweight and obesity tend to persist through adulthood and may lead to early onset of non-communicable diseases (NCDs), and a number of psychological consequences. It must be noted that there is paucity of data on the magnitude of overweight and obesity among adolescents in Tanzania. This study intended to establish the burden and factors associated with overweight and obesity among secondary school students in Babati, Manyara **Objective:** The main objective of this study was to estimate the prevalence of overweight and obesity as well as associated factors among secondary school students in Babati, Manyara. **Methods:** A descriptive cross-sectional survey was carried out involving adolescents attending secondary schools in Babati, Manyara. The minimum required sample size was 602 study units. A multi-stage cluster sampling procedure was used. Anthropometric measurements were taken using standard procedures. Information about physical activity, dietary pattern and socio-demographic factors was obtained using a self-administered questionnaire. Ethical clearance was sought from the Muhimbili University of Health and Allied Sciences (MUHAS) Directorate of Research and Publication. In order to participate in this study, students' assent and parents/guardians consent were obtained. Descriptive Statistics was used to summarize data; chi-square test was used to ascertain association between categorical variables. Regression models were run and presented as adjusted odds ratio with their 95% confidence intervals. A p-value of < 5% was used as a cut off point for statistical significance. **Results:** A total of 619 students aged between 12-19 years (mean age 16.7 ± 1.6 years), sampled from Babati secondary schools were included in this study.

These were either from public (62.2%) or private (37.8%) schools. The overall prevalence of overweight and obesity was 13%. Female students had a five-fold increased risk of overweight or obesity than their male counterparts ($p < 0.001$, Adjusted OR=5.5, 95% CI=2.8- 10.5). The level of physical activity was found to be associated with overweight/obesity, ($p=0.01$, AOR=0.6, 95% CI= 0.4- 0.9). Those who consumed unhealthy diet doubled their risk of being overweight/obese, ($p=0.04$, AOR= 2.3, 95% CI= 1.0- 5.4) **Conclusion:** The prevalence of overweight and obesity was found to be high with a higher frequency in female students than their male counterparts. Mild physical activity and unhealthy diet were found to be associated with overweight/obesity. Comprehensive evidence based interventions need to be employed to reduce the magnitude of this problem among adolescents.

56. Christopher J. Treatment Outcomes Of Patients With Peritonitis Managed At Muhimbili National Hospital Dar Es Salaam, Tanzania. Master of Medicine (General Surgery) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.

Background: Peritonitis refers to inflammation of serosal membrane that lines the abdominal cavity and organs contained therein. Often it is due to introduction of infection into an otherwise sterile peritoneal cavity but also due to spillage of irritative chemicals such as bile from perforated gall bladder. It is an emergency that needs surgical intervention with high mortality when delayed. Mannheim peritonitis index (MPI) can be used to predict outcomes in patients presenting with peritonitis. **Methods:** The study population consisted of 134 patients with peritonitis treated in the surgical wards of Muhimbili National Hospital for a period of nine months. Patients were enrolled into the study after signing consent for participation. A questionnaire was filled for all patients registered during the study period. Socio-demographic, clinical, investigation results, management and its outcome were recorded and analyzed using SPSS software programs. Pearson's Chi-square was used as a statistical test and considered significant if p value was equal or less than 0.05. **Results:** There was a male predominance of 67.2%. The mean age was 31.28 years with a range from 4-81 years and prevalence of HIV infection was 19.4%. The overall mortality was 17.9% and complication rate of 52.2%. The mean MPI

score was 26.84 where the lowest score was 8 and highest 38 with 38.8% of patients having scores of more than 29. There was significant difference in terms of mortality, complications and hospital stay among patients with different MPI scores. There was no death recorded among patients with MPI score of less than 21 while 38.5 percent of those with MPI scores of more than 29 died. Incidence of complications was higher at 86.5% for patients with MPI scores of more than 29 compared to 14.3% of those with MPI scores of less than 21. Patients with higher MPI scores had a longer hospital stay compared to those with lower scores and mean hospital stay for survivors was 12.4 days compared to 16.1 days of non survivors (p=0.028) **Conclusion:** Majority of patients treated at MNH have severe peritonitis with a high mortality rate, high complications rate and prolonged hospital stay. Patients with higher MPI scores ie scores above 26 had worse treatment outcomes as compared to those with MPI scores of up to 26. The practice of damage control surgery, post surgery ventilation in ICU setting and second look opportunity especially to patients with severe peritonitis ie MPI score of above 26 should be studied in order to minimize common complications contributing to profound morbidity and mortality.

57. Chuwa HR. Estimating the Total Cost of Cancer Management: A Descriptive Prospective Cohort Study among Patients with Cervical Cancer at Ocean Road Cancer Institute, Dar Es Salaam, Tanzania. Masters of Medicine (Clinical Oncology) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.

Background: Cervical cancer is the leading cancer in developing countries including Tanzania. In Tanzania, it is estimated that about 6,241 new cases of cervical cancer develop each year. Ocean Road Cancer Institute (ORCI) is the only specialized centre for cancer treatment in Tanzania, and it receives cancer patients from all over the country. The economic burden is important for policy formulation especially in Tanzania where cancer patients receive free treatment. **Objective:** The objective of this study was to determine the actual cost of cancer treatment in Tanzania, with special emphasis on cervical cancer. **Methodology:** The study was a descriptive prospective cohort design whereby both direct cost as well as indirect cost were determined using a standardized

questionnaire for each patient of all new cervical cancer patients that were recruited in October, 2013 and followed up for a period of two months. The findings of the study will assist management of ORCI and the Government in understanding the direct and indirect cost of cancer treatment which will lead to better planning for cancer care in the country."

Results: The overall cost per patient for cervical cancer ranged from TZS 2,036,732 (USD 1,257.24) to TZS 5,982,168 (USD 3,692.70) with the mean cost of TZS 3,972,972.74 (USD 2,452.45) [Median = TZS 4,140,426 (USD 2,555.82)]. Median direct cost was TZS 3,503,000 (USD 2,162.34) takes the largest share compared with the median indirect counterpart of TZS 643,480 (USD 397.21). The mean direct cost for outpatients and inpatients was TZS 1,684,000 (USD 1,039.50) [66.73% due to radiotherapy cost] and TZS 3,728,836.36 (USD 2,301.75) [52.42% due to admission cost], respectively. The mean indirect cost for outpatients and hospitalized patients was TZS 1,340,497 (USD 827.47) [55% due to food] and TZS 606,291.44 (USD 374.25) [47.38% due to food followed by 43% due to cost of working days lost], respectively.

Conclusion: As has been found in other studies, our findings revealed that cervical cancer creates an immense financial burden on patients and health care system. Primary prevention measures, vaccination against HPV and screening, should be initiated and expanded to reduce morbidity from cervical cancer and subsequent costs in both human lives and money resources. **Recommendation:** All patients admitted to the ICU should be promptly screened for AKI at admission and through their ICU stay.

58. **Cosmas J. Childhood Acute Leukemia in Tanzania; Clinical Presentation, Hematological Parameters and Survival Rate Two Years from Diagnosis. Master of Medicine (Pediatrics and Child Health) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: Acute childhood leukemia is a progressive malignant disease of the blood forming tissues arising within the bone marrow, characterized by the uncontrolled proliferation of immature leukocytes and their precursors replacing the normal hematopoietic cells of the bone marrow leading to bone marrow failure. There are two main types of acute leukaemia i.e. Acute Lymphoblastic Leukaemia (ALL) in which lymphoid progenitor cells undergo dysregulated proliferation, with clonal expansion and

accounts for 77% of all leukemias occurring in children. Acute Myeloid Leukaemia (AML) on other hand is myeloid dysregulation and accounts for 11 % of cases of childhood leukemias. With modern scientific and technological advances cure rate for childhood leukemia is possible in 90% among those with ALL and 76% among those with AML. However, in countries with limited resources cure rates are relatively lower. Description of the clinical presentation and survival rate of children with acute leukemia in Tanzanian is important so that necessary changes can be made to improve the outcome. In Tanzania there is lack of data on the clinical presentation, and survival rate of children with acute leukemia. **Objective:** The broad objective of this study was to determine the clinical presentation, hematological parameters and survival rate two years from diagnosis in children aged less than 18 years with acute leukemia in Tanzania. **Materials and Methods:** A retrospective hospital based cohort study was conducted at Ocean Road Cancer Institute (ORCI) and Muhimbili National Hospital (MNH) , Dar Es Salaam (DSM) Tanzania, including data from 1 st January 2008 to 31st December 2011. Data were collected from patient files using a questionnaire. Data collected were analyzed using statistical package for the social sciences (SPSS) version 20. **Results:** A total of 193 patients' files were reviewed during this study. More than half of the patients were males (56.5%) with male to female ratio of 1.3: 1. Mean age at presentation was 8.23 years \pm 4.73SD. (Range 1 - 18 years), 68.4% were 10 years and below. Majority (79.8 %) had ALL of which 56 % were males with mean age of 7.82 yrs \pm 4.49SD, for AML the mean age was 9.87 yrs \pm 5.33 SD. Common presenting features were found to be pallor/anemia (78.8%), fever and lymphadenopathy (70.5%), splenomegally (56%) and hepatomegally (53.4%). Thirty two percent had White Blood Cell (WBC) count $>$ 50 Klul, 23% had platelet count $<$ 20 Klul and 60% had severe anemia. For ALL survival rate was 66% at one year and 40% at two years from diagnosis; and for AML survival rate was 19% at one year and there was no survivor at two years from diagnosis. **Conclusions:** Childhood acute leukemia in ORCI and MNH Tanzania commonly presents with pallor/anemia, fever and lymphadenopathy. More than half of the patients presented with severe anemia, splenomegaly and hepatomegaly. WBC count $>$ 50 Klul is highly associated with increased mortality. Two years survival rate from diagnosis is poor especially for AML. **Recommendations:** Clinicians should have a high index of

suspicion for acute leukemia for children who present with persistent fever and anemia. Community health education is required in order to increase community awareness and to emphasize on early health care seeking behavior.

59. Carneiro LC, Ferreira AF, Padua M, Saut JP, Ferraudo AS, dos Santos RM. Incidence of subclinical endometritis and its effects on reproductive performance of crossbred dairy cows. *Tropical animal health and production*. 2014; 46(8): 1435-1439.

In dairy cattle, uterine infections are not life threatening and often unavoidable; however, they reduce fertility and increase the production costs of properties. The aim of this study was to evaluate the incidence of subclinical endometritis from 32 to 70 days in milk (DIM) and its effects on the reproductive performance of crossbred dairy cows. Lactating cows (Holstein/Gir; n = 172), with no history of retained placenta, without clinical signs of uterine infection were used. The body condition score (BCS) was evaluated on a scale from 1 to 5. Ultrasound examination was performed to evaluate uterine lining and ovarian activity, while vaginal mucus was analyzed by gloved hand. The diagnosis of subclinical endometritis was performed by endometrial cytobrush technique. The samples were collected, stained, and examined microscopically; positive cases for subclinical endometritis were considered with the presence of ≥ 5 % of neutrophils. Later, the cows were submitted to conventional artificial insemination or timed artificial insemination. The incidence of subclinical endometritis in the herd was 26 %, and this was not affected by the season of calving, presence of corpus luteum, DIM, and parity. Cows with a BCS ≤ 2.50 had a higher incidence of subclinical endometritis. The conception rate to first insemination and pregnancy rate at 150 days postpartum were not influenced by the presence of subclinical endometritis in crossbred dairy cows.

60. Carrera E, Linares A, Joachim A, Jean-Baptiste M, Speth R. MCA-APK (Dnp) is not a selective substrate of angiotensin-converting enzyme-2 (1067.6). *The FASEB Journal*. 2014; 28(1): 1067-6.

MCA-APK (Dnp) is a fluorogenic substrate used in assays of angiotensin-converting enzyme-2 (ACE-2) metabolism. Cleavage of the Pro-Lys bond removes the quenching Dnp group and induces fluorescence. To ascertain the specificity of MCA-APK (Dnp) for

ACE-2, we measured metabolism of the substrate in rat kidney in the presence or absence of the ACE-2 inhibitor MLN-4760. Frozen rat tissues were homogenized in 19 volumes of 50 mM sodium phosphate at pH 7 with 0.05% Triton X-100 detergent and centrifuged at 48,000 x g. The supernatant was then diluted 20-fold in assay buffer for a final concentration of 50 mM sodium phosphate at pH 6, 6.5, 7, or 7.5 and 100 mM NaCl. 20 μ L of diluted supernatant, 10 μ l of 50 μ M MLN-4760, and 20 μ l of 125 μ M substrate were added to each well for a reaction volume of 50 μ L. Metabolism of MCA-APK(Dnp) was recorded at 37°C at a wavelength of 393 nm with excitation at 328 nm. Breakdown of MCA-APK (Dnp) attributable to ACE-2 represented only 21%, 28%, 44%, and 56% of total enzymatic activity at pH 6, 6.5, 7, and 7.5, respectively. Total activity also increased with decreasing pH. Our results suggest that MCA-APK (Dnp) is not selective for ACE-2. When using MCA-APK (Dnp) as a surrogate substrate for determination of ACE-2 activity, it is critical to use a selective inhibitor or ACE-2 activity such as MLN-4760 to differentiate ACE-2 versus non-ACE-2 mediated metabolism of MCA-APK (Dnp).

61. **Cassese S, Byrne RA, Schulz S, Hoppman P, Kreutzer J, Feuchtenberger A, Kastrati A. Prognostic role of restenosis in 10 004 patients undergoing routine control angiography after coronary stenting. *European heart journal*. 2014; ehu383.**
Aim: Routine control angiography is a valuable tool with high-sensitivity in detecting restenosis after coronary stenting. However, the prognostic role of restenosis is still controversial. We investigated the impact of restenosis on 4-year mortality in patients undergoing routine control angiography after coronary stenting.
Methods and results: All the patients undergoing successful implantation of coronary stents for de novo lesions from 1998 to 2009 and routine control angiography after 6–8 months at two centres in Munich, Germany were studied. Restenosis was defined as diameter stenosis \geq 50% in the in-segment area at follow-up angiography. The primary outcome was 4-year mortality. The study included 10 004 patients with 15 004 treated lesions. Restenosis was detected in 2643 (26.4%) patients. Overall, there were 702 deaths during the follow-up. Of these, 218 deaths occurred among patients with restenosis and 484 deaths occurred among patients without restenosis [unadjusted hazard ratio: HR: 1.19; (95% confidence interval CI: 1.02–1.40); P = 0.03]. The Cox proportional hazards model adjusting for other

variables identified restenosis as an independent correlate of 4-year mortality [HR: 1.23; (95% CI: 1.03–1.46); P = 0.02]. Other independent correlates of 4-year mortality were age [for each 10-year increase, HR: 2.34; (95% CI: 2.12–2.60); P < 0.001], diabetes mellitus [HR: 1.68; (95% CI: 1.41–1.99); P < 0.001], current smoking habit [HR: 1.39; (95% CI: 1.09–1.76); P = 0.01], and left ventricular ejection fraction [for each 5% decrease, HR: 1.39; (95% CI: 1.31–1.48); P < 0.001]. **Conclusions:** In this large cohort of patients, the presence of restenosis at follow-up angiography after coronary stenting was predictive of 4-year mortality. Whether routine control angiography after coronary stenting is beneficial and influences outcomes should be evaluated by properly designed randomized trials.

62. Cassese S, Byrne RA, Tada T, Piniček S, Joner M, Ibrahim T, Kastrati A. Incidence and predictors of restenosis after coronary stenting in 10 004 patients with surveillance angiography. *Heart*. 2014; 100(2): 153-159.

Objective: Systematic investigation of restenosis after percutaneous coronary intervention (PCI) with bare metal stents (BMS) or first or second generation drug eluting stents (DES) in large scale, broadly inclusive patient populations undergoing follow-up angiography represents a gap in our scientific knowledge. We investigated the incidence of angiographically proven restenosis and its predictors in patients undergoing PCI with stents. **Methods:** All patients undergoing successful implantation of coronary stents for de novo lesions from 1998 to 2009 and follow-up angiography at 6–8 months at two centres in Munich, Germany were eligible for inclusion. Patients with cardiogenic shock, dialysis dependent renal insufficiency or previous cardiac transplantation were excluded. Data were prospectively collected. The incidence of restenosis, defined as diameter stenosis $\geq 50\%$ in the in-segment area at follow-up angiography, and its predictors were evaluated. **Results:** A total of 12 094 patients met inclusion criteria. Angiographic follow-up was available for 10 004 patients (77.5%) with 15 004 treated lesions. Binary restenosis was detected in 2643 (26.4%) patients. Use of first generation DES versus BMS (OR 0.35, 95% CI 0.31 to 0.39) and second generation DES versus first generation DES (OR 0.67, 95% CI 0.58 to 0.77) were independent predictors of lower rates of restenosis. At multivariate analysis, smaller vessel size (OR 1.59, 95% CI 1.52 to 1.68,

for each 0.5 mm decrease), total stented length (OR 1.27, 95% CI 1.21 to 1.33, for each 10 mm increase), complex lesion morphology (OR 1.35, 95% 1.21 to 1.51), presence of diabetes mellitus (OR 1.32, 95% 1.19 to 1.46), and history of bypass surgery (OR 1.38, 95% CI 1.20 to 1.58) were independently associated with restenosis and were similar across the spectrum of stent devices. **Conclusions:** In this large cohort of patients with angiographic surveillance we demonstrated the impact of device development on antirestenotic efficacy, with sequentially improved efficacy from BMS to first generation DES to second generation DES. Predictors of restenosis were small vessel size, increased stented length, complex lesion morphology, diabetes mellitus, and prior bypass surgery.

63. Chacha MK. Prevalence and Risk Factors Associated with under nutrition Among Children Aged 6-24 Months Attending Rch Clinic Dar es Salaam Tanzania in 2013 – 2014. Master of Medicine (Pediatrics and Child Health) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.

Background: Under nutrition accounts for approximately one-fifth of global deaths and disability-adjusted life years in children younger than 5 years old and constitutes a significant public health problem in early childhood. **Objective:** This study aimed to determine the prevalence and risk factors associated with under nutrition among children aged 6 months to 2years attending Reproductive and Child Health clinic in Dar es salaam, Tanzania. **Methodology:** This was a hospital based cross sectional study conducted from November 2013 to February 2014 in Dar es salaam, Tanzania. All eligible children, whose parents/caregivers gave consent to participate, were recruited consecutively into the study until a sample size of 400 was attained. These were children who came for routine immunization at the clinic. The data on socio-demographic characteristics of children and caregivers, including number of children less than five years in the family, mode of feeding the child and socio-economic status of caregiver were collected using structured questionnaires and analyzed using SPSS-20, STATA-12 and WHO z-score for anthropometric. **Results:** During the study period, 400 children were enrolled, of which 203(50.8%) were males. The overall mean age was 13.5 ± 5.2 months. Out of 400 children studied, 329 (82.2%) had birth weight equal or above 2500 grams. More than 95% had been immunized according to immunization schedule. Almost

all children 393(98.2%) in the study were delivered in the health facilities. One hundred and eighteen (29.5%) children were stunted and 22(5.5%) were wasted. Children who were severely stunted and wasted accounted for 6.0% and 5 (1.2%) respectively. Factors found to influence under nutrition were shown to be age above 19 months (OR = 23.5, 95%CI 5.4, 102.7; p=0.03), low income families (OR=3 .291, 95%CI1.121, 5.698; p 0.007), unemployed father (OR=11.462, 95%CI 5.907, 22.241; p 0.001), male sex and low birth weight (OR=2.355, 95%CI 1.399, 3.967; P=0.001). Protective factors for under nutrition were employment of father (OR=0.149,95%CI 0.060,0.372;p 0.001), less number of under-fives in the family (OR=0.197, 95%CI 0.050,0.784; p 0.021), exclusive BF for six months (OR=0.539, 95%CI 0.329, 0.884; p 0.014) and feeding enriched porridge (OR=0.4,95%CI 0.2,0.6; p=0.018). **Conclusions:** 29.5% of studied children were stunted and 5.5% were wasted. The factors noted to have effect on under nutrition included age above 19 months, low socio-economic families, occupation of the father and less number of children below five years in the family.

64. Chakrabarti R, Wei Y, Hwang J, Hang X, Blanco MA, Choudhury A, Kang Y. Δ Np63 promotes stem cell activity in mammary gland development and basal-like breast cancer by enhancing Fzd7 expression and Wnt signalling. *Nature cell biology*. 2014.

Emerging evidence suggests that cancer is populated and maintained by tumour-initiating cells (TICs) with stem-like properties similar to those of adult tissue stem cells. Despite recent advances, the molecular regulatory mechanisms that may be shared between normal and malignant stem cells remain poorly understood. Here we show that the Δ Np63 isoform of the Trp63 transcription factor promotes normal mammary stem cell (MaSC) activity by increasing the expression of the Wnt receptor Fzd7, thereby enhancing Wnt signalling. Importantly, Fzd7-dependent enhancement of Wnt signalling by Δ Np63 also governs tumour-initiating activity of the basal subtype of breast cancer. These findings establish Δ Np63 as a key regulator of stem cells in both normal and malignant mammary tissues and provide direct evidence that breast cancer TICs and normal MaSCs share common regulatory mechanisms.

65. Chandraratne S, von Bruehl ML, Pagel JI, Stark K, Kleinert E, Konrad I, Massberg S. **Critical Role of Platelet Glycoprotein Iba in Arterial Remodeling.** *Arteriosclerosis, thrombosis, and vascular biology, ATVBAHA-2014*; 114.

Objective: Arteriogenesis is strongly dependent on the recruitment of leukocytes, especially monocytes, into the perivascular space of growing collateral vessels. On the basis of previous findings that platelets are central players in inflammatory processes and mediate the recruitment of leukocytes, the aim of this study was to assess the role of platelets in a model of arterial remodeling. **Approach and Results:** C57Bl6 wild-type mice, IL4-R/Iba mice lacking the extracellular domain of the glycoprotein Iba (GPIba) receptor, and mice treated with antibodies to block GPIba or deplete circulating platelets were studied in peripheral arteriogenesis. Using a novel model of intravital 2-photon and epifluorescence imaging, we visualized and quantified the interaction of platelets with leukocytes and the vascular endothelium in vivo. We found that transient platelet adhesion to the endothelium of collateral vessels was a major event during arteriogenesis and depended on GPIba. Furthermore, leukocyte recruitment was obviously affected in animals with defective platelet GPIba function. In IL4-R/Iba mice, transient and firm leukocyte adhesion to the endothelium of collateral vessels, as well as leukocyte accumulation in the perivascular space, were significantly reduced. Furthermore, we detected platelet-leukocyte aggregates within the circulation, which were significantly reduced in IL4-R/Iba animals. Finally, platelet depletion and loss of GPIba function resulted in poor reperfusion recovery as determined by laser Doppler imaging. **Conclusions:** Thus, GPIba-mediated interactions between platelets and endothelial cells, as well as leukocytes, support innate immune cell recruitment and promote arteriogenesis-establishing platelets as critical players in this process.

66. Changamire FT, Mwiru RS, Msamanga GI, Spiegelman D, Urassa W, Hertzmark E, Peterson KE. **Macronutrient and sociodemographic determinants of gestational weight gain among HIV-negative women in Tanzania.** *Food & Nutrition Bulletin* 35(1), 43-50.

Background: The effect of dietary macronutrient composition on the rate of gestational weight gain among women in sub-Saharan Africa is unclear. **Objective:** To examine the

effect of macronutrient intake on the rate of gestational weight gain among HIV-negative women in Tanzania.**Methods:** The weights of 8,428 women were measured monthly from 12 weeks of gestation to term. Prenatal dietary intake was estimated as the cumulative average of multiple 24-hour dietary recalls. The association between energy intake and percentage of energy from carbohydrate, protein, and total fat and rate of weight gain (grams per month) was estimated from generalized estimating equation models. Macronutrient effects were adjusted for total energy using the nutrient density model and maternal age, maternal height, maternal mid-upper-arm circumference, parity, marital status, maternal occupation, maternal education, household wealth, season, and treatment regimen assignment. Body mass index (BMI) was considered as a confounder and a potential modifier of the effect of macronutrient intake on gestational weight gain.**Results:** A 6 g/month increase in rate of weight gain was associated with every 100-kcal increment in daily total energy intake (95% CI, 1 to 12; $p = .03$). Analyses substituting 5% of energy from fat by protein showed that weight gain would decrease by 72 g/month (95% CI, 6 to 140; $p = .03$); substituting 5% of energy from carbohydrate by protein decreased gain by 70 g/month (95% CI, 15 to 124; $p = .01$). Baseline BMI did not modify these associations.**Conclusions:** Further research on the effects of macronutrient composition on gestational weight gain is needed to inform the design of supplementation programs for women in developing countries.

67. Chaula SA, Tarimo DS. Impact of praziquantel mass drug administration campaign on prevalence and intensity of *Schistosoma haematobium* among schoolchildren in Bahi district, Tanzania. *Tanzania Journal of Health Research*. 2014; 16(1).

As part of the Tanzania National Schistosomiasis Control Programme, Bahi district in central Tanzania, received two annual rounds of praziquantel mass drug administration (MDA) to control urinary schistosomiasis in schoolchildren. The objectives of this study were to assess the impact of the two rounds of MDA on prevalence and intensity of *Schistosoma haematobium* and the impact of MDA campaigns on knowledge of urinary schistosomiasis, safe water use and contact with potentially unsafe water bodies. A quantitative cross-sectional study was carried out among schoolchildren in March and April, 2013. A structured questionnaire was used to collect information on MDA uptake,

knowledge of schistosomiasis, sources of water for domestic and other uses. Urine samples were collected from each pupil to examine prevalence and intensity of *S. haematobium*. Transmission of schistosomiasis was assessed by sampling *Bulinus* spp snails for cercarial shedding. Uptake of MDA was 39.5% in 2011 and 43.6% in 2012. Prevalence of *S. haematobium* significantly dropped by 50.0% from 26% in 2011 to 15% in 2012 ($p = 0.000$). Prevalence of *S. haematobium* was significantly low in MDA participating (3.1%) than non-participating (28.5%) schoolchildren ($p = 0.000$). MDA campaigns had significant impact on knowledge of the disease ($p = 0.02$) and borderline impact on safe water use ($p = 0.04$) but had no impact on avoidance of contact with unsafe water bodies ($p = 0.06$). *Bulinus* spp. snails were found shedding schistosome cercariae indicating environmental contamination with viable *S. haematobium* eggs. In conclusion, though MDA significantly reduced prevalence of *S. haematobium*, uptake was below 50.0% and below the World Health Assembly resolution 54.19 target of 75.0% for 2010. Non-participation in MDA was the likely source of *S. haematobium* eggs in the environment hence the observed 15.0% prevalence of *S. haematobium* infection; and cercarial shedding *Bulinus* spp. snails indicating continuity of transmission hence the need for further health promotion campaigns.

68. Chillo O, Pagel JI, Kleinert EC, Caballero AM, Mauer A, Hoecker JM, Deindl E. Arteriogenesis: A natural arteriolar bypass in occlusive cardiovascular diseases. The role of mast cells. In *The Second Scientific Conference*. 2014.

Occlusive cardiovascular diseases are the leading course of death worldwide. Although surgical revascularization remains to be the treatment of choice for most patients, therapeutic promotion of arteriolar bypass presents an alternative to patients in which surgical intervention is not possible. The presence of pre-existing collateral network in the human heart and essentially in every organ, form the basis of recirculation of blood flow after stenosis of the main supply artery. The remodelling and enlargement of inner diameter of the interconnecting arterioles due to significant arterial occlusion is referred to as Arteriogenesis. Sufficient collateral enlargement can allow significant blood flow bypassing the stenosed segment of an artery to prevent distal tissue ischemia, such as in coronary artery diseases and chronic lower limb ischemia. Several experimental studies

showed the putative role of leukocytes, especially monocytes, which extravasate, releases growth factors and degrading enzymes in the vicinity of the growing collateral arterioles. Despite the promising experimental animal studies to stimulate arteriogenesis, many large-scale clinical trials have yielded disappointing results in humans with no or limited success. Here I present the novel concept of arteriogenesis, its milestones in the scientific world and the contribution of mast cells as new players in arteriogenesis.

69. Chillo P, Humphrey SH, Meda J, Kerry VB. Cardiac Critical Care in Resource-Limited Environments: Lessons from Tanzania. *Global Heart*. 2014; 9(3): 311-318.

The concept of cardiac critical care is emerging as a tool in the management of cardiovascular diseases in many Sub-Saharan African countries. The region is undergoing significant epidemiological transition. There remains a significant burden of infectious and nutritional disease, but cardiovascular disease, notably hypertension and coronary artery disease, as well as other noncommunicable diseases (NCD) are emerging rapidly, placing a double burden on existing healthcare systems. Within this complex, heterogeneous, and changing epidemiologic setting, efforts to diagnose and treat cardiovascular diseases have increased. As more patients are diagnosed with acute cardiac conditions, the number requiring management in a cardiac critical care unit is also increasing. In this review, using the Tanzanian experience, we attempt to chronicle the appearance of cardiac critical care services and the many challenges to their implementation in a resource-limited environment.

70. Chomi EN, Mujinja PG, Enemark U, Hansen K, Kiwara AD. Health care seeking behaviour and utilisation in a multiple health insurance system: *does insurance affiliation matter?* *Health*. 2014; 13: 14.

Background: Many countries striving to achieve universal health insurance coverage have done so by means of multiple health insurance funds covering different population groups. However, existence of multiple health insurance funds may also cause variation in access to health care, due to the differential revenue raising capacities and benefit packages offered by the various funds resulting in inequity and inefficiency within the health system. This paper examines how the existence of multiple health insurance funds

affects health care seeking behavior and utilisation among members of the Community Health Fund, the National Health Insurance Fund and non-members in two districts in Tanzania. **Methods:** Using household survey data collected in 2011 with a sample of 3290 individuals, the study uses a multinomial logit model to examine the influence of predisposing, enabling and need characteristics on the probability of seeking care and choice of provider. **Results:** Generally, health insurance is found to increase the probability of seeking care and reduce delays. However, the probability, timing of seeking care and choice of provider varies across the CHF and NHIF members. **Conclusions:** Reducing fragmentation is necessary to provide opportunities for redistribution and to promote equity in utilisation of health services. Improvement in the delivery of services is crucial for achievement of improved access and financial protection and for increased enrolment into the CHF, which is essential for broadening redistribution and cross-subsidisation to promote equity.

71. Chomi EN, Mujinja PG, Enemark U, Hansen K, Kiwara AD. Risk distribution across multiple health insurance funds in rural Tanzania. *The Pan African medical journal.* 2014; 18.

Introduction: Multiple insurance funds serving different population groups may compromise equity due to differential revenue raising capacity and an unequal distribution of high risk members among the funds. This occurs when the funds exist without mechanisms in place to promote income and risk cross-subsidisation across the funds. This paper analyses whether the risk distribution varies across the Community Health Fund (CHF) and National Health Insurance Fund (NHIF) in two districts in Tanzania. Specifically we aim to 1) identify risk factors associated with increased utilisation of health services and 2) compare the distribution of identified risk factors among the CHF, NHIF and non-member households. **Methods:** Data was collected from a survey of 695 households. A multivariate logistic regression model was used to identify risk factors for increased health care utilisation. Chi-square tests were performed to test whether the distribution of identified risk factors varied across the CHF, NHIF and non-member households. **Results:** There was a higher concentration of identified risk factors among CHF households compared to those of the NHIF. Non-member households

have a similar wealth status to CHF households, but a lower concentration of identified risk factors. **Conclusion:** Mechanisms for broader risk spreading and cross-subsidisation across the funds are necessary for the promotion of equity. These include risk equalisation to adjust for differential risk distribution and revenue raising capacity of the funds. Expansion of CHF coverage is equally important, by addressing non-financial barriers to CHF enrolment to encourage wealthy non-members to join, as well as subsidised membership for the poorest.

72. Clarah MA. Seroprevalence And Factors Associated With Dengue Fever Among Blood Donors In Dar Es Salaam, Tanzania. Master of Epidemiology and Laboratory Management *Dissertation* 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.

Background: Dengue fever affects 128 countries worldwide; 50 million people are infected while about 2.5 billion people are at risk of infection. The dengue virus (DENV) is mainly transmitted by female *Aedes aegypti* mosquito but studies among blood donors in various countries suggest that blood transfusion could be one of the routes for transmission of DENV. **Objectives:** To determine the prevalence and associated factors of the DENV infection among blood donors in Dar es Salaam as well as the circulating DENV serotypes among blood donors. **Methods:** A cross sectional study was conducted among blood donors at the Eastern Zone Blood Transfusion Services (EZBTS) from October to December 2013. Data on socio-demographic, clinical characteristics and risk factors were collected. The blood was screened for IgG, IgM and NS1 protein to DENV by SD Dengue duo rapid test and confirmed on IgM-Capture ELISA and reverse transcription polymerase chain reaction (RT-PCR). Data was analyzed by Epi Info (version 3.5.4). Continuous variables were reported using mean and standard deviation while categorical variables were reported in proportions. Chi square test was used to compare proportions while student's t-test was used to compare mean values of odds ratios (ORs) and 95% CIs. Factors with p value below 0.05 were considered significant. A multiple logistic regression model using a backward procedure was used to determine the independent factors associated with DENV IgG positivity. **Results:** A total of 443 blood donors were included in the study and most of them were male (86.9%). The

overall mean age was 32.4 ±10.1 (SD) years .Most donors came from Kinondoni district (42.4%), most (81.9%) were unaware of dengue illness and only 2% had ever received blood transfusion in their lifetime. DENV IgG seroprevalence was 4.9%, IgM seroprevalence was 0.2% and none of the donors tested positive for NS1 protein or DENV RNA hence serotyping could not be done. Lack of mosquito control inside the home [AOR=11.70; 95% CI =3.35-40.89] and presence of breeding sites around the home [AOR=6.14; 95% CI =2.42-15.55] were significantly associated with dengue fever among blood donors in Dar es Salaam. Screened house was a protective factor by bivariate analysis only [COR=0.18; 95% CI =0.07-0.47].**Conclusion:** DENV IgG seroprevalance was low indicating a silent circulation of DENV among adult population in the Dar es Salaam in 2013 which can result into a near future outbreak. There is a need to continue the efforts to create awareness, monitor, and control and prevent the dengue disease through increase of increasing diagnostic laboratory screening of DENV among donors and in our general population, advocating for effective massive mosquitoes vector control in our communities.

73. Constante CC, Monteiro AA, Alves SH, Carneiro LC, Machado MM, Severo LC, Pasqualotto AC. Different risk factors for candidemia occur for Candida species belonging to the C. parapsilosis complex. *Medical mycology*, myt034.2014.

Previous studies have demonstrated reduced virulence in the species that comprise the Candida parapsilosis complex. We investigated a cohort of 93 patients with candidemia caused by this complex. Most infections were caused by C. parapsilosis (80.6%), followed by C. orthopsilosis (18.3%) and C. metapsilosis (1.1%). Renal failure ($P < 0.001$) and chronic liver diseases ($P = 0.019$) were more frequently encountered with infections caused by the C. orthopsilosis group, suggesting an association with patients who had a greater state of immune suppression in comparison with infections caused by C. parapsilosis sensu stricto.

74. Cox CM, Babalola S, Kennedy CE, Mbwambo J, Likindikoki S, Kerrigan D. Determinants of concurrent sexual partnerships within stable relationships: a qualitative study in Tanzania. *BMJ open*. 2014; 4(2): e003680.

Objective: Concurrent sexual partnerships (CP) have been identified as a potential driver in the HIV epidemic in southern Africa, making it essential to understand motivating factors for engagement in CP. We aimed to assess community attitudes and beliefs about relationship factors that influence men and women in stable relationships to engage in CP in Tanzania. Social exchange theory was used for interpreting the data. Outcome measures FGD participants were asked the following questions about CP: definitions and types, motivations and justifications for engaging or not engaging, cultural factors, gender and socialisation, and local resources and efforts available for addressing CP. Our analysis focused specifically on beliefs about how relationship factors influence engagement in CP. **Results:** Dissatisfaction with a stable relationship was believed to be a contributing factor for engagement in CP for both men and women. Participants more commonly reported financial dissatisfaction as a contributing factor for women engaging in CP within stable relationships, whereas emotional and sexual dissatisfaction were reported as contributing factors for men and women. Furthermore, participants described how potential outside partners are often evaluated based on what they are able to offer compared with stable partners. **Conclusions:** Efforts to reach men and women in stable relationships with HIV prevention messages must consider the various dimensions of motivation for engaging in CP, including relationship dynamics.

75. Cox SE, Makani J, Soka D, L'Esperence VS, Kija E, Dominguez-Salas P, Kirkham FJ. Haptoglobin, alpha-thalassaemia and glucose-6-phosphate dehydrogenase polymorphisms and risk of abnormal transcranial Doppler among patients with sickle cell anaemia in Tanzania. *British journal of haematology*.2014; 165(5): 699-706.

Transcranial Doppler ultrasonography measures cerebral blood flow velocity (CBFv) of basal intracranial vessels and is used clinically to detect stroke risk in children with sickle cell anaemia (SCA). Co-inheritance in SCA of alpha-thalassaemia and glucose-6-phosphate dehydrogenase (G6PD) polymorphisms is reported to associate with high CBFv and/or risk of stroke. The effect of a common functional polymorphism of haptoglobin (HP) is unknown. We investigated the effect of co-inheritance of these polymorphisms on CBFv in 601 stroke-free Tanzanian SCA patients aged <24 years.

Homozygosity for alpha-thalassaemia 3•7 deletion was significantly associated with reduced mean CBFv compared to wild-type (β -coefficient $-16\cdot1$ cm/s, $P = 0\cdot002$) adjusted for age and survey year. Inheritance of 1 or 2 alpha-thalassaemia deletions was associated with decreased risk of abnormally high CBFv, compared to published data from Kenyan healthy control children (Relative risk ratio [RRR] = $0\cdot53$ [95% confidence interval (CI): $0\cdot35-0\cdot8$] & RRR = $0\cdot43$ [95% CI: $0\cdot23-0\cdot78$]), and reduced risk of abnormally low CBFv for 1 deletion only (RRR = $0\cdot38$ [95% CI: $0\cdot17-0\cdot83$]). No effects were observed for G6PD or HP polymorphisms. This is the first report of the effects of co-inheritance of common polymorphisms, including the HP polymorphism, on CBFv in SCA patients resident in Africa and confirms the importance of alpha-thalassaemia in reducing risk of abnormal CBFv.

76. Cox SE, Soka D, Kirkham FJ, Newton CR, Prentice AM, Makani J, Younoszai AK. Tricuspid regurgitant jet velocity and hospitalization in Tanzanian children with sickle cell anemia. *Haematologica*. 2014; 99(1): e1-e4.

The Philadelphia chromosome-negative myeloproliferative neoplasm (MPN) primary myelofibrosis (PMF) is characterized by progressive accumulation of connective tissue and endothelial proliferation in the bone marrow accompanied by extramedullary hematopoiesis with enlargement of the spleen and liver.^{1,2} Patients with PMF have a poor prognosis with a median survival of 6.5 years.³ When myelofibrosis develops during the course of polycythemia vera (PV) and essential thrombocythemia (ET), the conditions are termed post-PV myelofibrosis (PPV-MF) and post-ET MF (PET-MF), respectively;⁴ both have a dismal prognosis.

77. da Silva TVM, Carneiro LC, dos Santos Ramos F, Baethgen LF, Paz AA, Larentis DZ, Pasqualotto AC. PCR as a Screening Test for Invasive Aspergillosis in Hematological Patients: A Pilot Study. *Mycopathologia*. 2014; 177(1-2): 111-114.

Invasive aspergillosis is a leading cause of morbidity and mortality in immunocompromised patients, particularly in individuals with hematological malignancy and in hematopoietic stem cell transplant recipients. Nowadays, the galactomannan (GM) assay has been widely used as an indication of invasive aspergillosis, even though the test

is known to generate false-positive results. The aim of this study was to compare the performance of GM and real-time PCR (qPCR) to detect Aspergillus in blood samples obtained from high-risk hematological patients. Hematological patients were screened twice weekly with GM testing, which was performed by the Platelia ELISA kit. An additional sample of whole blood (4 ml) was obtained for the purpose of qPCR testing. Sixty-four samples from 12 patients with hematopoietic stem cell transplant or hematological malignancy were studied. The overall accordance between GM and qPCR tests was 96.9 % (62 samples). Only two samples showed contradictory results, with positive GM test and negative real-time PCR results. Based on the high concordance between GM and qPCR in terms of negative results, the main utility of qPCR could be in the confirmation of positive results seen with GM testing.

78. **Daducci A, Canales-Rodríguez EJ, Descoteaux M, Garyfallidis E, Gur Y, Lin YC, Thiran JP. Quantitative comparison of reconstruction methods for intra-voxel fiber recovery from diffusion MRI. *Medical Imaging, IEEE Transactions on.* 2014; 33(2): 384-399.**

Validation is arguably the bottleneck in the diffusion magnetic resonance imaging (MRI) community. This paper evaluates and compares 20 algorithms for recovering the local intra-voxel fiber structure from diffusion MRI data and is based on the results of the “HARDI reconstruction challenge” organized in the context of the “ISBI 2012” conference. Evaluated methods encompass a mixture of classical techniques well known in the literature such as diffusion tensor, Q-Ball and diffusion spectrum imaging, algorithms inspired by the recent theory of compressed sensing and also brand new approaches proposed for the first time at this contest. To quantitatively compare the methods under controlled conditions, two datasets with known ground-truth were synthetically generated and two main criteria were used to evaluate the quality of the reconstructions in every voxel: correct assessment of the number of fiber populations and angular accuracy in their orientation. This comparative study investigates the behavior of every algorithm with varying experimental conditions and highlights strengths and weaknesses of each approach. This information can be useful not only for enhancing

current algorithms and develop the next generation of reconstruction methods, but also to assist physicians in the choice of the most adequate technique for their studies.

79. **Danchin N, Puymirat E, Steg PG, Goldstein P, Schiele F, Belle L, Simon T. Five-year survival in patients with ST-segment elevation myocardial infarction according to modalities of reperfusion therapy: the French Registry on Acute ST-Elevation and Non-ST-Elevation Myocardial Infarction (FAST-MI) 2005 cohort. *Circulation, CIRCULATIONAHA-113.2014.***

Background: although primary percutaneous coronary intervention (pPCI) is the preferred reperfusion method for ST-elevation myocardial infarction (STEMI), it remains difficult to implement in many areas, and fibrinolytic therapy is still widely used. **Methods and Results:** We assessed 5-year mortality in STEMI patients from the French registry of Acute ST-elevation or non-ST elevation Myocardial Infarction (FAST-MI) 2005 according to use and type of reperfusion therapy. Of 1492 STEMI patients with first call ≤ 12 hours from onset, 447 (30%) received fibrinolysis (66% pre-hospital; 97% with subsequent angiography, 84% with subsequent PCI), 583 (39%) had pPCI and 462 (31%) received no reperfusion. Crude 5-year survival was 88% for fibrinolytic-based strategy, 83% for pPCI and 59% for no reperfusion. Adjusted hazard ratios (95% confidence interval) for 5-year death were: 0.73 (0.50-1.06) for fibrinolysis versus pPCI, 0.57 (0.36-0.88) for pre-hospital fibrinolysis versus pPCI, and 0.63 (0.34-0.91) for fibrinolysis vs pPCI beyond 90 minutes of call in patients having called ≤ 180 minutes from onset. In propensity score matched populations, however, survival rates were not significantly different for fibrinolysis and pPCI, both in the whole population (88% lysis, 85% pPCI), and in the population seen early (87% fibrinolysis, 85% pPCI beyond 90 minutes from call). **Conclusions:** In a real world setting, on a nationwide scale, a pharmaco-invasive strategy constitutes a valid alternative to pPCI, with 5-year survival at least equivalent to the reference reperfusion method.

80. Darling AM, McDonald CR, Conroy AL, Hayford KT, Liles WC, Wang M, Fawzi WW. Angiogenic and inflammatory biomarkers in midpregnancy and small-for-gestational-age outcomes in Tanzania. *American journal of obstetrics and gynecology*. 2014; 211(5): 509-e1.

Objective: We sought to investigate the relationship between a panel of angiogenic and inflammatory biomarkers measured in midpregnancy and small-for-gestational-age (SGA) outcomes in sub-Saharan Africa. **Study Design:** Concentrations of 18 angiogenic and inflammatory biomarkers were determined in 432 pregnant women in Dar es Salaam, Tanzania, who participated in a trial examining the effect of multivitamins on pregnancy outcomes. Infants falling below the 10th percentile of birthweight for gestational age relative to the applied growth standards were considered SGA. Multivariate binomial regression models with the log link function were used to determine the relative risk of SGA associated with increasing quartiles of each biomarker. Restricted cubic splines were used to test for nonlinearity of these associations. **Results:** A total of 60 participants (13.9%) gave birth to SGA infants. Compared to those in the first quartile, the risk of SGA was reduced among those in the fourth quartiles of vascular endothelial growth factor-A (adjusted risk ratio [RR], 0.38; 95% confidence interval [CI], 0.19–0.74), placental growth factor (adjusted RR, 0.28; 95% CI, 0.12–0.61), soluble fms-like tyrosine kinase-1 (adjusted RR, 0.48; 95% CI, 0.23–1.01), monocyte chemoattractant protein-1 (adjusted RR, 0.48; 95% CI, 0.25–0.92), and leptin (adjusted RR, 0.46; 95% CI, 0.22–0.96). **Conclusion:** Our findings provide evidence of altered angiogenic and inflammatory mediators, at midpregnancy, in women who went on to deliver SGA infants.

81. Daud H, Gulcharan NFI, Azhar MAM, Nor NM, Ibrahim T. Development and analysis of wireless heart rate monitoring device. In *Industrial Automation, Information and Communications Technology (IAICT), 2014 International Conference on*. 2014; 57-63.

Researchers throughout the years have been searching for methods to improve the available technologies to ease the users worldwide. In medical industries, researchers have made many improvements and development in medical equipment's to ease the

medical professionals in serving patients. This work is the continuation of the previous research work in providing complete set of data for analysis on human behavior to set an accurate threshold for device detection. In this work, heart rate is monitored to all age groups for both genders wirelessly from remote locations. Results showed that these various age group is giving average reading that complies to the benchmark reading and is able to provide the necessary threshold value for future device improvement and enhancement.

82. Daud H, Gulcharan NFI, Azhar MAM, Samsudin MZ, Nor NM, Ibrahim T. Monitoring Heart Rate and Body Temperature Using Wireless Technology (Zigbee). *Applied Mechanics and Materials*. 2014; 490: 1565-1574.

Wireless technology has increasingly emerged as one of the demanding technologies in healthcare industry. Monitoring patients' condition is a crucial task in any hospital to ensure patients are in good and stable condition. Wireless sensor network is the solution and has been widely introduced in measuring vital signs of patients such as temperature, heart rate, oxygen saturation, respiratory rate and others from remote location. Zigbee Network or accurately known as IEEE 802.15.4/Zigbee on the other hand is known to be a low power consumption device with good and stable data transmission range, higher network flexibility and large number of nodes. This work is discussing on integrating heart rate and temperature sensors to a wireless transceiver Zigbee (Xbee) module and is used to measure patients' conditions from remote location (nurse's station). Series of tests have been conducted using these devices to measure patients' heart rate and body temperature for different genders and age group at lying down position. This is to ensure that the devices developed are reliable, stable and producing the same results as conventional devices (thermometer and heart beat reader). Results obtained are very encouraging; the developed devices are producing stable readings and are capable of transmitting information at reasonable distance.

83. Daud H, Nayan MY, Gulcharan NFI, Rahman MZA, Nor NM, Ibrahim T. Design and Implementation of an Internal Rechargeable Powering Source for Zigbee Transponders. *World Applied Sciences Journal*. 2014; 30: 103-109.

Wireless technology has become a new emerging technology in healthcare industry. Efforts have been made by many researchers to integrate Zigbee wireless network transponders with sensors to measure patients' temperature, heart rate, oxygen saturation, respiratory rate and etc. and monitor them continuously from remote locations in hospitals. This transponder requires internal power supply or battery to run its internal circuitry. It was found that life time of the battery is one of the major issues in the monitoring device as it uses certain amount of power to power up components in the device. This may cause interruption in the monitoring process that leads to serious consequences. This work is discussing on the design and implementation of external powering mechanism using rechargeable battery to replace the conventional lithium coin cell battery that can only sustain for few hours if continuous monitoring is implemented. Prototype to recharge the battery externally using USB input was developed and was tested using three different types of batteries. Each battery is connected in with the transponder for powering and also to the recharging circuit prototype to test whether sufficient power and current is provided to power it up. Their performances were observed based on the applicability, lifetime, size, cost and efficiency. It was found that 3.7V lithium polymer battery is giving optimum performances and is proposed as external power source for developed Zigbee transponders.

84. Daudi DL. Prevalence and Causes of Readmission among Operated Surgical Patients at Muhimbili National Hospital. Of Master of Medicine (General Surgery) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.

Introduction: It is well known that every surgery has potential complications and these complications can develop before or after discharging the patient from the hospital after surgery. Most of these complications may cause readmission within 30 days of an index hospitalization. Readmission rates after elective and emergency surgery have a significant impact on hospital costs and quality of care. Therefore, the objective of this study is to determine the prevalence and causes of readmissions among patients admitted and operated in surgical department at MNH. **Methodology:** This is a prospective descriptive hospital based study. The study was done in the surgical department at MNH.

All patients who underwent major elective or emergency surgery at MNH between March and December 2013 were included in the study. The sample of the study included those patients who were readmitted within thirty days after being operated. Structured questionnaires and case notes were used to collect data from patients. **Results:** One hundred and fifty nine surgical patients, 60% (96) males and 40% (63) females who were readmitted within 30 days of discharge after surgery procedures were reviewed. The study shows the leading diagnoses made during the primary admission were sigmoid volvulus 25.2 % (40), followed by small bowel perforations at 23.3 % (37), perforated appendix 11.9 % (19) and gastric perforations at 11.3 % (18). The leading causes of re-admission were Enterocutaneous fistula by 37.7% (60), followed by severe anemia at 23.9 % (38), burst abdomen 15.7 % (25) and localized peritonitis 11.3 % (18). Sigmoid volvulus was the leading cause of enterocutaneous fistula by 40 % (24/60), followed by small bowel perforation 38.3% (23/60) and gastric perforation by 18.3% (11/60). Severe anemia was the leading cause of readmission in diabetic foot patients at 21.0% (8/38), followed by small bowel perforation by 13.2% (5/38), and primary peritonitis and benign prostatic hypertrophy each contributing 10.5% (4/38). Burst abdomen led in patients who underwent small bowel perforation and sigmoid volvulus each presenting with 24.0% (6/25) and perforated appendicitis with 20% (5/25). **Conclusion:** This study has found a readmission rate of 7.1%, lower than that reported from developed countries but with a correspondingly high mortality rate. Our patients were readmitted with more serious conditions directly related to the primary procedure, unlike in the U.S studies where co morbidities were the leading causes with low mortality rates. This has demonstrates that it is not the rate that matters but the outcome of such a readmission. Sex and age were not determinants of readmission. Again we feel that post operative stay was short in this study and factors to improve post operative care should be looked

85. **Deogratias AN. Mortality Pattern, Causes Of Death And The Associated Risk Factors Amongst Children And Adolescents With Sickle Cell Anaemia At Muhimbili National Hospital, Dar Es Salaam, Tanzania: Master of Medicine (Paediatric and Child Health) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: Sickle cell anaemia (SCA) is one of the commonest monogenic conditions in the world. SCA together with other haemoglobinopathies contributes to about 3.4% of all-cause mortality for under-fives worldwide. Most of these deaths (50 – 80%) occur in resource limited countries annually. Tanzania is one of the Sub-Saharan Africa countries with the highest carrier frequency of up to 38%. Among the factors that influence mortality among sickle cell patients in Africa include: poverty, infections, malnutrition and presence of a sickle gene haplotype that determines severe disease with complications. **Objectives:** To determine the mortality pattern, causes of death and associated risk factors for death in Sickle Cell Disease (SCD) patients aged 0 – 18 years attending Muhimbili National Hospital (MNH) in Dar es Salaam, Tanzania. **Methodology:** This was a retrospective cohort study nested within a prospective study for determining the spectrum of SCD in Tanzania being conducted at MNH. All patients (deceased and survivors) aged 0 – 18 years with confirmed SCA and enrolled at the Muhimbili Sickle Cell (MSC) study between 1st April 2004 and 31st March 2013 were included in the study. Verbal autopsy (VA) was done to relatives/caretakers of the deceased patients. Information was also obtained from case report forms (CRF*) for clinic visits at the MSC study and MNH case notes for those who died at MNH. A standardized VA questionnaire was used for data collection. Pre-determined criteria were used to define the causes of death. Data were analysed using Statistical Package for Social Sciences (SPSS) software version 20 and Microsoft Excel 10. **Results:** 2,569 patients with 12,020 years of observation were involved in the study. Patients who died were 188 (7.3%) and survivors were 2,381. The median age of patients that died was 8.4 (IQR: 4.4 – 12.6) years at death. The median age of survivors was 9.6 (IQR: 6 – 13.5) years at the end of the study period. The under-fives had significantly higher mortality (3.0 per 100 PYO) which was more than two times higher than that of children aged 5 – 18 years (1.3 per 100 PYO). The mortality rate for under-fives had an increasing trend from 2004 to 2008 followed by a decreasing trend from 2008 to 2013. The highest mortality was 5.1 per 100 PYO in 2007 – 2008 and lowest was 0.5 per 100 PYO in 2013. However, there was no significant change in mortality across the years in the two age groups (< 5 years and 5 – 18 years) and the overall. The main causes of death in this study were infections (35.7%), severe anaemia (26.5%) and haemolytic crisis (13.3%).

Infections and anaemia together accounted for more than 80% of all causes of death. 69% died in hospital or health facilities. The causes of death were undetermined in 90 (48%) of patients who died. The risk factors for death in SCA patients were few clinic visits [RR: 3.71 (2.70 – 5.10), p-value < 0.0001], splenomegaly [RR:1.74 (1.13 – 2.61), p-value = 0.012] haemoglobin below 5 g/dl [RR: 2.33 (1.51 – 3.51)), p-value < 0.0001], white blood cell count more than $15.5 \times 10^9/\text{mm}^3$ [RR: 1.83 (1.19 – 2.79), p-value = 0.005] and platelet count less than $150 \times 10^9/\text{mm}^3$ [RR: 2.09 (1.28 – 3.39), p-value = 0.003].

Conclusion: Children below five years had significantly higher mortality rate compared to older children. Infections and severe anaemia were the two major causes of death, but the aetiologies of infections remained unknown. The risk factors for death in SCD were few clinic visits, splenomegaly and abnormal haematological parameters (haemoglobin below 5 g/dl, white blood cell count more than $15.5 \times 10^9/\text{mm}^3$ and platelet count less than $150 \times 10^9/\text{mm}^3$). **Recommendations:** Early diagnosis of SCD patients and encourage attendance to clinics. Early identification and treatment of SCD related complications with emphasis on infections and severe anaemia. Treatment of splenomegaly and their associated causes. Further studies are needed to determine the aetiologies of infections and other risk factors that might influence mortality in SCD.

86. **Di Cesare A, Braun G, Di Giulio E, Paoletti B, Aquilino V, Bartolini R, Traversa D. Field clinical study evaluating the efficacy and safety of an oral formulation containing milbemycin oxime/praziquantel (Milbemax®, Novartis Animal Health) in the chemoprevention of the zoonotic canine infection by *Dirofilaria repens*. *Parasites & vectors*. 2014; 7(1): 347.**

Background: *Dirofilaria repens* is the causative agent of subcutaneous dirofilariasis of dogs, other animals and humans. This nematode is transmitted by mosquitoes of *Aedes*, *Anopheles* and *Culex* genera. In dogs, the parasite may cause subclinical infection or cutaneous signs. Recently, *D. repens* has emerged and spread in different geographical areas, with an increase of cases in dogs and humans. Chemoprevention in dogs in endemic areas is the most reliable approach for controlling this infection. This paper describes a randomized, blocked and multicentric clinical field study investigating the efficacy of an oral, chewable formulation containing milbemycin oxime/praziquantel

(Milbemax®, Novartis Animal Health) in the chemoprevention of subcutaneous dirofilariosis in dogs. **Methods:** This study was conducted in endemic areas of Italy. A total of 249 dogs, at two sites, negative for *D. repens*, were allocated into two groups (i.e. Treated -T1 vs Untreated-T2) with a ratio of 1:1, and subjected to clinical visits and blood sampling once monthly until the end of the study. All blood samples were microscopically and genetically examined. Animals belonging to T1 group received a minimum target dose of 0.5 mg/kg bodyweight of milbemycin oxime and 5 mg/kg of praziquantel in commercial tablets (Milbemax®) according body weight once every 4 weeks. Animals of group T2 were not treated with Milbemax® but received, when necessary, specific parasiticide treatments. The study duration was 336 ± 2 days for each dog. **Results:** A total of 219 dogs completed the study (i.e. 111 in T1 and 108 in T2), while 30 dogs (i.e. 13 in T1, 17 in T2) were withdrawn for a variety of reasons unrelated to administration of Milbemax®. The percentages of animals not showing microfilariae of *D. repens* were 100% (111 animals) in T1 and 94.7% (108 animals out of 114) in group T2. Milbemax® was shown to be safe in treated dogs. **Conclusions:** The results of this study confirm that the monthly use of Milbemax® in dogs is effective and safe for the prevention of subcutaneous dirofilariosis in endemic areas.

87. Diener MK, Knebel P, Kieser M, Schüler P, Schiergens TS, Atanassov V, Büchler MW. Effectiveness of triclosan-coated PDS Plus versus uncoated PDS II sutures for prevention of surgical site infection after abdominal wall closure: the randomized controlled PROUD trial. *The Lancet*. 2014; 384(9938): 142-152.

Background: Postoperative surgical site infections are one of the most frequent complications after open abdominal surgery, and triclosan-coated sutures were developed to reduce their occurrence. The aim of the PROUD trial was to obtain reliable data for the effectiveness of triclosan-coated PDS Plus sutures for abdominal wall closure, compared with non-coated PDS II sutures, in the prevention of surgical site infections **Methods:** This multicentre, randomized controlled group-sequential superiority trial was done in 24 German hospitals. Adult patients (aged ≥ 18 years) who underwent elective midline abdominal laparotomy for any reason was eligible for inclusion. Exclusion criteria were impaired mental state, language problems, and participation in another intervention trial

that interfered with the intervention or outcome of this trial. A central web-based randomization tool was used to randomly assign eligible participants by permuted block randomization with a 1:1 allocation ratio and block size 4 before mass closure to either triclosan-coated sutures (PDS Plus) or uncoated sutures (PDS II) for abdominal fascia closure. The primary endpoint was the occurrence of superficial or deep surgical site infection according to the Centers for Disease Control and Prevention criteria within 30 days after the operation. Patients, surgeons, and the outcome assessors were masked to group assignment. Interim and final analyses were by modified intention to treat.

88. Donath D. Screening For Impaired Glucose Tolerance and Type 2 Diabetes Mellitus in Rural and Sub-Urban Settings in Kilombero District, Tanzania. Master of Science (Biochemistry) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.

Background: The rapid increase in type 2 diabetes mellitus (T2DM) in urban centers in sub Saharan Africa has been attributed to the changing lifestyles, obesity, lack of physical activities, and diet modifications. Studies carried out over 20 years ago revealed that the prevalence of T2DM in rural settings was as low as 0.3%. Whether the picture remains the same given the major changes in demography and socioeconomics dynamics in the country is not clear. **Aim:** The overall goal of this study was to determine the prevalence of impaired glucose tolerance (IGT) and T2DM, and associated risk factors in both rural and sub-urban areas of Kilombero district, Tanzania. **Methods:** 150 subjects aged 25 years and above from rural and sub-urban areas of Kilombero District were studied. IGT and TDM patients were determined using a fasting glucose test, and a two hour post-meal blood glucose level test. BMI, family history of diabetes, and life style such as smoking habit and alcohol consumption were also recorded. **Results:** The overall prevalence of IGT and T2DM in Kilombero district was 7.3% and 2% respectively. Female sex, age, obesity and alcohol consumption were found to be risk factors. IGT and T2DM were significantly higher in female than male individuals; were 3-4 times more common in individuals aged 40 years and above. Alcoholism was found in 100% and 66% of patients with IGT and T2DM respectively. **Conclusions:** Although the prevalence of T2DM in Kilombero district was low, the IGT however was significantly high suggesting an

increase in diabetes in the future. Increased health education and access to screening is required for this area to facilitate early detection of T2DM patients.

89. Dubal YH. Evaluating the Use of a Handheld Electronic Pediatrics Emergency Medicine Reference by Emergency Physicians Master of Medicine (Emergency Medicine) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam

Background: Use of handheld electronic devices for reference and clinical decision support in medical care has increased significantly over the past decade. Many of these applications have been developed and tested in resource-rich settings and their feasibility and utility in resource-limited settings is unknown. A paediatric Emergency medicine software program has been donated for use to Emergency Department-Muhimbili National Hospital (EMD-MNH) by an international Non-Government Organization (NGO) and is integrated in clinical care since early 2013. **Problem Statement** Most of the applications for handheld devices are made and studied in resource rich nations but little is known about the feasibility and utility of it in a resource limited setting. **Study Rationale** This study will enable us to document use and establish provider views on the utility of electronic decision support software in our setting. **Aim:** To identify the components of paediatric emergency medicine software most often accessed and found to be the most useful by doctors in the Emergency department at Muhimbili National Hospital (MNH). **Materials and Methods:** Physician usage and opinions on program were evaluated by direct observation, surveys, and interviews. **Results:** All 28 doctors in MNH-EMD were screened of which 26 had smart phones and 25 consented for the study. On average, each provider used Semisoft app 1.4 times per shift which is the same frequency as asking the supervisor, for clinical referencing. The top three diagnoses accessed in the app were the same as those seen in our department at MNH-EMD. Most accessed component was disease reference and the least accessed was calculation support. 94.7% rated the app as easy to use while 86.8% felt that it made difference to patient care. **Conclusion and Recommendation:** A paediatric emergency medicine reference program on a handheld platform was deemed easy to use at the point of care by physician providers in an urban tertiary emergency department in Dar es Salaam. Most

participants felt that the program helped in patient care but the effect on patient care was not measured.

90. **Dzijan-Horn M, Langwieser N, Groha P, Bradaric C, Linhardt M, Böttiger C, Ibrahim T. Safety and efficacy of a potential treatment algorithm by using manual compression repair and ultrasound-guided thrombin injection for the management of iatrogenic femoral artery pseudoaneurysm in a large patient cohort. *Circulation: Cardiovascular Interventions*. 2014; 7(2): 207-215.**

Background: Because of the risk of associated complications, femoral pseudoaneurysm (PSA) formation implies further treatment. Ultrasound-guided thrombin injection (UGTI) is becoming the accepted gold standard, but manual compression (MC) represents an established treatment option including PSAs not feasible for UGTI. This study aims to assess our experience in PSA treatment using MC or UGTI according to a potential algorithm based on morphological properties in a large patient cohort. **Methods and Results:** Between January 2007 and January 2011, a total of 432 PSAs were diagnosed in 29091 consecutive patients (1.49%) undergoing femoral artery catheterization. When compressible, small PSAs (<20 mm), PSAs without clearly definable neck, PSAs directly adjacent to vessels, and PSAs with concomitant arteriovenous fistula were referred to MC (n=145, 34%). All other PSAs were treated by UGTI (n=287, 66%). Follow-up duplex scans were performed within 12 to 14 hours after manual compression therapy and within 4 to 6 hours after UGTI or by the next morning and were available for 428 patients (99.1%). The overall success rate of our institutional therapeutic approach was 97.2%, which was achieved by 178 MC- and 357 UGTI-procedures, respectively. Procedural complications occurred in 5 cases (1.4%) after UGTI and in 3 cases (1.7%) after MC, respectively. The treatment algorithm was not successful in 12 patients, whereas 2 PSAs (0.5%) were successfully excluded by implantation of a covered stent-graft, and 10 patients necessitated surgical intervention (2.3%), which was associated with a high complication rate (30%). **Conclusions:** The presented treatment algorithm facilitates effective and safe PSA elimination.

91. **Edda MM. Factors Affecting Performance Motivation among Community Health Workers in Mkuranga District. Master of Public Health Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: In Tanzania many programs have been utilizing community health workers (CHWs) to bridge the gap between communities and formal health sector. The contribution of these community health workers has been tremendous in supporting health system in the delivery of healthcare. However, there has been no clear system/structure to reward CHWs as in many programs they work as volunteers. Studying the factors affecting their performance motivation will enable programs and MOHSW to get a better way of motivating CHWs hence improving their performance for efficiency and sustainability of health programs involving CHW. Aim: The aim of this study was to determine factors affecting performance motivation of CHWs in Mkuranga District. **Methodology:** A descriptive cross-sectional study was carried out among 140 community health workers in Mkuranga District between June 18th and July 8th 2014. Semi structured questionnaire was used to collect information. Data were analyzed using SPSS version 16. **Results:** A total of 140 CHWS were recruited into the study whereby female participants were many (50.7%, n=71), compared to male, married (57.1%, n = 80), with age ranging from 18-50, mean age of 31 years (SD=8.1). Individuals who completed primary school comprised the largest proportion of study participants. Most of the participants (92.1%) revealed that their love and commitment to the work was a major driver for them to assume community health working roles. Most of them (117 (83.6%)) consider community health work as a difficult job. Distance to working sites and poor infrastructure were the main factors contributing to that hardship. Other factors include lack of incentives, lack of working gear, limited community understanding and respond of health issues, inadequate skills and transport problems. Despite these difficulties, majority, 136 (97.1%) of participants were motivated and dedicated to their work due to access to opportunities for training, social recognition and respect from other community members. **Conclusion:** CHWs were found to be highly motivated but there were some desired changes needed. Intervention to increase motivation should emphasize on the job training, provisional of working gear and different forms of incentives. Based on these

findings, provisional of refresher trainings, incentives, job aids and incorporating CHWs activities into District health Plans have been recommended.

92. **Efimwidimi JS. Contraceptive Knowledge, Attitude and Practice among Secondary School Girls in Morogoro Municipality Master of Medicine (Obstetrics and Gynecology) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: Sexual activity is prevalent among unmarried adolescents and there is a significant rate of unwanted pregnancy and abortions leading to health consequences and poor educational attainment. Sexually active adolescents require special information, counseling and services on Reproductive health issues including family planning. There is a wide gap between contraceptive knowledge and use among adolescents. **Objective:** To determine contraceptive knowledge, attitude and practice among secondary school girls and existing barriers to its utilization. **Methodology:** It was a cross sectional descriptive study conducted 111 Morogoro municipalities among secondary school girls aged 14 to 19years. A total of 386 girl students from six non faith based schools were randomly selected to participate. Data was collected by a self administered Swahili questionnaire then analyzed by SPSS version 18. Univariate analysis was conducted to determine knowledge, attitude and practice of modern contraceptives. Chi-square test was conducted to determine the association between the proportions of social demographic characters. Knowledge, attitude and contraceptive practice. The p value of less than 0.05 was considered statistically significant. **Results:** Fifty eight percent (58%) of respondents had good knowledge on modern contraceptive, 52% had positive attitude towards modern contraceptive and 44% were sexually active. Among the sexually active 41 % had previously used modern contraceptive. Fear of contraceptive side effect was the most common reason for not using modern contraceptive (57%). **Conclusion:** This study has shown above average knowledge and positive attitude towards modern contraception among school girls; however contraceptive practice among sexually active group is still low as they face wide range of barriers. Parents should be encouraged to improve their communication with the adolescents about reproductive health issues.

93. **Elias GK. Prevalence of Urinary Tract Infection in Pregnancy among Women Attending Antenatal Clinic at Muhimbili National Hospital, Dar-Es-Salaam Region, Tanzania. Masters of Medicine (Obstetrics and Gynecology) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: UTI is the most common bacterial infection in pregnancy and accounts for considerable morbidities to both the mother and the fetus. Performing urine culture for screening and diagnosis to all pregnant women and treatment per sensitivity pattern is still fundamental. This will help care-givers and health planners, to trim down the occurrence of these morbidities.**Objectives:** The aim of this study was to determine the prevalence of urinary tract infection in pregnancy among pregnant women attending antenatal clinic at MNH. **Methodology:** Descriptive cross section study was conducted at MNH antenatal clinic from September to November 2013. It involved all pregnant women attending the ANC. Structured questionnaire was used to gather data from pregnant women. Using mid stream urine culture the diagnosis of significant bacteriuria was reached. Data were analysed using the SPSS version 20.**Results:** A Total of 360 pregnant women were enrolled in this study, of these 128(35.6%) had symptoms of UTI and 232(64.4%) were asymptomatic. The overall prevalence of UTI among pregnant women at MNH was 6.4%.The prevalence of symptomatic and asymptomatic bacteriuria was 10.2% and 4.3% respectively. Escherichia coli (39.13%), staphylococcus aureus species (26.09%) and Klebsiella species (21.74%) were the most common isolates. The level of sensitivity of gram negative organisms to antimicrobial drugs was high to Nitrofurantoin (88.2%), moderate to Cotrimoxazole (41.2%), and Nalidic acid (41.2%) but low to Ampicillin (11.8%). Gram positive organisms were highly sensitive to Erythromycin (100%), Methicilin (83.3%) and not sensitive to penicillin.**Conclusion:** Symptomatic and asymptomatic bacteriuria among pregnant women is common in our setting with E.coli as the commonest isolated pathogen. Nitrofurantoin remains the drug of choice.

94. **Elias M. Allele Frequencies of 15 Short Tandem Repeat Loci in a Sukuma Ethnic Group in Tanzania. Master of Science (Biochemistry) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Polymorphic short tandem repeats (STR) are widely dispersed in the human genome and have been extensively studied and applied in forensic science community for criminal investigations, paternity testing and identification of victims of mass disaster. Most of ethnic groups in Tanzania lack the allele population database; therefore the goal of this study was to create the allele frequency of 15 autosomal STR loci included in the AmpFISTR Identifiler kit (Applied Biosystems) from Sukuma ethnic group in Tanzania and to determine if the allele frequency databases adhere to Hardy-Weinberg equilibrium (HWE). The DNA samples were extracted using Chelex 100 resin and quantification performed using Human DNA Quantification Kit (Applied Biosystem) on 7500 Real Time PCR (Applied Biosystem). About 1ng of genomic DNA was amplified using AmpFISTR Identifiler PCR amplification kit (Applied Biosystems) and genotyped using ABI 3130xl genetic analyzer (Applied Biosystems). DNA data were analyzed with GeneMapper IDX Analysis Software v 1.0 (Applied Biosystems) Allele frequency of the 15 Short tandemly repeat (STR) loci (CSF1PO, D13S317, D16S539, D18S51, D19S433, D21S11, D2S1338, D3S1358, D5S818, D7S820, D8S1179, FGA, TH01, TPOX and vWA and the gender Amelogenin) were obtained from 214 unrelated Sukuma individuals in five regions; Mwanza, Shinyanga, Geita, Simiyu and Tabora. All the tested loci were in agreement with Hardy-Weinberg equilibrium except for loci D7S820 and FGA which yielded a p-value less than 0.05 based on the number of observed and expected heterozygote, but when Benferron correction was applied none was considered significant. Linkage disequilibrium was not observed between the loci situated on the same chromosome. The combined probability of exclusion, power of discrimination, probability of matching value for all the 15 STR loci were 0.999999373, 0.999999999999999978 and 2.21444×10^{-18} respectively. The studied 15 STR loci in the Sukuma population are useful genetic markers for forensic analysis and paternity testing. However, these loci can be very important for the establishment of DNA database that will be used to solve criminal and paternity cases to improve justice in the Sukuma population. Also identifications of victims of mass disasters is possible through the use of allele frequency DNA database.

95. **Elinas JN. Insecticide Use Pattern and Phenotypic Susceptibility of Anopheles Gambiae Sensu Lato to Insecticides Commonly Used For Malaria Control in Lower Moshi Northern Tanzania. Master of Science (Tropical Diseases Control) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: Evidence of insecticide resistance in different malaria endemic areas necessitate surveillance studies to allow prompt detection of resistance at early stages and their associated predictor factors to enable effective management. **Main Objective:** To assess insecticide use pattern and phenotypic susceptibility level of *Anopheles gambiae* sensu lato to insecticides commonly used in malaria control in Lower Moshi, Tanzania. **Material and Methods:** Cross-sectional survey was conducted to assess insecticide use pattern and the data collection tools were questionnaire with closed and open-ended questions. WHO diagnostic standard kits with doses of 0.1% bendiocarb, 0.05% deltamethrin, 0.75% permethrin and 4% DDT were used to detect knockdown time, mortality and resistance ratio of wild *Anopheles gambiae* sensu lato. Survey data was analyzed using SPSS and WHO (1998) criteria was used to evaluate the resistance/susceptibility status of the tested mosquito populations. **Results:** Large proportion of respondents (80.8 %) reported to have ever used insecticide and mostly for farming purposes (77.3%), followed by domestic use (59.9%) and lastly by veterinary use (37.9%). Moreover 93.3% of household reported to use LLINs. Reported trend of insecticide use in the past five years has increased for farming (80.8%) and decreased for both veterinary (51.9%) and domestic (69.3%) purposes. The mostly used class of insecticide was organophosphate with chlorpyrifos as an active ingredients and dursban as mostly reported brand name and this was for farming purposes. It was further reported that Pyrethroids were mostly used in form of cypermethrin for veterinary and lambda cyhalothrin for domestic purposes. Very few respondents (24.1 %) applied integrated approaches of vector control. Overall knock down time for *Anopheles gambiae* s.l was high in DDT, moderate in Pyrethroids (Permethrin and deltamethrin) and lower in bendiocarb. Resistance ratio of wild *Anopheles gambiae* to bendiocarb, deltamethrin and permethrin was found to be twice as that of Kisumu susceptible strain but for DDT it was almost the same as that of Kisumu susceptible strain. This study has found that

Anopheles gambiae s.l were highly susceptible to bendiocarb (mortality rate of 100%) and DDT (mortality rate of 99.2%), increased tolerance to permethrin (mortality rate of 89.68%) and resistant to deltamethrin (mortality rate of 69.96%). **Conclusion:** It has been revealed by this study that majority of respondent reported to use single class of insecticide for farming which was organophosphate in the form of chloripyrifos and pyrethroids for both veterinary and domestic purposes inform of cypermethrin and lambda cyhalorithrin. Also most of respondent reported to use non –integrated method of vector control and have low knowledge regarding insecticides use and practice. Anopheles gambiae s.l was highly susceptible to bendiocarb, increased tolerance to permethrin and resistant to deltamethrin.**Recommendation:** It is recommended that appropriate education targeting knowledge on insecticide use and practice and use of integrated vector management such as rotation on different types of insecticides should be instituted. Policy of insecticide of choice for malaria control should be changed from pyrethroids to carbamates (bendiocarb).

96. **Elizabeth MM. Knowledge, Attitude and Use of Modern Family Planning Methods among HIV Infected Women in Songea Municipality. Master of Medicine (Obstetrics and Gynecology) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: Family planning (FP) is a voluntary delay, cease and space child birth by a couple or individual when desired. In Tanzania, there are several published studies addressing knowledge, attitude and use of FP. However, studies addressing the use, attitude and knowledge of modern FP methods among Women Living with HIV/AIDS (WLWHA) are few and none have been done in Songea Municipality.**Main objective:** The study aimed at assessing knowledge attitude and use of modern FP methods among women (15-49 years) attending Care and Treatment Clinic (CTC) in Songea Municipality.**Methodology:** It was a descriptive cross sectional study of 418 WLWHA attending CTC in Songea Regional Hospital who consented for the study; and were interviewed between July and September 2013. A semi-structured questionnaire was used to obtain socio-demographic data, knowledge, attitude and use of modern FP. Data was analyzed using SPSS version 18. **Results:** 62% of the respondents were aged above 34

years with the median age of 37 year (IQR 15-49). Less than 10% had no formal education. Seventy-seven percent had regular sexual partners; however disclosure of HIV status to the partner was only 78.3%. Awareness and knowledge on modern FP methods was 99.3% and 72.5% respectively. Most known methods were male condom (99.3%), pills (98.3%) and injectables (97.8%). Major source of information was from health care providers (89.9%). Respondents with positive attitude towards modern FP were 52%, whereas only 60% were current users. Male condom was widely used (84.7%) and dual method was used by only 27.3%. The most cited reason for not using FP method was not having a sexual partner (44.0%). Partner dislike (28.9%), perceived side effects (28.9%), intention to have babies (22.3%) and stigmatization (13.3%) were mentioned to be among the barriers to utilization of modern FP methods. Of the 112 respondents who had become pregnant after knowing their HIV status, 54 (48.2%) had unintended pregnancies. **Conclusion and Recommendation:** Awareness and knowledge on modern FP methods was high so was condom use but not dual method. Unmet need for effective FP methods was observed. To reduce the burden of HIV/AIDS and unintended pregnancies, effective methods should be provided to WLWHA. Therefore, this study recommends advocating in the use of dual FP methods loudly in CTCs; in the same magnitude as the use of condom for dual protection and this can be achieved through continuous FP counseling in the clinics.

97. Evelyne NA. Knowledge, Attitudes, Challenges And Coping Strategies Amongst Caregivers Of Children With Cerebral Palsy In Dar Es Salaam - A Hospital-Based Study. Master of Medicine (Paediatrics and Child Health) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.

Background: Cerebral palsy (CP) is a non-progressive disorder of posture and movement complicating in life-long disability and dependence in children. Families of children with CP are compelled to adjust to an increased burden of care and caregivers have to cope with significant psycho-social and economic impacts. The continuum of care of such children depends on the caregivers' understanding of CP, its complications and required follow up. **Objective:** To determine and explore the level of knowledge, attitudes, challenges and coping strategies amongst caregivers raising children with

cerebral palsy attending Muhimbili National Hospital (MNH), in Dar es Salaam. **Method:** A cross-sectional, hospital-based study amongst caregivers of children with CP attending MNH was carried out using quantitative and qualitative techniques, over six months. In the quantitative phase, after obtaining written informed consents, 139 caregivers were consecutively recruited and they underwent structured interviews using a standardized questionnaire. For the qualitative part, semi-structured interviews were conducted using an open-ended interview guide on a subset of nine purposively selected caregivers. The quantitative data was analyzed using Statistical Package for Social Sciences (SPSS) version 20. Univariate analysis of the background characteristics, knowledge and attitudes were summarized using frequencies and Fischer exact test was used to determine strength of association between factors influencing caregivers' knowledge and attitudes. A p-value of <0.05 was taken as statistically significant. The qualitative data was recorded; transcribed and analyzed using content analysis and conclusions were drawn on the findings. Participants continued to receive treatment according to the respective clinic standard protocols. **Results:** A total of 139 caregivers were interviewed amongst whom 85.9% had children less than five years of age. Caregivers' knowledge was low with only 20.9% showing satisfactory knowledge on CP. This was contributed by inadequate information about the diagnosis that caregivers received from the healthcare personnel. Persistent negative attitudes amongst caregivers were significantly influenced by the severity of CP ($p=0.000$), caregivers' level of knowledge ($p=0.000$) and their satisfaction with the diagnosis disclosure process ($p=0.031$). Negative family attitudes also impacted negatively on the caregivers' attitudes. Challenges facing caregivers of children with CP included: an increased burden of care and expenditure, broken family relationships, fear and future uncertainties and lack of a social support network. Lack of access to healthcare services and lack of medications contributed to default, particular in older children with CP. Caregivers coped by quitting work, seeking assistance from family members and up to 64.7% sought alternative therapies including: spiritual and tradition healing which shows a lack of understanding of CP. **Conclusion and Recommendations:** Caregivers' level of knowledge on CP was low, contributed by inadequate information about the diagnosis of their children and this influenced their attitudes. Family support was important in helping caregivers' to improve their attitudes

and cope with the diagnosis of cerebral palsy in their children. Major challenges facing caregivers of children with cerebral palsy include: increased burden of care, increased expenditure, lack of medications and lack of access to cerebral palsy clinic services. The disclosure of the CP diagnosis by healthcare personnel should be comprehensive and in form of stage-wise counseling, with continued access to health information to help caregivers improve their attitudes and adapt to their children's condition. There is also a need for ensuring access to comprehensive CP clinic services near patients' residences, by decentralization, to reduce defaulters. Future studies should be done to determine the level of knowledge on cerebral palsy amongst primary healthcare personnel and the reasons for default particularly amongst older children with CP.

- 98. Ezeamama AE, Duggan C, Spiegelman D, Hertzmark E, Bosch RJ, Manji KP, Fawzi WW. Malarial morbidity and postnatal HIV infection in breastfeeding HIV-exposed infants. *International Journal of Tropical Disease & Health*. 2014; 4(1): 18-30.**

Background: For at-risk HIV-negative individuals, whether malarial morbidity increases the likelihood of HIV infection when exposed is unknown. Hence, we investigate the malaria-associated risk of postnatal HIV infection in 1804 breastfeeding infants of HIV positive women from Dar es Salaam, Tanzania. **Methods:** Six-week-old HIV-negative infants were followed until breastfeeding cessation or postnatal HIV infection. HIV-1 status was determined by a DNA PCR test. Malarial morbidity was diagnosed by physicians using a combination of clinical symptoms and laboratory tests. For analytic purposes, malaria was distinguished by diagnostic specificity as: (1) clinical; (2) probable, where laboratory testing is requested for parasitemia; and (3) blood smear-confirmed. Hazard ratios (HR) and 95% confidence intervals (CI) for the risk of HIV infection were estimated from multivariate Cox regression models. **Results:** Mean follow-up duration was 6.2 months (standard deviation=2.4 months), during which 91 new HIV infections developed and clinical malaria was diagnosed in 594(32.3%) children, including 283 (15.5%) probable and 80(4.4%) confirmed malaria episodes. Infants ever diagnosed with clinical and probable malaria were at 73% (95%CI: 1.11 - 2.69) and 100% (95%CI: 1.17-3.42) higher risk of postnatal HIV infection, respectively.

This risk increased by 39% (95%CI: 1.08-1.80) and 59% (95%CI: 1.00-2.32), respectively, per episode increment in clinical and probable malarial; however, confirmed malaria was not significantly associated with HIV incidence (HR=2.09; 95%CI: 0.74 - 5.91). **Conclusion:** We found positive associations between child malarial infection and postnatal HIV infection among breastfeeding HIV-negative children of HIV-positive women. These findings suggest that malaria prevention in such infants may decrease the risk of HIV mother-to-child-transmission. However, specific future studies using laboratory-confirmed malaria in HIV-negative but HIV at risk populations are needed to substantiate these findings.

99. **Ezrony M. HIV Risk Perception and Protective Behaviours among Immigration Officers in Dar es Salaam Region, Tanzania. Master in Public Health Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: Immigration officers are usually posted in a place for 3-5 years during which they are unaccompanied by their families. Dealing with the constant traffic crossing the border is a stressful task and the officers are sometimes exposed to incidents where transaction of sex may occur. Officers located in cross border towns are at a high risk of contracting HIV because they are in a position of power, which sometimes is being misused to get sex. Little has been done on immigration officers to determine their HIV susceptibility. The main objective of this study was to assess HIV risk perception and protective behaviours among immigration officers in Dar es Salaam region. **Methods:** A descriptive cross-sectional study using quantitative was conducted in Dar es Salaam region. The study involved a sample of 233 officers who participated and who filled self administered questionnaires. A stratified sampling strategy was used hence proportional allocation of officers into strata of commissioners, superintendents and junior offices. Data were checked on daily basis for completeness, coding was done and Statistical Package for Social Sciences software (SPSS) was used for data analysis. **Results:** Results showed that 94.0% of the participants are knowledgeable about HIV and AIDS. Sexual behaviours which expose them to risk of contracting HIV infection were very common 63.0% reported having multiple partners and only 25% perceived themselves to be at high risk of being infected. Access to condom was reported by respondents to be 52.5%.

Condom use during the last sexual intercourse was 18.0% only. Addition to that, more than 88% of respondents had one to two sexual partners apart from their regular partners three months prior to this study. **Conclusion and recommendations:** There is the need for interventions like HIV prevention as well as education on risk sexual behaviours to be introduced in order to raise awareness and supporting behaviour change among immigration officers. The self reported behaviours of many of the individuals in this study suggest that they may in fact be underestimating their risk because many had engaged in behaviours that would place them at risk for HIV infection. Research in this area is still needed as this has to do with behavioural change.

100. **Fataki MR, Kisenge RR, Sudfeld CR, Aboud S, Okuma J, Mehta S, Fawzi WW. Effect of zinc supplementation on duration of hospitalization in Tanzanian children presenting with acute pneumonia. *Journal of tropical pediatrics*. 2014; 60(2): 104-111.**

Background: Zinc supplementation prevents incident pneumonia in children; however, the effect for pneumonia treatment remains unclear. **Methods:** A randomized, double-blind, placebo-controlled trial of zinc supplements (daily 25 mg) adjunct to antibiotic treatment of radiology-confirmed acute pneumonia was conducted among hospitalized children (6–36 months) in Dar es Salaam, Tanzania. **Results:** The trial was stopped early due to low enrollment, primarily owing to exclusion of children outside the age range and >3 days of prior illness. Among children enrolled (n = 94), zinc supplementation indicated no beneficial effect on the duration of hospitalization (IRR: 0.69; 95% CI 0.45–1.06; p = 0.09) or the proportion of children who were hospitalized for <3 days (RR: 0.85; 95% CI: 0.57–1.25; p = 0.40) or <5 days (RR: 1.01; 95% CI: 0.83–1.23; p = 0.92) (IRRs and RRs >1.0 favor zinc). **Conclusions:** Although underpowered, this randomized trial provided no evidence for a beneficial effect of zinc supplementation adjunct to antibiotics for hospitalized children.

101. **Formiga FR, Pelacho B, Garbayo E, Imbuluzqueta I, Díaz-Herráez P, Abizanda G, Blanco-Prieto MJ. Controlled delivery of fibroblast growth factor-1 and neuregulin-1 from biodegradable micro particles promotes cardiac repair in a**

rat myocardial infarction model through activation of endogenous regeneration. *Journal of Controlled Release*. 2014; 173: 132-139.

Acidic fibroblast growth factor (FGF1) and neuregulin-1 (NRG1) are growth factors involved in cardiac development and regeneration. Micro particles (MPs) mediate cytokine sustained release, and can be utilized to overcome issues related to the limited therapeutic protein stability during systemic administration. We sought to examine whether the administration of micro particles (MPs) containing FGF1 and NRG1 could promote cardiac regeneration in a myocardial infarction (MI) rat model. We investigated the possible underlying mechanisms contributing to the beneficial effects of this therapy, especially those linked to endogenous regeneration. FGF1- and NRG1-loaded MPs were prepared using a multiple emulsion solvent evaporation technique. Seventy-three female Sprague–Dawley rats underwent permanent left anterior descending coronary artery occlusion, and MPs were intramyocardially injected in the peri-infarcted zone four days later. Cardiac function, heart tissue remodeling, revascularization, apoptosis, cardiomyocyte proliferation, and stem cell homing were evaluated one week and three months after treatment. MPs were shown to efficiently encapsulate FGF1 and NRG1, releasing the bioactive proteins in a sustained manner. Three months after treatment, a statistically significant improvement in cardiac function was detected in rats treated with growth factor-loaded MPs (FGF1, NRG1, or FGF1/NRG1). The therapy led to inhibition of cardiac remodeling with smaller infarct size, a lower fibrosis degree and induction of tissue revascularization. Cardiomyocyte proliferation and progenitor cell recruitment were detected. Our data support the therapeutic benefit of NRG1 and FGF1 when combined with protein delivery systems for cardiac regeneration. This approach could be scaled up for use in pre-clinical and clinical studies.

- 102. Fowler MG, Coovadia H, Herron CM, Maldonado Y, Chipato T, Moodley D, HPTN 046 Protocol Team. Efficacy and safety of an extended nevirapine regimen in infants of breastfeeding mothers with HIV-1 infection for prevention of HIV-1 transmission (HPTN 046): 18-month results of a randomized, double-blind, placebo-controlled trial. *JAIDS Journal of Acquired Immune Deficiency Syndromes*.2014; 65(3): 366-374.**

Background: HPTN 046 compared the efficacy and safety of infant nevirapine (NVP) among HIV-exposed breastfed infants randomized at 6 weeks to 6 months to t NVP or placebo to prevent postnatal infection: we report final 18-month outcomes. **Methods:** Randomized, placebo-controlled trial in 4 African countries. Infant diagnostic HIV testing was performed regularly from birth through 18 months. Kaplan–Meier analysis was used to assess 18-month cumulative infant HIV infection, HIV infection/or death, and mortality rates. **Results:** Between 6 weeks and 6 months, postnatal HIV infection rates were significantly lower among infants receiving daily NVP from 6 weeks to 6 months 1.1% [95% confidence interval (CI): 0.2% to 1.8%], compared with placebo 2.4% (95% CI: 1.3% to 2.6%), $P = 0.049$, but not significantly lower thereafter. Eighteen-month postnatal infection rates were low: 2.2% (95% CI: 1.1% to 3.3%) versus 3.1% (95% CI: 1.9% to 4.4%), respectively, $P = 0.28$. Mortality and HIV infection/death did not differ between arms at any age. Infants of women receiving antiretroviral therapy (ART) for their own health had the lowest 18-month postnatal infection rates (0.5%, 95% CI: 0.0% to 1.1%). However, HIV infection/death rates at 18 months were not significantly different for infants of mothers on ART (3.7%, 95% CI: 1.9% to 5.5%), and infants of mothers with CD4 counts of ≥ 350 cells per cubic millimeter not receiving ART (4.8%, 95% CI: 2.7% to 6.8%; $P = 0.46$). There were no differences in adverse events between study arms. **Conclusions:** This trial demonstrated early but not late differences in postnatal HIV transmission among infants randomized at age 6 weeks to extended NVP or placebo, underscoring the importance of continued prophylaxis throughout breastfeeding.

103. Fox KA, FitzGerald G, Puymirat E, Huang W, Carruthers K, Simon T, Anderson F. Should patients with acute coronary disease be stratified for management according to their risk? Derivation, external validation and outcomes using the updated GRACE risk score. *BMJ open*. 2014; 4(2): e004425.

Objectives: Risk scores are recommended in guidelines to facilitate the management of patients who present with acute coronary syndromes (ACS). Internationally, such scores are not systematically used because they are not easy to apply and some risk indicators are not available at first presentation. We aimed to derive and externally validate a more

accurate version of the Global Registry of Acute Coronary Events (GRACE) risk score for predicting the risk of death or death/myocardial infarction (MI) both acutely and over the longer term. The risk score was designed to be suitable for acute and emergency clinical settings and usable in electronic devices. Design and setting The GRACE risk score (2.0) was derived in 32 037 patients from the GRACE registry (14 countries, 94 hospitals) and validated externally in the French registry of Acute ST-elevation and non-ST-elevation MI (FAST-MI) 2005. Participants Patients presenting with ST-elevation and non-ST elevation ACS and with long-term outcomes. Outcome measures The GRACE Score (2.0) predicts the risk of short-term and long-term mortality, and death/MI, overall and in hospital survivors. **Results:** For key independent risk predictors of death (1 year), non-linear associations (vs linear) were found for age ($p<0.0005$), systolic blood pressure ($p<0.0001$), pulse ($p<0.0001$) and creatinine ($p<0.0001$). By employing non-linear algorithms, there was improved model discrimination, validated externally. Using the FAST-MI 2005 cohort, the c indices for death exceeded 0.82 for the overall population at 1 year and also at 3 years. Discrimination for death or MI was slightly lower than for death alone ($c=0.78$). Similar results were obtained for hospital survivors, and with substitutions for creatinine and Killip class, the model performed nearly as well. **Conclusions:** The updated GRACE risk score has better discrimination and is easier to use than the previous score based on linear associations. GRACE Risk (2.0) performed equally well acutely and over the longer term and can be used in a variety of clinical settings to aid management decisions.

104. **Francis M. Human Leukocyte Hla-B7 And Hla-B27 Antigen Typing Among Healthy Adults Primed With Hiv-1 DNA Boosted With Recombinant Modified Vaccinia Ankara In Dar es Salaam. Master of Science (Biochemistry) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: The human leukocyte antigens are genetically inherited proteins present on the surface of the cells of the immune system. Cells of the immune system recognize antigens only when presented to them next to an MHC self molecule. Three main types of HLA Class I namely, HLA-A, HLA-B and HLA-C they are expressed by most human cells. Class I HLAs are involved in discriminating and presenting antigens to T-

lymphocytes. T-lymphocytes kill the cell presenting it. T-lymphocytes destroy cells infected together with viruses, including HIV. Developing a vaccine for HIV may be aided by a complete understanding of those rare cases in which some HIV-infected individuals control replication of the virus. Most of these elite controllers express the histocompatibility alleles HLA-B57 or HLA-B27, these alleles remain the most robust associations with low concentrations of plasma virus. **Objectives:** To evaluate the magnitude of Human leukocyte antigen production before and upon administration of multiclade, multigene HIV-1 DNA prime/MVA boost among healthy individuals in Dar es Salaam, Tanzania. **Methods:** EDTA plasma samples collected at baseline and post DNA prime and MVA boost immunizations and archived in HIV vaccine immunogenicity study (HIVIS03) was used for HLA typing whereby HLA-B7 and HLA-B27 were determined using quantitative ELISA. Results were read and interpreted as per manufacturer's instructions Data analysis was done using IBM SPSS software. **Results:** A total of 42 samples from Police officers were tested at baseline and after HIV-1 DNA MVA boost vaccine the mean age of tested subjects was 24 there were 34 males and 8 females, 20 of them the vaccine was administered intradermally and 22 of them the vaccine was administered intramuscularly, educational level of participants was certificate of secondary education The mean, median and range of levels of HLA-B7 in males was Both HLA B7 and HLA B27 levels increased from baseline to vaccines group, but didn't show significant difference between placebo and vaccines. Moreover HLA B7 and HLA B27 didn't show association on mode of delivery of the vaccine, sex and age. **Conclusions** Both HLA-B7 and HLA-B27 were detected No statistically significant difference in levels we **recommend** further HLA typing using molecular or cellular methods.

105. **Frank MM. Utility Of Xpert Mtb/Rif Assay For Monitoring Of Response To Anti-Tuberculosis Treatment Among Human Immunodeficiency Virus Infected Patients With Smear Negative Pulmonary Tuberculosis In Temeke Municipality. Master of Medicine (Microbiology and Immunology) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: Tuberculosis is a leading cause of deaths among HIV infected patients. Timely detection of patients at risk of treatment failure is essential for reduction of mortality among TB-HIV co-infected patients. Sputum smear microscopy and sputum culture both have shortcomings as markers for measurement of treatment response. We assessed the utility of Xpert MTB/RIF assay as a monitoring tool for early detection of HIV infected patients at risk of failing anti-tuberculosis treatment. **Methods:** A prospective cohort study was carried out from October 2013 to May 2014 involving 190 HIV infected patients with sputum smear negative pulmonary tuberculosis. Response to anti-tuberculosis treatment was monitored at 2 and 5 months after treatment initiation using Xpert MTB/RIF assay. The results of Xpert MTB/RIF were compared with results of conventional MTB culture (as a reference method). **Results:** Of the 190 gene pert positive TB patients included in the study, 72 (37.9%) were in the age group 36-45 years. The overall mean age of the study participants was 37.61 years (SD \pm 10.9). 124 (65.3%) were male, 109 (57.4%) were married, and 154 (81.1%) had primary education only. At baseline, Xpert MTB/RIF assay detected 61.8% of all smear negative culture positive samples, and had a specificity of 100%. Xpert MTB/RIF reversion to negativity was 36.3% and 81.6% after two and five months of anti-tuberculosis treatment. The positive predictive value of Xpert MTB/RIF was 7.9% (95% CI 3.7-14.5) and 6.9% (95% CI 0.9-22.8) at 2 and 5 months respectively, whereas the negative predictive value was 96.9% (95% CI 89.3-99.6) and 99.2% (95% CI 95.8-100.0). The sensitivity of the assay for detection of positivity rate after two and five months of treatment was 81.8% (95% CI 75.8-87.8) and 66.7% (95% CI 59.7- 73.7) respectively. The specificity of Xpert MTB/RIF assay for detecting reversion to negativity after two and five months of anti-tuberculosis treatment was 37.5%, (95% CI 30.5- 44.5) and 82.6% (95% CI 76.6- 88.6) respectively. Overall, gene pert had a high sensitivity 78.6% (95% CI 74.6-82.6) but a low specificity 59.1% (95% CI 54.1-64.1) for monitoring of response to anti-tuberculosis treatment. **Conclusions:** Xpert MTB/RIF assay has a high sensitivity for detection of positivity rate, but low specificity for detecting reversion to negativity among HIV infected patients on anti-tuberculosis treatment. Majority of the patients (82.2%) reverted to negativity after five months of anti-tuberculosis treatment. At five months into

treatment, a negative result with gene pert accurately ascertains treatment success, but a positive result does not confirm treatment failure.

106. **Frank R. Use of Modern Family Planning Methods among Female Sex Workers: A Case Study of Kirumba Ward, Ilemela District, Mwanza Region. Master of Public Health Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: The use of modern family planning methods in Tanzania is low despite high knowledge of family planning methods. In order to understand the existing barriers, it is important to understand reasons affecting use of modern family planning methods.

Objectives: This study explored the factors for the use of modern family planning methods among female sex workers in Kirumba ward, Mwanza Region. Specifically the study explored social determinants factors associated with the use of modern family planning methods, users' perception on the use of modern family planning methods and assessed the barriers towards modern family planning use among female sex workers.

Methodology: A descriptive cross-sectional study on the use of modern family planning methods was conducted among FSW and service providers from Kirumba Ward: Ilemela District, Mwanza Region. Data were collected using FGDs and IDIs. The study targeted female sex workers found in the streets, brothels, bars and night clubs located in Kirumba ward. **Results:** The study findings revealed that many female sex workers are aware of the modern methods of family planning and their benefits however their perception toward these methods is negative. Sex workers are afraid to use modern methods of family planning fearing that the methods cause infertility. There is misconception about the risk of the methods especially excessive bleeding which majority of female sex workers complain that it cause them to lose money during the entire period of bleeding. Peer influence also plays a significant role to influence female sex workers to use modern family planning methods. **Conclusion:** Misconceptions about modern family planning methods were found to be the major barriers for the use of the methods among sex workers. Also in some instance health providers ask money before providing services to the sex workers, this is a major barrier to the use of modern FP services among sex workers.

- 107. Fredrick F, Rugajjo PJ, Makanga G, Shija CK, Amdemariam M, Rugizwagonga B, Kitinya JN. Thirty years old lady with nephrotic syndrome: a case of biopsy proven lupus nephritis in Tanzania. *Tanzania Journal of Health Research*.2014; 16(2).**

We describe a case of a 30 years old female patient who presented with nephrotic syndrome and impaired renal function which was diagnosed to have systemic lupus erythematosus (SLE) with lupus nephritis. This is the first biopsy proven lupus nephritis in Tanzania. SLE is common among females and is reported be more common among Africans as compared to other races. This patient presented with nephrotic syndrome, pleural effusion and pericardial effusion which depicts the multisystem effects of SLE. This patient was treated with cyclophosphamide in combination with steroid as induction therapy and attained remission after one month of treatment. Systemic lupus erythematosus should be considered in patients with nephrotic syndrome and these patients should have renal biopsy to determine renal involvement.

- 108. Frosch S, Buchhorn G, Hoffmann A, Balcarek P, Schüttrumpf JP, August F, Walde TA. Novel single-loop and double-loop knot stitch in comparison with the modified Mason–Allen stitch for rotator cuff repair. *Knee Surgery, Sports Traumatology, Arthroscopy*.2014; 1-7.**

Purpose: In rotator cuff repair, strong and long-lasting suturing techniques that do not require additional implants are needed. This study examines the ultimate load to failure and the Young's modulus at the suture–tendon interface for a novel single-loop knot stitch and double-loop knot stitch. These values are compared to those of the modified Mason–Allen stitch. **Methods:** Twenty-four infraspinatus muscles with tendons were dissected from porcine shoulders (twelve Goettingen minipigs). The preparations were randomly allocated to three groups of eight samples. Load-to-failure testing of the single-loop knot stitch, the double-loop knot stitch and the mMAS were performed using a Zwick 1446 universal testing machine (Zwick-Roell AG, Ulm, Germany). **Results:** The highest ultimate load to failure for the three techniques occurred with the double-loop knot stitch with a median value of 382.2 N (range 291.8–454.2 N). These values were

significantly higher than those of the single-loop knot stitch, which had a median value of 259.5 N (range 139.6–366.3 N) and the modified Mason–Allen stitch, which had a median value of 309.3 N (range 84.55–382.9 N). The values of the single-loop knot stitch and the modified Mason–Allen stitch did not differ significantly. Regarding the Young’s modulus, no significant differences were found between the double-loop knot stitch with a median value of 496.02 N/mm² (range 400.4–572.6 N/mm²) and the modified Mason–Allen stitch with 498.5 N/mm² (range 375.5–749.2 N/mm²) with respect to the stiffness of the suture–tendon complex. The median value for the Young’s modulus of the single-loop knot stitch of 392.1 N/mm² (range 285.7–510.6 N/mm²) was significantly lower than those of the double-loop knot stitch and modified Mason–Allen stitch. **Conclusion:** This in vitro animal study demonstrated that both the single-loop knot stitch and the double-loop knot stitch have excellent ultimate load-to-failure properties when used for rotator cuff repair. The introduced single-loop knot stitch and double-loop knot stitch offer an alternative to other common used stitch techniques in rotator cuff repair.

109. Frumence G, Emmelin M, Eriksson M, Kwesigabo G, Killewo J, Moyo S, Nystrom L. Access to social capital and risk of HIV infection in Bukoba urban district, Kagera region, Tanzania. *Archives of Public Health*. 2014; 72(1): 38.

Background: Kagera is one of the 22 regions of Tanzania mainland, which has witnessed a decline in HIV prevalence during the past two decades; decreasing from 24% in 1987 to 4.7 in 2009 in the urban district of Bukoba. Access to social capital, both structural and cognitive, might have played a role in this development. The aim was to examine the association between individual structural and cognitive social capital and socio-economic characteristics and the likelihood of being HIV infected. **Methods:** We conducted a population-based cross-sectional study of 3586 participants, of which 3423 (95%) agreed to test for HIV following pre-test counseling. The HIV testing was performed using enzyme-linked immunosorbent assay (ELISA) antibody detection tests. Multiple logistic regression analysis was applied to estimate the impact of socio-economic factors, individual structural and cognitive social capital and HIV sero-status. **Results:** Individuals who had access to low levels of both structural and cognitive individual social capital were four and three times more likely to be HIV positive

compared to individuals who had access to high levels. The associations remained statistically significant for both individual structural and cognitive social capital after adjusting for potential confounding factors such as age, sex, marital status, occupation, level of education and wealth index (OR =8.6, CI: 5.7-13.0 and OR =2.4, CI: 1.6-3.5 for individual structural and cognitive social capital respectively). For both women and men access to high levels of individual structural and cognitive social capital decreased the risk of being HIV infected. This study confirms previous qualitative studies indicating that access to structural and cognitive social capital is protective to HIV infection. **Conclusions:** We suggest that policy makers and programme managers of HIV interventions may consider strengthening and facilitating access to social capital as a way of promoting HIV preventive information and interventions in order to reduce new HIV infections in Tanzania.

110. **Frumence G, Nyamhanga T, Mwangi M, Hurtig AK. Participation in health planning in a decentralised health system: Experiences from facility governing committees in the Kongwa district of Tanzania. *Global public health, (ahead-of-print)*. 2014; 1-14.**

Tanzania introduced the decentralisation of its health systems in the 1990s in order to provide opportunities for community participation in health planning. Health facility governing committees (HFGCs) were then established to provide room for communities to participate in the management of health service delivery. The objective of this study was to explore the challenges and benefits for the participation of HFGCs in health planning in a decentralised health system. Data were collected using semi-structured interviews and focus group discussions (FGDs). A total of 13 key informants were interviewed from the council and lower-level health facilities. Five FGDs were conducted from five health facilities in one district. Data generated were analysed for themes and patterns. The results of the study suggest that HFGCs are instrumental organs in health planning at the community level and there are several benefits resulting from their participation including an opportunity to address community needs and mobilisation of resources. However, there are some challenges associated with the participation of HFGCs in health planning including a low level of education among committee members

and late approval of funds for running health facilities. In conclusion, HFGCs potentially play a significant role in health planning. However, their participation is ineffective due to their limited capacities and disabling environment.

111. **Frumence G, Nyamhanga T, Mwangu M, Hurtig AK. The dependency on central government funding of decentralised health systems: experiences of the challenges and coping strategies in the Kongwa District, Tanzania. BMC health services research. 2014; 14(1): 39.**

Background: Decentralised health systems in Tanzania depend largely on funding from the central government to run health services. Experience has shown that central funding in a decentralised system is not an appropriate approach to ensure the effective and efficient performance of local authorities due to several limitations. One of the limitations is that funds from the central government are not disbursed on a timely basis, which in turn, leads to the serious problem of shortage of financial resources for Council Health Management Teams (CHMT). This paper examines how dependency on central government funding in Tanzania affects health activities in Kongwa district council and the strategies used by the CHMT cope with the situation. **Methods:** The study adopted a qualitative approach and data were collected using semi-structured interviews and focus group discussions. One district in the central region of Tanzania was strategically selected. Ten key informants involved in the management of health service delivery at the district level were interviewed and one focus group discussion was held, which consisted of members of the council health management team. The data generated were analysed for themes and patterns. **Results:** The results showed that late disbursement of funds interrupts the implementation of health activities in the district health system. This situation delays the implementation of some activities, while a few activities may not be implemented at all. However, based on their prior knowledge of the anticipated delays in financial disbursements, the council health management team has adopted three main strategies to cope with this situation. These include obtaining supplies and other services on credit, borrowing money from other projects in the council, and using money generated from cost sharing. **Conclusion:** Local government authorities (LGAs) face delays in the disbursement of funds from the central government. This has necessitated

introduction of informal coping strategies to deal with the situation. National-level policy and decision makers should minimise the bureaucracy involved in allocating funds to the district health systems to reduce delays.

112. **Geminian F. Ultrasonographic and Surgical findings among Patients with Ectopic Pregnancy at Emergency Department, Muhimbili National Hospital. Master of Medicine (Emergency Medicine) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Introduction: Ectopic pregnancy (EP) remains the leading cause of pregnancy-related first trimester maternal death. Bedside ultrasound (BUS) has become a critical test for the evaluation and diagnosis of EP at Emergency Departments (ED), with a proven reduction in morbidity and mortality. Despite this reduction, little has been documented about its use and diagnostic test performance in Africa. **Aim of the study:** Was to describe the ultrasonographic and surgical findings among patients with EP in the ED who required surgical intervention within 96hrs of attendance at MNH. **Methods:** This was a prospective cohort study done at the ED. A structured questionnaire administered by trained physicians working in the ED was used to gather information on pregnant patients diagnosed with EP by BUS. Data was entered into an Excel spreadsheet, cleaned and manually checked for any outliers or questionable entries. Simple statistics were done using excel formulas and data tabulated according to proportions, mean and standard deviation. **Results:** A total of 69 patients with EP diagnosed on BUS were enrolled between 1st April 2013 and 31st December 2013, with a mean age of 28 ± 6 years and a mean gravidity of 3 ± 2 . Trans abdominal USS was the only diagnostic modality used in all patients enrolled. The vast majority (94.2%) had free fluid in the peritoneum whereas a few patients (15.9%) were noted to have adnexal masses. Intraoperatively, 98.6% of the patients were found to have ectopic pregnancy, of which 92.6% had ruptured, 4.4% were unruptured and 3% had a slow leak. **Conclusion:** Among patients with ectopic pregnancy presenting to the emergency department, free fluid is the most common ultrasonographic feature of the Bedside USS. Likewise, ruptured ectopic pregnancy is the most common intraoperative finding with commonly involved sites being ampulla and fimbria.

113. **Gerald J. Occlusal Morphology of the Mandibular Second Premolar in Indigenous Tanzanians. Master of Science (Human Anatomy) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Introduction: The mandibular second premolar exhibits a high degree of complex anatomy with high variations among populations in different parts of the world. The variations generally occurring in the occlusal surface create challenges in the clinical, forensic and anthropological situations. Currently there is no documentation on the occlusal morphology of mandibular second premolar of the local population in Tanzania, and the data used in clinical, academic, and anthropological situations is from outside Africa. **Objective:** The aim of this study was to document the most common occlusal morphology of mandibular second premolar among patients attending dental clinics in Dar es Salaam region in Tanzania. **Study Settings and Design:** This descriptive study was conducted at three public hospitals namely, Muhimbili National Hospital, Sinza Hospital and Mwananyamala Hospital. **Study Population:** A total of 380 male and female indigenous Tanzanians with permanent functional dentition were involved in this study. **Materials and Methods:** The direct intraoral examination of mandibular second premolars was performed bilaterally for occlusal outline, number and position of cusps and central groove patterns. Data was analyzed with the help of SPSS (Statistical Package for Social Science) statistical program version 19 using descriptive statistics and chi-square test. **Results:** This study revealed that 68.7% of all the participants had 2-cusp form of mandibular second premolars bilaterally, 27.4% had 3-cusp form bilaterally, and 3.9% had mixed cusp forms. No sexual predilection for the two forms of mandibular second premolars was observed, but there was male predilection for the mixed cusp forms. In the 2-cusp form, the most frequent groove pattern was H shaped (59.4%), compared to U shaped pattern (40.6%). For the 3-cusp form, only Y shaped groove pattern was seen (100.0%). **Conclusion:** This study has managed to document the most common occlusal morphology of mandibular second premolar of the local population in Tanzania. The most frequent cuspal form was the 2-cusp form. H shaped groove pattern predominates in mandibular second premolars with 2-cusps while the 3-cusp form presented with only Y-shaped groove pattern. Mixed cusp forms occur more commonly

in males than in females. The findings of this study can be used as base line data in anthropological researches, forensic and clinical aspects of dental sciences.

114. **Ghaniya SM. Clinical-Epidemiological Characteristics of Patients Presenting To Mnh-Emd witha Suspected Toxicologic Syndrome. Master of Medicine (Emergency Medicine) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: Poisoning is a significant public health problem and affects all age-groups. Toxicologic patients are more likely to present to the emergency department, their reasons for exposure being intentional or unintentional. MNH is the largest consultant hospital in the country with a 24-hour emergency department and also serves the main University teaching facility. Problem statement and rationale of the study: Little is known about the clinical and epidemiological aspects of poisoning in Tanzania. This study will help to get a broad picture of the toxicology cases that we have in Tanzania, and lead to the creation of treatment protocols. **Objective:** To assess the clinical and epidemiological features found in patients presenting at the MNH-EMD with a suspected toxicologic syndrome. **Methodology:** This was a cross-sectional descriptive study of patients presenting to MNH-EMD and suspected to have toxicologic syndrome. Data included demographic data, substances suspected, reasons, routes and outcome of the patients. Data was analyzed with descriptive statistics. **Results:** Data were collected on 106 patients. The majority (79.2%) of patients was over 18years, and the majorities (76.4%) were males. About 52% were single, about 45% had primary level of education or less. The majority (66.6%) of our patients were referred from district hospitals. Twenty six percent had professional jobs. Only 12.3% presented to the MNH-EMD in less than 2 hours after the toxic exposure. The top three toxic agents encountered by the study population were isolated alcohol (40.6%) followed by mixture of different medications (12.3%) and snake bite (11.3%). Most common (83%) route of exposure was oral, 59.4% of the toxic exposures were intentional. Intentional poisoning was more common in adults (70.2%) than children (13.6%). Dar-es salaam region and Kinondoni district (which is within Dar-es salaam region) were the most common places where toxic exposures took place, (86.8%) and (38%) respectively. Most exposures (40%) occurred at

home. Most (95.3%) of our patients had at least one normal physical finding. Majority (92.5%) of our patients were admitted. **Conclusion:** Our study showed that the majority of patients presenting to MNH ED with poisoning were adult males. Poisoning with suicidal intention was more common than accidental. Majority of the patients presented with normal physical findings. The most common toxic agent was isolated alcohol which was taken for recreational purpose.

- 115. Ghoneim MM, Elokely KM, Atef A, Mohammad AEI, Jacob M, Radwan MM, Ross SA. Asphodosides AE, anti-MRSA metabolites from *Asphodelus microcarpus*. *Phytochemistry*. 2014; 105: 79-84.**

Bioassay guided fractionation of the ethanolic extract of *Asphodelus microcarpus* Salzm. ET Viv. (Xanthorrhoeaceae or Asphodelaceae) resulted in isolation of five compounds identified as asphodosides A-E (1–5). Compounds 2–4 showed activity against methicillin resistant *Staphylococcus aureus* (MRSA) with IC₅₀ values of 1.62, 7.0 and 9.0 µg/mL, respectively. They also exhibited activity against *Staphylococcus aureus* (non-MRSA) with IC₅₀ values of 1.0, 3.4 and 2.2 µg/mL, respectively. The structure elucidation of isolated metabolites was carried out using spectroscopic data (1D and 2D NMR), optical rotation and both experimental and calculated electronic circular dichroism (ECD).

- 116. Godfrey CN. Managing Disposal of Unfit Pharmaceuticals by Non-Governmental Hospitals and Private Medicine Outlets in Mwanza Region: Master of Science (Pharmaceutical Management) *Dissertation* 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: Medicines are of particular importance as they can save lives, improve health and promote trust and participation in health services. Moreover medicines are costly compared to other consumables. It is therefore important to manage the supply and use of these medicines properly so as to avoid accumulation of unfit medicines which require disposal. The disposal involves use of money and human resources. The consequences of improper disposal are a major concern, as it has negative impact on both human health and the environment. The regulatory procedures concerning safe disposal

of pharmaceuticals in Tanzania are in place but to what extent these guidelines are being followed/ implemented by the non-governmental hospitals and private medicines outlets is not well documented. **Objectives:** The aim of the study was to assess practices and challenges encountered in managing disposal of unfit pharmaceuticals in non-governmental hospitals and private medicine outlets in Mwanza region. **Methodology:** The study was a descriptive cross sectional survey designed to capture qualitative and quantitative data. Qualitative data was captured based on focus group discussion with purposive sampling of private medicine outlets personnel responsible for pharmaceuticals using guided questions. Structured questionnaires were used to collect quantitative data on relevant issues with regard to safe disposal of unwanted medicines from personnel responsible for medicine storage/dispensing from selected health facilities. Checklists were used to assess practice, past disposal records and type of unfit pharmaceuticals found at the health facility. **Results:** Main disposal methods for unwanted medicines from the surveyed health facilities comprised of 37.8% burning at open spaces, 20.7% were landfill of untreated unfit medicines and 41.4% pour unwanted medicines into the sink or put into the dust bin. The method of disposal do not differ between the type of health facilities ($p=0.418$). Only 10.8% health facilities maintained register book for recording unwanted medicines which appear higher for non-government hospitals than pharmacy and ADDO shops ($p=0.001$). Most of health facility personnel had low knowledge (93.7%) on handling and disposal procedures of unwanted medicines. The low level of knowledge was higher for ADDO shops than pharmacy and non-governmental hospitals ($p<0.0001$). Main challenges of disposal of unwanted medicines were irregular inspections of health facilities and lack of training of medicine storekeepers and dispensers on safe disposal of unwanted medicines by the regulatory authority. **Conclusion and Recommendations:** There is improper disposal of unfit medicines in health facilities studied. This is due to lack of knowledge and guidelines on safe disposal of unwanted medicines, as a result unrecompensed methods like disposing off by pouring into the sink and putting into the street dust bin are used. This may increase the potential for environmental pollution by unfit pharmaceuticals in the country. There is a need therefore, to issue guidelines on disposal of unfit

pharmaceuticals and enforce their use so as to avoid environmental pollution and health hazards that may arise from improperly disposed medicines.

117. **Gonçalves BP, Huang CY, Morrison R, Holte S, Kabyemela E, Prevots DR, Duffy PE. Parasite burden and severity of malaria in Tanzanian children. *New England Journal of Medicine*. 2014; 370(19): 1799-1808.**

Background: Severe Plasmodium falciparum malaria is a major cause of death in children. The contribution of the parasite burden to the pathogenesis of severe malaria has been controversial. **Methods:** We documented P. falciparum infection and disease in Tanzanian children followed from birth for an average of 2 years and for as long as 4 years. **Results:** Of the 882 children in our study, 102 had severe malaria, but only 3 had more than two episodes. More than half of first episodes of severe malaria occurred after a second infection. Although parasite levels were higher on average when children had severe rather than mild disease, most children (67 of 102) had high-density infection (>2500 parasites per 200 white cells) with only mild symptoms before severe malaria, after severe malaria, or both. The incidence of severe malaria decreased considerably after infancy, whereas the incidence of high-density infection was similar among all age groups. Infections before and after episodes of severe malaria were associated with similar parasite densities. Nonuse of bed nets, placental malaria at the time of a woman's second or subsequent delivery, high-transmission season, and absence of the sickle cell trait increased severe-malaria risk and parasite density during infections. **Conclusions:** Resistance to severe malaria was not acquired after one or two mild infections. Although the parasite burden was higher on average during episodes of severe malaria, a high parasite burden was often insufficient to cause severe malaria even in children who later were susceptible. The diverging rates of severe disease and high-density infection after infancy, as well as the similar parasite burdens before and after severe malaria, indicate that naturally acquired resistance to severe malaria is not explained by improved control of parasite density.

118. **Goncharov I, Jacob M. Why do countries mandate accrual accounting for tax purposes? *Journal of Accounting Research*. 2014; 52(5): 1127-1163.**

This study investigates why countries mandate accruals in the definition of corporate taxable income. Accruals alleviate timing and matching problems in cash flows, which smoothes taxable income and thus better align it with underlying economic performance. These accrual properties can be desirable in the tax setting as tax authorities seek more predictable corporate tax revenues. However, they can also make tax revenues procyclical by increasing the correlation between aggregate corporate tax revenues and aggregate economic activity. We argue that accruals shape the distribution of corporate tax revenues, which leads regulators to incorporate accruals into the definition of taxable income to balance the portfolio of government revenues and expenditures. Using a sample of 26 OECD countries, we find support for several theoretically motivated factors explaining the use of accruals in tax codes. We first provide evidence that corporate tax revenues are less volatile in high accrual countries, but high accrual countries collect relatively higher (lower) tax revenues when the corporate sector grows (contracts). Critically, we then show that accruals and smoother tax revenues are favored by countries with higher levels of government spending on public services and uncertain future expenditures, while countries with procyclical other tax collections favor cash rules and lower procyclicality of corporate tax revenues.

119. **Goodluck M. Correlates Of Hand Hygiene Practices Among Health Care Workers At Mwananyamala Regional Referral Hospital, Dar Es Salaam, Tanzania. Master of Public Health *Dissertation* 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: Hand hygiene practice is considered as the primary measure to reduce the transmission of hospital acquired infections. In Tanzania, studies and assessment report conducted by Ministry of Health and Social Welfare (MOHSW) at regional referral hospitals revealed poor compliance to hand hygiene practices among health care workers. Little is known on the predictors of such poor practices. **Objective:** The aim of this study was to assess factors influencing hand hygiene practices among health care workers at Mwananyamala regional referral hospital in order to prevent health care associated

infections.**Methods:** This was a cross-sectional study conducted at Mwananyamala regional referral hospital in Kinondoni, Dar es Salaam during the month of June 2014, involving 240 health care workers. Simple random sampling method was applied to obtain study participants from the list of health care workers. Data were entered and analyzed by SPSS version 20.0. Analysis for predictors was performed using univariate and multivariate logistic regression where p-value of <0.05 was considered as statistically significant. Checklist data was analyzed manually to determine the availability of hand hygiene products within the health facility units.**Results:** About three quarter (72.5%) of health care workers had good knowledge on hand hygiene practices, majority (90%) had positive attitude towards hand hygiene practices and 55% had good hand hygiene practices. It was also noted that alcohols for hand rub and hand drying towels were missing at most of the units. In multivariate analysis, female sex [AOR=2.17(1.12-4.21)] and positive attitude [AOR=6.71(1.82-24.77)] were independent significant predictors of hand hygiene practices.**Conclusion and recommendations:** Majority of health care workers at Mwananyamala regional referral hospital had positive attitude and were knowledgeable about hand hygiene practices. However, the overall hand hygiene practice was inadequate. This suggests knowledge-practice gap which should be addressed. Efforts should be directed towards development and implementation of behavior change strategies.

120. Goulden R, Ibrahim T, Wolfson C. Is high socioeconomic status a risk factor for multiple sclerosis? A systematic review. *European Journal of Neurology*.2014.

The present investigation was conducted to evaluate the effectiveness of different inoculation methods of *Helminthosporium sativum* in wheat. *H. sativum* is a seed-borne and soil-borne pathogen and is well known for spot blotch. In this study, four different surfaces and systemic inoculation methods were used to see their effects on growth and biochemical changes in wheat Results demonstrated that the surface infection (foliar inoculation) is not a very useful method for the induction of disease. Seedling physiology and biochemical analyses proved systemic infection (root inoculation) to be a very expedient way for efficient inoculation of *H. sativum*. Root inoculation showed significant decrease in relative leaf water content, whereas root length and root to shoot

ratio were also reduced significantly. Foliar inoculation has shown significant decrease in chlorophyll and sugar content of leaves while other methods have shown increase in both parameters. Protein contents were significantly decreased in soil inoculation at seedling stage treatment while other treatments have shown non-significant changes. All the inoculation treatments have shown decrease in superoxide dismutase (SOD) activity. SOD activity decreased significantly in soil inoculation before sowing treatment while other inoculation methods showed non-significant differences. These results demonstrated that root to shoot ratio, relative water content and total protein contents estimation are the best parameter to judge the effect of *H. sativum* in wheat. Moreover, these results confirmed that the biochemical changes and the antioxidant defense activity depend on plant genotype and the mode of pathogen attack.

121. **Guan BH, Soleimani H, Yahya N, Latiff NRA. Phase Evolution and Crystallite Size of Ni_{0.25}Zn_{0.75}Fe₂O₄ at Different Calcination Temperatures. *Advanced Materials Research*. 2014; 925: 290-294.**

The effects of calcination temperature varying from 700 to 1100°C on the phase evolution and crystallite size of Ni_{0.25}Zn_{0.75}Fe₂O₄ synthesized using Sol-Gel technique have been investigated. XRD results showed that the Fe₂O₃ phase was formed in Ni_{0.25}Zn_{0.75}Fe₂O₄ in the lower calcination temperature. The crystallization increased as the calcination temperature increased and the crystallite sizes of the Ni_{0.25}Zn_{0.75}Fe₂O₄ calculated from Scherrer equation were found to be ranged from 16 to 62 nm which increased when calcination temperature increase. Raman results further confirmed the presence of spinel structure in the samples.

122. **Guerra E, Hadamitzky M, Ndrepepa G, Bauer C, Ibrahim T, Ott I, Kastrati A. Microvascular obstruction in patients with non-ST-elevation myocardial infarction: a contrast-enhanced cardiac magnetic resonance study. *The international journal of cardiovascular imaging*. 2014; 30(6): 1087-1095.**

The aim of the study was to assess the frequency and predictive factors of microvascular obstruction (MVO) in patients with non-ST-segment elevation myocardial infarction (NSTEMI). This study included 190 consecutive patients with NSTEMI who underwent

percutaneous coronary intervention (PCI) within 24 h after admission and cardiac magnetic resonance (CMR) imaging, 4.1 days after angiography. MVO was defined using the CMR criteria. MVO was detected 26 of 190 patients (13.8 %). Patients with MVO had higher peak high-sensitivity troponin T, creatine-kinase and creatine kinase-myocardial band levels and higher proportions of those with baseline thrombolysis in myocardial infarction (TIMI) flow grade 0–1, absence of collateral circulation, post-PCI TIMI flow grade <3, myocardial blush grade <3 and angiographic no-reflow than patients without MVO. Patients with MVO had larger initial area at risk [median (25th–75th percentiles), 23.9 % (17.4–33.9 %) vs. 16.1 % (7.8–27.7 %), $P = 0.018$] and infarct size [11.4 % (6.6–19.2 %) vs. 1.4 % (0–4.7 %) of the left ventricle, $P < 0.001$] than patients without MVO. In multivariable analysis, the culprit lesion localization in the circumflex coronary artery [adjusted odds ratio (OR) 13.71, 95 % confidence interval 2.91–64.58, $P < 0.001$] and the infarct size [adjusted OR 3.37 (1.80–6.29), $P < 0.001$, for each 5 % of the left ventricle] were independently associated with the increased risk for MVO. In patients with NSTEMI undergoing early PCI, the MVO defined by CMR imaging was present in 13.8 % of the patients. The localization of culprit lesion in the circumflex coronary artery and larger infarct size were independently associated with the increased risk for MVO.

- 123. Guerra E, Ndrepepa G, Schulz S, Byrne R, Hoppmann P, Kufner S, Kastrati A. Impact of inhospital stent thrombosis and cerebrovascular accidents on long-term prognosis after percutaneous coronary intervention. *American heart journal*. 2014; 168(6): 862-868.**

Background: Inhospital stent thrombosis (ST) and cerebrovascular accidents (CVA) are rare but serious adverse events after percutaneous coronary intervention (PCI). The association of ST or CVA with long-term outcome after PCI remains poorly investigated. **Methods:** The study included 18,334 consecutive patients who underwent PCI. Patients were divided into 3 groups: the group with ST, the group with CVA, and the group without these events. The primary outcome was all-cause mortality at 3-year follow-up. **Results:** Inhospital ST or CVA occurred in 59 patients (0.32%) and in 90 patients (0.49%), respectively. There were 2,149 deaths (11.7%) during the follow-up:

26 deaths among patients with ST, 32 deaths among patients with CVA, and 2,091 deaths among patients without ST or CVA (Kaplan-Meier estimates of 3-year mortality 45.3%, 38.0%, and 12.9%, odds ratio 6.1, 95% CI 3.6-10.2, $P < .001$ for ST group vs the group without ST or CVA and odds ratio 4.2 [2.7-6.6], $P < .001$ for CVA group vs the group without ST or CVA). There was no significant difference in the 3-year mortality between CVA and ST groups ($P = .29$). The Cox proportional hazards model showed that ST (adjusted hazard ratio 4.97, 95% CI 2.58-9.56, $P < .001$) and CVA (adjusted hazard ratio 2.25 [1.25-4.04], $P = .006$) were independently associated with the increased risk of 3-year mortality. **Conclusion:** Inhospital ST and CVA after PCI are associated with the increased risk of 3-year mortality. Both events seem to have a similar impact on long-term survival.

124. Gulcharan1a NFI, Daud2b H, Nor NM, Ibrahim T, Nyamasvisva TE. Investigation and Development of Remote Vital Signs Monitoring Device Using Wireless Communication. *System*. 2014; 802, 1.

Monitoring applications have been deployed throughout the years using either wired or short and long distance wireless technology. The wireless technologies itself have been developing and on increasing trends throughout the years. This study discusses on the comparison on two types of wireless technologies to be deployed in the healthcare industries for monitoring patient's vital signs, which are, heart rate and temperature. RF and Zigbee technologies were used in series of experiments to monitor these vital signs. It was found that the Zigbee technology produced reliable and accurate data with longer transmission range. This study also discusses on development of the device from designing until the printed PCB version. Series of tests were conducted using the variations of parameters and Zigbee technology produces stable and similar output vital signs reading compared to the conventional device.

125. Gupta S, Yamada G, Mpembeni R, Frumence G, Callaghan-Koru JA, Stevenson R, Baqui AH. Factors Associated with Four or More Antenatal Care Visits and Its Decline among Pregnant Women in Tanzania between 1999 and 2010. *PloS one*. 2014; 9(7): e101893.

In Tanzania, the coverage of four or more antenatal care (ANC 4) visits among pregnant women has declined over time. We conducted an exploratory analysis to identify factors associated with utilization of ANC 4 and ANC 4 decline among pregnant women over time. We used data from 8035 women who delivered within two years preceding Tanzania Demographic and Health Surveys conducted in 1999, 2004/05 and 2010. Multivariate logistic regression models were used to examine the association between all potential factors and utilization of ANC 4; and decline in ANC 4 over time. Factors positively associated with ANC 4 utilization were higher quality of services, testing and counseling for HIV during ANC, receiving two or more doses of SP (Sulphadoxine Pyrimethamine)/Fansidar for preventing malaria during ANC and higher educational status of the woman. Negatively associated factors were residing in a zone other than Eastern zone, never married woman, reported long distance to health facility, first ANC visit after four months of pregnancy and woman's desire to avoid pregnancy. The factors significantly associated with decline in utilization of ANC 4 were: geographic zone and age of the woman at delivery. Strategies to increase ANC 4 utilization should focus on improvement in quality of care, geographic accessibility, early ANC initiation, and services that allow women to avoid pregnancy. The interconnected nature of the Tanzanian Health System is reflected in ANC 4 decline over time where introduction of new programs might have had unintended effects on existing programs. An in-depth assessment of the recent policy change towards Focused Antenatal Care and its implementation across different geographic zones, including its effect on the perception and understanding among women and performance and counseling by health providers can help explain the decline in ANC 4.

- 126. Gupta S, Yamada G, Mpembeni R, Frumence G, Callaghan-Koru JA, Stevenson R, Baqui AH. Factors Associated with Four or More Antenatal Care Visits and Its Decline among Pregnant Women in Tanzania between 1999 and 2010. *PloS one*. 2014; 9(7): e101893.**

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127. **Hadi F, Ayaz M, Ali S, Shafiq M, Ullah R, Jan AU. Comparative effect of polyethylene glycol and mannitol induced drought on growth (in vitro) of canola (*Brassica napus*), cauliflower (*Brassica oleracea*) and tomato (*Lycopersicon esculentum*) seedlings. *International Journal of Biosciences (IJB)*. 2014; 4(9): 34-41.** Investigation was carried out to evaluate and compare the drought tolerance in seedlings of important crops (Canola, Cauliflower and Tomato). Polyethylene glycol (PEG6000) and Mannitol were used for induction of drought stress and compared their effects on seed germination, seedling growth and biomass and water contents. Five different treatments of PEG (1%, 3%, 6%, 9% and 12%) and Mannitol (0.5%, 1%, 1.5%, 2%, 2.5%) solutions were added to growth medium denoted as T1, T2, T3, T4, T5, and

Control C (without PEG or Mannitol). Seed germination reduced significantly with increasing concentration of Mannitol and PEG, and minimum germination was found at T5. Similarly shoot and root length and biomass decreased with increasing concentration of PEG or Mannitol. The growth parameters highly reduced with Mannitol treatments as compared to PEG even the mannitol concentration was lower than PEG, shows toxic effect of mannitol. These findings suggest that polyethylene glycol is comparatively better than mannitol for assessment of drought tolerance potential of plants at early growth stage and canola had higher drought tolerance in respect of seed germination, shoot and root length and biomass and cauliflower was moderate and tomato was found very sensitive to drought stress.

128. **Hamim MA, Ibrahim T, Nor NM. Modeling and analyze a single-phase halbach magnetized tubular linear permanent magnet generator for wave energy conversion. In *Power and Energy (PECon), 2014 IEEE International Conference on. 2014; 87-92.***

Malaysia is a country that is surrounded by numerous oceans that are able to be a renewable energy resource for betterment of human life. This research is proposed to design, model and analyze a portable single-phase linear permanent magnet generator for wave energy conversion (WEC) that is works with the local wave parameters. In comparison with a rotary generator, the linear generator is found preferable due to the direct-drive technology that promises low maintenance and cost. This research proposed three linear permanent magnet generator designs with different types of permanent magnet layout. The results show that proposed permanent magnet configuration is able to provide better flux density as compared to other proposed designs.

129. **Hassanali MH Comparison of Fine Needle Aspiration Cytology with Histopathology Findings of Thyroid Lesions at Muhimbili National Hospital. Masters of Medicine (General Surgery) *Dissertation 2014.* Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: Thyroid lesions due to iodine deficiency and other causes is an endemic disease in our set up. Over 70% of patients are found to be referred due to nodular

lesions, in which some nodular lesions are malignant in nature. The risk of malignancy in solitary and multinodular goiter occurring in endemic goitre areas is reported to be higher than in control areas.' Several investigations have been recommended to assess thyroid lesions and these include thyroid function test, ultrasonography, radionuclide scans and fine needle aspiration cytology. Cytology is considered to be a precise diagnostic screening test for malignancy. However for a satisfactory result, a representative specimen and an experienced cytologist are mandatory. In a developing country where sophisticated technology and an experienced cytologists may not be readily available, the challenges of identifying patients with malignancy in thyroid lesion is even greater.

Objective: The aim of the study was to determine sensitivity, specificity, positive predictive value, negative predictive value and accuracy of FNAC in comparison with gold standard histopathology findings. **Methodology:** This hospital based descriptive crosssectional study was intended to compare FNAC to histopathological tissue findings of thyroid lesions at Muhimbili National Hospital of hundred and twenty four patients. It included inpatients in general surgery wards and surgical outpatient clinics. **Results:** A total of 124 patients with thyroid lesions were enrolled in the study. The mean age (\pm standard deviation) of the study participants was 40.5years (\pm 11.66) years. Large percentages (33.1%) of the thyroid patients were in the 31-40 years age group. Fifteen (12.1%) of the 124 patients were male and 109 (87.9%) were female (M: F, 1:7.3). In FNAC a total of 124 patients with thyroid lesion, 80.6% showed benign lesion, 11.3% malignant lesion and 8.1 % suspicious lesion. In Tissue histopathology a total of 124 patients with thyroid lesion, 82.3% showed benign lesion, 17.7% malignant lesion. Most common benign thyroid lesions were colloid goiter 48 out of 102(47.1 %). Out of 124 patients, 114 patients were analysed, as 10 patients were indeterminate on FNAC. Of the 100 samples which were negative for malignancy on FNAC, 9 aspirates showed non neoplastic lesion while confirmed by histopathology as papillary carcinoma in 4(44.4%) and follicular carcinoma in 5(55.6%). Out of 14 malignancies on FNAC, 13(92.9%) were malignant. one patient showed papillary carcinoma on FNAC while histological diagnosis confirmed the diagnosis as follicular adenoma. Sensitivity of FNAC was 59.1 %, specificity 98.9%, positive predictive value 92.9, negative predictive value 91 % and accuracy was 91.2%. In FNAC out of 124 patients 70(56.5%) received their FNAC

results by one week. The mean duration (\pm standard deviation) of reporting FNAC results was 8.2 days (± 5.59) days. In Histology out of 124 patients 40(32.3%) received their histological results by third week. The mean duration (\pm standard deviation) of reporting histopathology results was 23.53 days (± 17.17) days **Conclusion:** The results of this study are comparable with the current published data and demonstrate that FNA cytology is a specific, and accurate initial diagnostic test for evaluation of patients with thyroid swellings. However, FNAC has low sensitivity. Cytodiagnostic errors of some cases with overlapping cytological features can be avoided by paying attention to the possible pitfalls. The suspicious results can be resolved by diagnostic surgical resection. A benign FNAC diagnosis should be viewed with caution as false negative results do occur and these patients should be followed up clinico-radiologically for any progression that will require repeated FNAC and/or surgery. **Recommendation:** FNAC is a reliable preoperative tool for investigation. The sensitivity of the test could be improved by decreasing false negative rate through improving sample collection, appropriate sample preparation and accurate interpretation by cytopathologists.

130. **Hayte MS. The Pattern Of Surgical Emergencies And Treatment Outcomes Among Patients Managed In The Department Of Surgery Muhimbili National Hospital Dar Es Salaam. Master of Medicine (General Surgery) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background information: Surgical emergencies are common reasons for admissions into accident and emergency units in most hospitals. This study was undertaken to look at the pattern of such emergencies, including their management and outcome at discharge. These cases constitute a major component of the surgical workload in many tertiary level hospitals, especially in the developing countries (1). **Methodology:** This was a prospective descriptive hospital based study, and was conducted at the general and Paediatric surgical wards of the Muhimbili National Hospital (MNH) over a one year period (i.e May 2013 to April 2014 inclusive). All patients referred to MNH within the study period and meeting the inclusion criteria were enrolled into the study. Parameters studied included demographic characteristics, diagnoses at admission and at discharge and management outcome. Informations pertaining to the cause of the illness were also

extracted from the casefiles and patient interviews. The information obtained was recorded into the designed data collection tool. Patients were followed up in the ward until their discharge. There was no further follow up of patients after their discharge.

Results: A total of 632 patients were enrolled into the study. Among these, 549 had age more than 10 years. The remaining 83 were aged from 10 years and less, accounting for 13.1% of the total study subjects. Males in that age above 10 years accounted for 369 cases (67.4%) and females were 179 cases (32.6%), with male to female ratio of 2.1:1. Peritonitis was the commonest cause of surgical emergencies accounting for 33.2%, followed closely by intestinal obstruction and visceral injury that accounted for 31.9% and 22.0% of the cases respectively. Higher morbidity and mortality were recorded in males than in females, and such disease preponderance to male gender was observed across all the age groups. Overall, predominance of cases was recorded at age range of 31-50 years. Cases of peritonitis and visceral injury were predominant at age range of 11-30 years, while more Intestinal obstructions were recorded at age ranging from 31 to 50 years. Cases of diabetic foot were more in patients at 6th and 7th decades of their age, with females manifesting it earlier than males. Visceral perforation was the main underlying pathology for peritonitis while Intestinal obstruction was commonly secondary to adhesions following previous surgeries. MTC was found the leading cause of emergency referrals to MNH, in patients with viscera injuries. In Pediatric, the emergencies were predominant at age range of > 1 -5 years. Also in Pediatric, males were affected more than females, who accounted for only 24 cases (28.9%), out of the 83 total pediatric cases, making male to female ratio of 2.5:1. The overall mortality (i.e out of 632 total cases) was 104 cases (16.5%) out of which 92 cases (16.8%) were from general surgical emergencies and pediatrics were 12 cases (14.5%).

Conclusions: Surgical emergencies were found to account for 46.3% of the admissions in General and Pediatric surgical departments. The work load due to these emergencies is experienced across the emergency medical as well as general surgical and Pediatric departments.

131. Helde S, Gewalt S, Ibrahim T, Schmidt R, Stein A, Haas K, Schulz S. TCT-840 Gender Specific Analysis of the Randomized ISAR-CLOSURE Trial: The Comparison of Vascular Closure Devices versus Manual Compression after Femoral Artery Puncture. *Journal of the American College of Cardiology*. 2014; 64(11_S).

Background: Women more often incur access site bleeding complications after cardiac catheterization compared to men. Vascular closure devices have been introduced into clinical practice with the aim of increasing procedural efficacy and safety of coronary angiography. Thus, vascular closure devices might be especially useful in women. The gender-specific value of vascular closure devices versus manual compression has not been assessed prospectively. **Methods:** The Instrumental Sealing of ARterial puncture site – CLOSURE device versus manual compression (ISAR-CLOSURE) study is a multicenter, randomized, open-label clinical trial comparing FemoSeal, Exoseal and manual compression for arteriotomy closure in patients undergoing coronary angiography via the common femoral artery (random sequence 1:1:1). Primary endpoint is access site related vascular complications, i.e. the composite of hematoma \geq 5cm, pseudoaneurysm, arteriovenous fistula, access site related bleeding, acute ipsilateral limb ischemia, need for vascular surgery/interventional treatment or local infarction at 30 days after randomisation. This analysis will focus on gender specific aspects of the comparison of arteriotomy closure with two different vascular closure devices versus manual compression. A second comparison will be performed between the two vascular closure devices. Outcomes examined will be stratified by gender. The trial is registered with ClinicalTrials.gov Identifier NCT01389375. **Results:** From April 2011 until Mai 2014 a total of 4,524 patients have been enrolled in the ISAR-CLOSURE trial, among them 1,395 women. The present analysis will be gender-specific and will be available in August 2014. On the other hand, the primary results of the trial will also be submitted as late breaking clinical trial at this year TCT meeting. **Conclusions:** The trial will help to assess the gender-specific role of two vascular closure devices versus manual compression in patients undergoing cardiac catheterization via the common femoral artery.

132. **Hery M. Dental Caries, Its Impact and Associated Factors among 2-4 Years Old Children in Mbeya City. Master of Dentistry (Community Dentistry) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: Dental caries in primary dentition is of global concern. Clinical data in Mbeya city dental clinics also reveal that dental caries in primary dentition is a problem that requires intervention. In order to design an effective intervention against dental caries in primary dentition in Mbeya, one requires the current information on its magnitude, prevalence, associated factors, and its impact on quality of life of children and their families. Aim of the study: To determine the magnitude and prevalence of dental caries, its impact and its associated factors among 2-4 years old children in Mbeya city. **Methodology:** A cross sectional study was conducted in Mbeya city among 525 children aged two to four years old. Their mothers were interviewed using a questionnaire that assessed socio-demographic factors, dietary habits, breastfeeding practices, oral hygiene practices and oral health related quality of life. Diagnosis of dental caries was done using Caries Assessment Spectrum and Treatment (CAST) index. Oral hygiene status was determined by inspecting teeth with plaque seen by naked eyes under natural light. Data was analysed using SPSS version 16. Dental caries was determined at three level of diagnosis; dmft1, dmft2 and dmft3. The chi-square or Fisher's exact test and logistic regression were used to study associations. Significance level was set at $p=0.05$. **Results:** Of the studied children 50.7% were boys. Caries free children for dmft1, dmft2 and dmft3 were 79.8%, 83.8% and 94.7% respectively. Caries experience for dmft1, dmft2 and dmft3 were 0.49 (1.23), 0.4 (1.14) and 0.10 (0.53) respectively. The mean oral health related quality of life was 0.036 (0.108) measured over the scale of 0-2 (0= Excellent; 2= worst). Older children at all three levels of dental caries diagnosis had statistically significantly higher odds of having caries experience than their younger counterparts [at dmft1 OR =2.722 (1.617-4.582); $p < 0.001$], at dmft2 OR =2.725 (1.524-4.873); $p = 0.001$ and at dmft3 OR =3.40 (1.153-10.027); $p = 0.027$]. Children who were reported to consume factory made sugary foods; those having parents with secondary education or higher and those who had good oral hygiene had statistically significantly higher odds of having caries experience than their counterparts with

OR=3.061 (1.188-7.887); p=0.021, OR=0.534(0.288-0.99); p=0.046 and OR=0.286(0.10-0.824); p=0.02 respectively. Breastfeeding up to more than 2 years of age and breastfeeding at night had no association with development of dental caries. In the child impact section of ECOHIS; Child symptoms domain (pain) was the prominent negative impact of OHRQoL among children. In the family impact section of ECOHIS; parent distress domain was the prominent negative impact of OHRQoL among families.**Conclusion:** Based on the current study, it is concluded that: The caries experience among children aged 2-4 years in Mbeya city was dmft (SD) = 0.49 (1.23), 0.4 (1.14) and 0.10 (0.53) for dmft1, dmft2 and dmft3 respectively. The prevalence of dental caries; Caries free were 79.8%, 83.8% and 94.7% respectively for dmft1.dmft2 and dmft3. Dental caries experience was higher among children with (a) older age, (b) high consumption of factory sugary foods/snacks at age of 1-2 years, (c) parents who had secondary education or higher, (d) good oral hygiene. Breastfeeding up to more than 2 years of age and breastfeeding at night had no association with development of dental caries. Based on quality of life scale of 0-2 (0= excellent, 2= worst), the mean child impact, family impact and ECOHIS were 0.01 (0.73), 0.09 (0.23) and 0.4 (0.1) respectively. Ninety five percent of children had excellent oral health related quality of life. In the child impact section of ECOHIS; Child symptoms domain (pain) had the prominent negative impact of OHRQoL among children. In the family impact section of ECOHIS; parent distress domain had the prominent negative impact on OHRQoL among families.

133. **Hirani VA, Masalu JR. Patient satisfaction after receiving dental treatment among patients attending public clinics in Dar es Salaam.2014.**

Background: Patient satisfaction is one of the indicators of the quality of care. Therefore it is one of the tools for evaluating the quality of care. **Aim:** To determine patient satisfaction after receiving dental treatment among patients attending public dental clinics in Dar-Es-Salaam. **Material and methods:** Five public dental clinics in Dar-es-Salaam were conveniently selected. A total of 334 patients were selected by random selection method to participate in the study. Data collection was done using a closed ended Kiswahili questionnaire. The obtained data was analyzed using the SPSS programme.

Frequency distribution and bivariate analysis was done in using chi-square test. Significance level was set at p-value ≤ 0.05 . **Results:** Majority (97.6%) were satisfied with dental care. The most satisfying aspects of oral care were external environment and explanation given by dentists (98.2%). The least satisfying aspect of oral care was waiting time by 12.9%. Older adults (98.8%), males (98.6%), participants with secondary education or higher (98.9%) and participants residing far from the dental clinics (98.2%) were more satisfied with dental care than their counterparts. In all cases, the differences were not statistically significant. **Conclusion and recommendations:** It can be concluded that adult Tanzanians have a high level of satisfaction with dental care. The most satisfying aspects were external environment and explanation given by dentists while the least satisfying was waiting time. It is recommended that dentists should strive to maintain the satisfying aspects and strive to reduce patient waiting time.

134. Hizza RP, Ezekiel MJ, Kamazima SR, Moshiro CC. Performing arts as entertainment-education method for health communication: Reflections from Rift Valley fever project in Kongwa, Tanzania. In *The Second Scientific Conference. 2014.*

Background: Rift valley fever (RVF) is a re-emerging vector-borne disease with rapid socio-economic impact. We conducted a baseline study to assess RVF outbreak preparedness as well as knowledge, attitudes and practices regarding RVF in Kongwa and Kilombero districts. In general, findings indicated that there is lack of knowledge in preparedness of the disease and its dynamics related to animals and humans. As entertainment-education method, performing arts has proven to be an effective method for health promotion and disease prevention for various health interventions targeting rural and urban populations. In this article, we document how the approach has been used for conveying information, education and communication messages to promote outbreak preparedness for RVF while highlighting some of the key lessons learned from the intervention. **Methods:** As communication tool, Performing Arts comprised indigenous songs and dances used to raise awareness, mobilize communities and promote practices favourable for timely response and preparedness for RVF outbreak in six villages. **Results:** Findings suggest that using local theater troupes enhances a sense of

ownership of intervention and also acts as a strategy for recognition of local talents and resources in improving health and disease control. A rapid assessment of the intervention reveals that entertainment-education efforts for RVF hold the potential for being integrated into routine social and cultural lives of the community members as a strategy to promote knowledge and reduce risks of infection for RVF during outbreaks. Furthermore, findings indicate that edutainment interventions require active participation of local power brokers from project inception stage in order to enlist public support and engagement. **Conclusion:** RVF intervention highlights the need to focus on the use local performing groups to enhance continuity and sustainability of edutainment interventions.

135. **Hoka GP Prevalence of Obesity and Control Practices among Adult Ts (18 - 65 Years) Working In Public Institutions in Ilala Dar es Salaam. Master of Public Health Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Obesity is one of the emerging health concerns for the current century both in developed and developing countries. Obesity and its associated chronic diseases are significant global public health issues with considerable costs to both the individual and the community. The purpose of this study was to determine the prevalence of obesity and control practices among employees in the public institutions. The study objectives were to determine the prevalence of obesity among adults, to determine the proportion of adults adopted obesity control practices and to assess factors influencing adoption of obesity control practices. The study was conducted in Ilala - :par es Salaam covering 416 employees. Probability sampling techniques were used to get study respondents. Data collection was done using a questionnaire with structured questions. Data analysis was done using SPSS version 20. The prevalence of obesity among employees in public institutions in Ilala Municipal established by this study is 25.5% % with a mean BMI 27.7 and standard deviation 4.8. About 52.6% of employees in public institutions have adopted at least one obesity control practice. Prominent adopted obesity control practice is physical activities (87.7%), followed by health dieting (17.4%) and the least is the use of medication (4.1%). Employees adopted more than one obesity control practice are 21 (9.6%). Performance of physical activities is positively correlated with self-efficacy and

household annual earning. Health dieting is positively correlated household annual earning, self-efficacy and friends support. The use of medication is not associated with any of the individual characteristics including sex, age, education level and income also friends and family support. This study recommends health education on obesity and its associated health problems to be continuously provided at work-place settings. Employers to encourage their employees to actively participate in daily physical activities; and where possible establish recreational facilities such as gym at work places and set time for sport activities. Employers to engage with Nutritionists for their employees to benefit from support on health dieting. More studies to be done on the same topic in order to add knowledge on the topic as well as explore other factors that not covered in this study that influence adoption of obesity control practices.

136. Hussein ZZ. Treatment of open tibial diaphyseal fractures grade iiiia at muhimbili orthopaedic institute (moi): intramedullary nail versus external fixation. Master of Medicine (Orthopaedics and Trauma) *Dissertation* 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.

Management of open tibial fractures continues to be a major therapeutic problem and poses great challenges to surgeons, due to its high incidence of postoperative complications. The treatment of open fractures of the tibial shaft still remains varied.

Objectives: Evaluated the short-term outcome of patients with open tibial shaft fractures grade IIIA treated with locked intramedullary nail compared to external fixation.

Methodology: A simple randomized prospective study was done on adult patients 18 years and above with open tibial shaft fractures grade IIIA treated by either IM nail or EF. This study was conducted at MOI for a period of twelve months from March 2013 to February 2014. Fifty four patients met the inclusion criteria and were randomly allocated between two treatment groups. Except for selection of fixation, open fracture care was similar in two treatment groups. Both groups were comparable with respect to age, gender and fracture severity. Data was collected with help of research assistant and guided with a structured questionnaire as well as tools like tape measure, goniometry were used to accomplish data collection process Outcome assessed were the rate of callus formation at fracture site, complications such as infection, limb length discrepancy,

malalignment (rotational/ angulatory) and reoperation rate. All these parameters were assessed at 2nd, 6th, 10th, 14th and 18th week post surgery. The obtained data were analyzed by SPSS version 20. **Results:** During this study total of 54 patients with open tibial shaft fractures grade IIIA were enrolled and followed up. Twenty six patients treated by external fixation and 28 patients treated by IM nail after surgical debridement, 4 patients were lost to follow-up, so 50 patients who completed minimum of 18weeks follow-up were reviewed. In IM nail group 2(7.7%) patients developed infection, while in external fixation group 3(12.5%) developed infection. There was no statistically significant difference in rate of infection between two treatment groups. (P-value: 0.661) Twenty four patients (92.3%) in IM nail group had callus formation by 10th week with mean duration to callus formation was 8.15 +/- 2.6weeks while in external fixation by 10th week only six (25%) had notable callus, mean duration to callus formation in external fixation group was 14.67+/- 3.3 weeks. IM nail was superior in terms of callus formation and the difference was statistically significant. (p-value 0.000) There were no patients in IM nail group who developed limb length discrepancy compared to 2(8.3%) who developed shortening between 2-3cm in EF treated group. No patients had limb length shortening of >3cm. Intramedullary nail had excellent outcome in terms of malalignment compared to those patient treated with external fixation, malalignment occurred in 3(12.5%) in external fixation group and these patients were reoperated. Rate of reoperation was higher in external fixation group 37.5% while only one patient (3.8%) was reoperated in IM nail group. Reoperation in external fixation group was due to deep infection 2(8.3%), malalignment 3(12.5%) and delayed union 4(16.7%). **Conclusion:** Interlocking intramedullary nail appears to be an effective treatment for open tibial shaft fractures grade IIIA because of good to excellent outcomes in rate of callus formation, limb length, limb alignment outcomes, early weight bearing and less reoperation rate.\

137. **Houk K, Donley J, Hendrick N, Adrian S, Shafiq M, Skinner G, Dahlhaus L. Successful Acquisition and Interpretation of VSP Data Using LWD Technology. In SEG Annual Meeting. Society of Exploration Geophysicists.2014.**

Downhole logging provides critical information for assessing the reservoir, and planning field development. In the case of complex well trajectories, conventional wireline logging

presents operational risks that can be avoided with data acquisition using logging-while-drilling (LWD) technology. Seismic while drilling is a technology which can acquire borehole seismic during drilling, delivering real time check shots and waveforms in real time with look-ahead capabilities. For the drilling of a significantly deviated well in the Northern Dampier Sub-Basin, offshore Australia, a vertical incidence vertical seismic profile (VSP) was acquired utilizing this seismic while drilling technology in lieu of wireline data. The key objectives of the VSP data were to calibrate the seismic time-to-depth relationship and image the reservoir to support detailed interpretation of the internal reservoir structure. Acquisition of the VSP data was performed while pulling out of the hole after the well had reached target depth. Due to the deviated well geometry, an additional vessel was used to deploy the seismic source – this ensured the seismic source was positioned vertically above each receiver location (walk-above or vertical incidence VSP). Processing of the VSP followed a routine walk-above VSP processing workflow, including tool orientation, multicomponent wave field separation, multiple and noise suppression, and stacking. Deliverables included a traditional velocity report, corridor stack and the unstacked up-going wavefield, useful for interrogating internal reservoir structure. This VSP survey delivered good results, the multicomponent seismic VSP provided a robust seismic to well tie, and the image obtained has contributed to improved reservoir understanding in the Fletcher East Oil Field. This type of acquisition is cost effective and recommended for the acquisition of VSP data in highly deviated wells.

- 138. Howard RC, Khalifa N, Duggan C. Antisocial personality disorder comorbid with borderline pathology and psychopathy is associated with severe violence in a forensic sample. *The Journal of Forensic Psychiatry & Psychology*. 2014; 25(6): 658-672.**

Background: Evidence suggests the relationship between personality disorder (PD) and violence in offenders might be clarified by considering sub-groups of PD offenders defined by patterns of PD comorbidity. Aim: to identify patterns of PD comorbidity associated with severe violence, defined by its severity, quantity and age of onset (Violence Index: VI) in a forensic sample of 100 PD offenders. **Methods:** Correlations were first computed between VI and a range of personality and criminological variables;

next, patients with antisocial/borderline comorbidity were compared with other PD patients; finally, regression analysis was conducted to identify unique predictors of VI. **Results:** The antisocial deviance factor of psychopathy and antisocial/borderline comorbidity were each significantly and independently associated with severe violence. Patients showing both a high psychopathy score and antisocial/borderline comorbidity had a significantly greater VI than those without these characteristics. **Conclusion:** PD patients with high psychopathy co-occurring with borderline and antisocial PDs show a criminal profile characterised by a high degree of serious violence.

139. **Hu Y, Ongie G, Ramani S, Jacob M. Generalized higher degree total variation (HDTV) regularization.2014.**

We introduce a family of novel image regularization penalties called generalized higher degree total variation (HDTV). These penalties further extend our previously introduced HDTV penalties, which generalize the popular total variation (TV) penalty to incorporate higher degree image derivatives. We show that many of the proposed second degree extensions of TV are special cases or are closely approximated by a generalized HDTV penalty. Additionally, we propose a novel fast alternating minimization algorithm for solving image recovery problems with HDTV and generalized HDTV regularization. The new algorithm enjoys a tenfold speed up compared with the iteratively reweighted majorize minimize algorithm proposed in a previous paper. Numerical experiments on 3D magnetic resonance images and 3D microscopy images show that HDTV and generalized HDTV improve the image quality significantly compared with TV.

140. **Hussain GA, Shafiq M, Kay JA, Lehtonen M. Pre-emptive arc fault detection techniques in switchgear-part III, from the laboratory to practical installation. In *Petroleum and Chemical Industry Technical Conference (PCIC)*. 2014; 399-407.**

Major types of slowly developing faults, which can lead to arc faults in switchgear and control gear, such as partial discharge (PD), arcing and heating due to poor connections, can now be successfully detected and monitored. In part I and II of this paper series, a detailed review of the immediate causes of arc faults, along with an overview of pre-ignition and post-ignition methods for its mitigation were presented. Various hybrid non-

intrusive sensors were developed in the laboratory to implement pre-ignition detection techniques. The major types of slowly developing electrical faults were created in the laboratory and the sensors were employed to evaluate their performance along with an effective signal processing technique. Part III of the work is based on the successful performance of the sensors outside of laboratory conditions. Hybrid sensors have been installed in a real world application, i.e. switchgear located in substations. This paper presents interesting results about this practical application, and includes valuable discussion on the performance evaluation of different sensors, which further justifies the usefulness of the new sensors for online condition monitoring of switchgear, controlgear and cable termination boxes. The implementation of this technology in industry may provide promising results in avoiding major accidents such as arc flash in switchgear and controlgear.

141. **Ibrahim T, Attiya G, Hamad A. Fuzzy based Tuning Congestion Window for Improving End-to-End Congestion Control Protocols. *International Journal of Computer Applications*. 2014; 87(1): 1-8.**

Transmission Control Protocol (TCP) is the transport-layer protocol widely used in the internet today. TCP performance is strongly influenced by its congestion control algorithms which limit the amount of transmitted traffic based on the estimated network capacity to avoid sending packets that may be dropped later. In other words Congestion Control is Algorithms that prevent the sender from overloading the network. This paper presents a modified fuzzy controller implementation to estimate the network capacity which reflected by congestion window size. Fuzzy controller use Round Trip Time “RTT” as network traffic indication as well as current window size and slow start threshold “ssthresh” as currently occupied bandwidth indicator. NS2 used as a simulation tool to compare proposed fuzzy approach with most widespread congestion control protocols including; TCP-Tahoe, Reno, New Reno, and Sack. Simulation results show that the proposed mechanism improves the performance against throughput, packet drop, packet delay, and connection fairness.

142. **Ibrahim T, Daugeron D, Battu S, Moustafa IA, Lefort C, Cardot P. Dye-free determination of the focalization position for the hollow fiber flow field flow fractionation (HF5) of proteins. *Analytical and bioanalytical chemistry*.2014; 1-4.**

Proteins are separated in field flow fractionation (FFF) according to a well-established mechanism described as the “Normal or Brownian” mode. In the case of the sub-technique using a hollow fiber, the focalization/relaxation position can be observed visually only with a transparent holder and using dyes as samples. Whatever the choice of instrumentation, a dye-free method is proposed to determine the center of the zone from experimental fractograms by means of only two sample elutions. It is also possible to determine and model the kinematics of the sample toward the equilibrium focalization/relaxation position as well as the real dimensions of the fiber during the separation process.

143. **Ibrahim T, Hafeez TM. A study of crashworthiness characteristic of woven kenaf fabric reinforced composites tube (*Doctoral dissertation, Universiti Tun Hussein Onn Malaysia*). 2014.**

In recent year, rapid growth of manufacturing sector cause adverse effect to the environment due to the use of conventional material. This situation draws the attention of researcher to study on natural materials as an alternative material in manufacturing industry. In this research, a study has been conducted on capability of kenaf fabric reinforced polyester (KFRP) as an energy absorber. There are 9 different parameter of KFRP specimen with geometrical ratio (R) of length to diameter (L/D) 1, 1.5 and 2 with 3 layers (N) of kenaf woven. Compression test has conducted to the specimens in order to identify the peak load and crush force efficiency as crashworthiness characteristic. The result shown that increasing number of plies (N) is linearly correlated with increasing of peak load. Specimen R2-N3 and R1.5-N2 shows the highest peak load, 47.53kN and crush force efficiency, 0.79 respectively. Besides that, specimens were also studied on energy absorption capability and failure mode based on graph and observation. It shows that, higher ratio of geometric (R) and layers of woven kenaf effect increasing the capability of the specimens to absorb energy. Specimens R2-N3 shows the highest absorbed energy with 4357.04 J. For failure mode observation, all specimens show the

same mood failure which is crushed in a progressive manner. In conclusion, the number of plies and geometric ratio affects the capability of a specimen to absorb energy.

144. Ibrahim T, Itani A, Nath P. Electron electric dipole moment as a sensitive probe of PeV scale physics. *Physical Review D*. 2014; 90(5): 055006.

We give a quantitative analysis of the electric dipole moments as a probe of high scale physics. We focus on the electric dipole moment of the electron since the limit on it is the most stringent. Further, theoretical computations of it are free of QCD uncertainties. The analysis presented here first explores the probe of high scales via electron electric dipole moment (EDM) within minimal supersymmetric standard model where the contributions to the EDM arise from the chargino and the neutralino exchanges in loops. Here it is shown that the electron EDM can probe mass scales from tens of TeV into the PeV range. The analysis is then extended to include a vectorlike generation which can mix with the three ordinary generations. Here new CP phases arise and it is shown that the electron EDM now has not only a supersymmetric (SUSY) contribution from the exchange of charginos and neutralinos but also a nonsupersymmetric contribution from the exchange of W and Z bosons. It is further shown that the interference of the supersymmetric and the nonsupersymmetric contribution leads to the remarkable phenomenon where the electron EDM as a function of the slepton mass first falls and become vanishingly small and then rises again as the slepton mass increases. This phenomenon arises as a consequence of cancellation between the SUSY and the non-SUSY contribution at low scales while at high scales the SUSY contribution dies out and the EDM is controlled by the non-SUSY contribution alone. The high mass scales that can be probed by the EDM are far in excess of what accelerators will be able to probe. The sensitivity of the EDM to CP phases both in the SUSY and the non-SUSY sectors are also discussed.

145. Ibrahim T, Moctar BL, Tomkouani K, Gbandi DB, Victor DK, Phinthe N. Kinetics of the adsorption of anionic and cationic dyes in aqueous solution by low-cost activated carbons prepared from sea cake and cotton cake. *American Chemical Science Journal*. 2014; 4(1): 38-57.

Activated carbons prepared from shea cake (CA-K) and cotton cakes (CA-C) were investigated for removal of four dyes in aqueous solutions (0 – 200 mg/L): Reactive Black 5 (RB5), Methylene blue (BM), Reactive Orange 16 (RO16) and Methyl Orange (MO) from water by adsorption. The activated carbons were prepared by chemical activation using phosphoric acid as activation agent. Chemical characteristics of these activated carbons was monitored by Bohem titration and the method of Lopez-Ramon et al. while surface areas of the samples were determined by nitrogen adsorption/desorption isotherm measurement. Activated carbons CA-K and CA-C have the following characteristics: BET surface and the pore volumes are respectively 1148 m²/g and 0.607 cm³/g for CA-K, 584 m²/g and 0.298 cm³/g for CA-C. The two activated carbons synthesized are microporous activated carbon with micropores volume representing more than 70% of the total pore volume. The removal of dyes was studied using batch reactor. The nature of the activated carbon and the dyes are the key factors influencing the contact time. At the equilibrium times (35 to 270 min for CA-K and 60 to 300 min for CA-C), the removal of BM, MO and RO16 was quasi-total while for RB5 the amount adsorbed was about 83%. Based on the adsorption capacity, it was shown that CA-K was more effective than CA-C. Various kinetic models such as pseudo first-order, pseudo second-order and intraparticle diffusion were used to evaluate the mechanism of dyes adsorption on activated carbons. BM, RO16, and MO removal process was found to be governed by second-order kinetic while pseudo-first order kinetic is suitable for RB5 adsorption study. The pHs of the solutions and the amount of activated carbon have strong effect on the adsorption capacity of these dyes. An acid pH (for anionic dyes) and basic pH (for cationic dyes) were favorable for the maximum adsorption of dyes. The isotherm data could be well described by the Freundlich and Langmuir equations in the concentration range of 0–80 mg/L. For the present adsorption process intraparticle diffusion of dyes within the particle was identified to be rate limiting. Both activated carbons were shown to be promising materials for adsorption removal of dyes from aqueous solutions.

146. **Iddi AR. Current Efficacy of Sulphadoxine Pyrimethamine for Intermittent Preventive Treatment of Malaria during Pregnancy in Dar es Salaam. Master of Science (Clinical Pharmacology Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: Intermittent preventive treatment of malaria in pregnancy with Sulphadoxine Pyrimethamine (IPTp-SP) reduces incidence of malaria, asymptomatic parasitaemia and anaemia, thus improving pregnancy outcome particularly by increasing birth weight. The strategy is widely used in malaria endemic countries. Currently, SP is probably the best available drug for IPTp and is reserved for the purpose in many countries. This reduces sustained drug pressure to *P falciparum*, which may increase the level of SP resistance. However, there are anecdote reports that SP continues to be used in non- benefit of SP for IPTp may be declining. **Objective:** To determine the current efficacy of SP for intermittent preventive treatment of malaria during pregnancy in Dar es Salaam. **Methodology:** Two doses of SP were given to 310 pregnant women according to national guidelines. All participants were followed up and evaluated at least once at week 28 onwards and at delivery. **Results:** A total of 310 pregnant women with a mean age (\pm SD) 26.4 (\pm 0.3) years were enrolled. The proportion of low birth weight was not different from previous studies (6.5% versus 7.3 %; $P = 0.721$). The proportion of subjects with peripheral parasitemia at delivery was 2% (6/296). None had severe anemia or clinical malaria at delivery, and only six women (2%) had clinical malaria during follow up. **Conclusions:** Efficacy of SP for IPTp seems to be at a level similar to what it was about ten years ago. Our data are reassuring that the efficacy of IPTP-SP is still high and the Ministry of Health and Social Welfare may not need to change the policy for treatment of malaria in pregnancy at the moment. However, regular monitoring is essential for timely corrective measures when the need arises.

147. **Idris S. Respiratory Symptoms and Peak Expiratory Flow Rate among Male Workers in Automobile Spray Painting Small Scale Industries in Dar es Salaam. Master of Public Health Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: Workers in Small scale industries in Tanzania are exposed to many hazard such as noise, heat and others including isocyanates from spray paints and specific agents here in. Studies conducted in the area had shown that workers exposed to spray paints have an increased risk of developing occupational asthma, lung function deficit, respiratory symptoms and reduced respiration capacity. **Method:** A descriptive cross-sectional, comparative study design was conducted using workers in Automobile Spray Paint Industry as exposed group and office workers as control group in all the three districts of Dar es Salaam. The study involved 440 subjects divided equally from both groups sampled by multistage sampling technique. Pre-testing was conducted and data collection was done using a questionnaire and peak flow meter. **Results:** Respiratory symptoms were found to be more prevalent in automobile spray painters than office workers. Among automobile spray painters, Cough 30.9% (n=68) and Wheezing 30.8% (n=67) were found to be most prevalent respiratory symptoms. The odds ratio (95% Confidence interval) of the spray painters to experience respiratory symptoms compared to Office workers was 8 (3.8 to 16.5) for Shortness of breath (SoB), 14.5 (6 to 31.7) for Wheezing, 3.8 (1.7 to 8.6) for Cough, 5.1 (2.7 to 9.8) for Phlegm and 3.1 (1.4 to 6.3) for Cough with Phlegm. The mean peak expiratory flow rate value for painters was less 381.6 L/min \pm 88.3 compared to office workers, 470.03 L/min \pm 72.4 and the observed difference in mean was statistically significant, ($p < 0.01$). The use of relevant Personal Protective Equipment (PPE) was found to be very low 25.3 % among the Automobile Spray Painters. **Conclusion:** There was high prevalence of respiratory symptoms among automobile spray painters in comparison to the Office workers. Peak expiratory flow rate values were significantly lower in painters as compared to office workers. Despite the fact that half of painters reported using protective gears at workplace, the equipments used were inappropriate in protecting respiratory airways. Appropriate and all time use of protective equipment at work is recommended to the automobile spray painters to prevent respiratory illnesses.

148. **Ikhlaiq U, Ahmad R, Shafiq M, Saleem S, Shah MS, Hussain T, Abbas MS. Nitriding molybdenum: Effects of duration and fill gas pressure when using 100-Hz pulse DC discharge technique. *Chinese Physics B*. 2014; 23(10): 105203.**

Molybdenum is nitrided by a 100-Hz pulsed DC glow discharge technique for various time durations and fill gas pressures to study the effects on the surface properties of molybdenum. X-ray diffractometry (XRD), scanning electron microscopy (SEM), and atomic force microscopy (AFM) are used for the structural and morphological analysis of the nitrided layers. Vickers' microhardness tester is utilized to investigate surface microhardness. Phase analysis shows the formation of more molybdenum nitride molecules for longer nitriding durations at fill gas pressures of 2 mbar and 3 mbar (1 bar = 105 Pa). A considerable increase in surface microhardness (approximately by a factor of 2) is observed for longer duration (10 h) and 2-mbar pressure. Longer duration (10 h) and 2-mbar fill gas pressure favors the formation of homogeneous, smooth, hard layers by the incorporation of more nitrogen.

149. **Inglis NJ, Bagnall H, Janmohamed K, Suleman S, Awofisayo A, De Souza V, Olowokure B. Measuring the effect of influenza A (H1N1) pdm09: the epidemiological experience in the West Midlands, England during the 'containment' phase. *Epidemiology and infection*. 2014; 142(02): 428-437.**

The West Midlands was the first English region to report sustained community transmission during the 'containment' phase of the influenza A(H1N1)pdm09 pandemic in England. To describe the epidemiological experience in the region, West Midlands and national datasets containing laboratory-confirmed A(H1N1)pdm09 virus cases in the region during the 'containment' phase were analysed. The region accounts for about 10.5% of England's population, but reported about 42% of all laboratory-confirmed cases. Altogether 3063 cases were reported, with an incidence rate of 56/100 000 population. School-associated cases accounted for 25% of cases. Those aged <20 years, South Asian ethnic groups, and residents of urban and socioeconomically deprived areas were disproportionately affected. Imported cases accounted for 1% of known exposures. Regional R₀ central estimates between 1.41 and 1.43 were obtained. The West Midlands

experience suggests that interpretation of transmission rates may be affected by complex interactions within and between sub-populations in the region.

150. **Innocent D. Factors Affecting Sustainability of Water Projects in Rural Areas: A Case Study of Mbeya Rural District, Tanzania. Master of Public Health Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Introduction: Overall, the current situation of water supplying in rural areas specifically in Tanzania is still in an unsatisfactory pace, this sector has been given less attention by the policy maker which leads to allocation of an inadequate budget. The situation attracted other donors to support projects aiming at providing clean and safe water in the rural areas. However, sustainability of such donor supported water projects has been a major challenge due to the fact some projects fail to function in two years after the implementation. The **main objective:** of this study was to assess factors associated to water projects sustainability in rural areas. **Methodology:** This was a qualitative study whereby key informants were asked direct questions from the designed interview guides. Data were gathered through in-depth interviews and focus group discussions. A purposeful sampling technique was used to recruit participants of focus group discussion and key informants. All interviews and focus group discussions were audio recorded and transcribed verbatim. The obtained information was analyzed through a thematic approach with the aim of examining emerging themes and sub-themes within the data. **Findings. Results:** from this study suggest that on one hand, several factors must be in place to sustain water projects in the rural areas, these include: active community participation, trusted and functional governance structures (village water committee), trained and motivated repair and maintenance staff and water user fee contributions. However on the other hand, the findings have revealed that the absence of these factors negatively affects the sustainability of water projects. **Conclusion and recommendation:** Based on the study findings it is suggested that the sustainability of water projects in rural areas is facing a number of challenges. There is a need to adopt a holistic approach in addressing those challenges by involving all key actors from the initial stage of planning, implementation and management. A holistic approach will provide an opportunity for the

donors, policy makers and other implementers to team-up with the beneficiaries of water projects for the purpose of assuring the sustainability.

151. **Innocent HA, Kisinza WN, Mutalemwa PP, Magesa S, Kayombo E. Anti-mosquito plants as an alternative or incremental method for malaria vector control among rural communities of Bagamoyo District, Tanzania. *Journal of ethnobiology and ethnomedicine*.2014; 10(1): 56.**

Background: Plants represent one of the most accessible resources available for mosquito control by communities in Tanzania. However, no documented statistics exist for their contribution in the management of mosquito's and other insects except through verbal and some publications. This study aimed at assessing communities' knowledge, attitudes and practices of using plants as an alternative method for mosquito control among selected communities in a malaria-prone area in Tanzania. **Methods:** Questionnaires were administered to 202 respondents from four villages of Bagamoyo District, Pwani Region, in Tanzania followed by participatory rural appraisal with village health workers. Secondary data collection for plants mentioned by the communities was undertaken using different search engines such as googlescholar, PubMed and NAPRALERT. **Results:** Results showed about 40.3% of respondents used plants to manage insects, including mosquitoes. A broad profile of plants are used, including "mwarobaini" (*Azadirachta indica*) (22.5%), "mtopetope" (*Annona spp*) (20.8%), "mchungwa/mlimau" (*Citrus spp*) (8.3%), "mvumbashi/uvumbati" (*Ocimum spp*) (7.4%), "mkoroshu" (*Anacardium occidentale*) (7.1%), "mwembe" (5.4%) (*Mangifera indica*), "mpera" (4.1%) (*Psidium spp*) and "maganda ya nazi" (4.1%) (*Cocos nucifera*). Majority of respondents collected these plants from the wild (54.2%), farms (28.9%) and/or home gardens (6%). The roles played by these plants in fighting mosquitoes is reflected by the majority that deploy them with or without bed-nets ($p > 0.55$) or insecticidal sprays ($p > 0.22$). Most respondents were aware that mosquitoes transmit malaria (24.3%) with mosquitoes. Most of the ethnobotanical uses mentioned by the communities were consistent with scientific information gathered from the literature, except for *Psidium guajava*, which is reported for the first time in insect control. **Conclusion:** This survey has indicated some knowledge gap among community

members in managing mosquito vectors using plants. The communities need a basic health education and sensitization for effective exploitation of this valuable tool for reducing mosquitoes and associated disease burdens. On the other hand, the government of Tanzania should strengthen advocacy of botanical pesticides development, registration and regulation for public health benefits because they are source of pest control tools people rely on them.

152. **Innocent M. Predictors of Methadone Maintenance Dose for Treatment of Heroin Dependence among Drug Addicts At Muhimbili National Hospital. Master of Pharmacy (Hospital and Clinical Pharmacy) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam**

Background: Methadone dose should be determined on an individual basis, without artificial dose limits, while exercising caution to avoid adverse effects. The key to initiate methadone dose is to start with the low amount and go up until the therapeutic dose is achieved. Several factors have been found to predict methadone maintenance dose (MMD) and may vary from geographical site to another. Identification of such factors could guide the dose escalation strategies (after methadone induction) for a specific group of individuals. **Objective:** The aim of this study was to determine the predictors of methadone maintenance dose for treatment of heroin dependence among drug addicts attending Methadone clinic at Muhimbili National Hospital (MNH). **Methodology:** In a cross sectional study design over a period of eight weeks, 398 patients were administered a questionnaire for social demographic and drug abuse history. For patients on efavirenz based antiretroviral therapy (ART), a single blood sample was taken 24 hours after dose. Information on full blood picture, comprehensive chemistry panel, urine drug screening test, HIV, HVB, HCV and methadone dose were recorded from patients file, MNH data system and pharmacy data base. Continuous variables were described using mean and categorical variables using proportions; Univariate and multivariate regression analysis were used to determine predictors of methadone maintenance dose. Probability (P) of less than 0.05 was considered to be statistically significant. **Results:** The study participants had mean (sd) age of 36.4 (6.8) years and majority were males (89.8%). The study population was characterized by high prevalence of hepatitis C viral infections (52.2%).

Majority of participants (52.8%) had their methadone maintenance dose in the range between 51-120mg. A substantial number of participants (38.8%) required higher MMD (above 121mg). The significant predictors of MMD were gender ($p=0.035$), and residing at Kinondoni District ($p=0.023$). However, the model explained only 5.8% of the variability in MMD. In a subgroup analysis for patients on EFV based ART, the predictors of MMD was efavirenz plasma concentration ($p=0.011$). The median time (Interquartile range) to achieving the MMD was 255 (221 –288) days. Low rate (8.6%) of different adverse events related to methadone use was observed. **Conclusion:** This study has found sex, residence in Kinondoni District and efavirenz plasma concentrations to be significant determinants of methadone maintenance dose; however the model explained only a small percent of variability in the dose.

153. **Innocent RM. Prevalence of Adverse Childhood Experiences and Associated Factors among Clients Attending Methadone Clinic at Mwananyamala, Dar Es Salaam, Tanzania. Master of Medicine (Psychiatry and Mental Health) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam**

Introduction: Adverse childhood experiences (ACE) encompasses all forms of abuse and neglect, and the negative consequences of household dysfunction. There is an abundance of research evidence that ACEs are vastly more common than recognized or acknowledged, and have a powerful relation to a myriad of later adult mental health problems, substance abuse and even physical illnesses. The high prevalence of violence against children as reflected by the VAC study in Tanzania is a serious concern in the context of mental health and substance abuse. Studies conducted in Tanzania to demonstrate the prevalence of adverse childhood experiences among methadone users were not available. **Objective:** To determine the prevalence of adverse childhood experiences and associated factors among clients attending Methadone Assisted Therapy (MAT) at Mwananyamala clinic Study design: This was a hospital based descriptive cross sectional study, using quantitative data collection methods. **Methods:** By convenient sampling technique, 370 participants who met the eligibility criteria and consented were included in this study. A structured questionnaire was administered for

data collection. The questionnaire included information on socio-demographic characteristics, substance use pattern and history of being arrested. It also had the 10 – item ACE questionnaire which was used to detect childhood adversity with a total score ranging from 0 to 10. The 25-items Hopkins Symptom Checklist (HSCL-25) was used to screen for depression (15-items) and anxiety symptoms (10 - items). **Results:** Among 370 participants, the majority were males 72.7% (n=269) while females were 27.3 % (n=101). Their age ranged from 19 to 55 years, with mean age of 33.87± 6.28. Among the respondents, 86.8% (n=321) reported at least one ACE, while 13.2% (n=49) had no adversity. Participants who had an ACE score of 1, had highest proportion 18.4% (n=68) followed by those who scored 2, while those who scored 10 had the lowest proportion 0.3% (n=1). About 41.1% (n=152) of respondents scored at least 4. Females had statistically significant higher proportions of ACEs compared to men with regards to emotional violence (46.5% vs. 30.1%), sexual violence (33.7% vs 10%), emotional neglect (45.5% vs. 29%), separated parents (61.4% vs. 45%) and violence against mother (36.6% vs 23.4%). Compared to participant who had an ACE score of 0, those who scored 2, 3 and more than 4 were 4.1 times, 9.9 times and 25.5 times more likely to screen positive for anxiety symptoms respectively. Also those who scored 3 and more than 4 were 4.7 and 22.6 times more likely to screen positive for depression respectively. Compared to those who scored 0, those who scored 3 and more than 4, were 3.3 and 3.7 times more likely to smoke cigarette within 30 days prior to interview respectively.

Conclusion and Recommendation: The study found that a large proportion of clients on methadone program had experienced childhood adversities, and that women are more vulnerable to childhood adversities. The study also found that among the respondents an increase in ACE score was associated with increased likelihood of having anxiety symptoms, depressive symptoms and cigarette smoking. From the results there is a need for the government to strengthen and implement policies aiming at protecting children from all types of childhood adversities. Parenting skills training and awareness education on the impact of ACE should be widely disseminated so as to protect children from being exposed to traumatic experiences. There is a need of addressing trauma related issues among clients on methadone treatment as it may impart recovery and adherence to the methadone assisted therapy. The large number of clients who smoke cigarettes in this

study, recommends a need for integrating smoking cessation programs at the methadone clinics.

154. **Isaya D. Cigarette Smoking Prevalence, Intention to Quit and Associated Factors in Kinondoni, Dar es Salaam. Master of Public Health Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: Cigarette smoking is the biggest avoidable cause of death and disability globally. It is estimated that there are about 1.3 billion tobacco smokers worldwide where by about half of them will die prematurely due to smoking. Deaths from smoking are projected to increase to more than 10 million a year by the years 2030 by which time 70% of these deaths will be in the developing countries including Tanzania. While the prevalence of smoking is decreasing in the developed world, there has been a continuous rise of smoking prevalence in the developing countries. If the present smokers are not assisted to quit, about 450 million would die by 2050. While developed countries are investing into cessation programs, quitting in the developing countries is rare. **Aim of the study:** The aim of the study was to determine the smoking prevalence, intention of the current smokers to quit smoking and the factors associated with the decision to quit or not to quit smoking. **Materials and methods:** A descriptive cross sectional study was conducted at Kinondoni district in Dar es Salaam where by a geographically clustered multistage sampling methodology was used to select participants from households. A semi-structured questionnaire was used to collect data from one member randomly selected from each household in the picked divisions found at Kinondoni municipal in Dar es Salaam. Analysis was done using SPSS computer software; Chi-square tests were done to explain the association between cigarette smoking, intention to quit smoking and other socio demographic factors. **Results:** 379 respondents were interviewed, the prevalence of smoking was found to be 27.9% among men and 3.5% among women. About 90% of these smokers were either planning or thinking about quitting someday. Knowledge that smoking is dangerous to health was the factor mostly associated to quitting. Only 15% of the respondents had high nicotine dependence. **Conclusion and recommendations:** The prevalence of smoking in this district is higher than the WHO regional prevalence; majority of these smokers would like to quit smoking although they

do not know how. Understanding that smoking is dangerous to their health is the major reason why they will quit. Collective effort is required to educate people on the methods and options to take when one is considering quitting;smoking cessation program an immediate requirement.

155. **Iqbal M, Shafiq M, Choi JG, Attaullah H, Akram K, Wang X. Design and Analysis of a Novel Hybrid Wireless Mesh Network Routing Protocol. International Journal of Adaptive, Resilient and Autonomic Systems (IJARAS). 2014; 5(3): 20-39.**

Wireless mesh network (WMN) operates both in infrastructure and ad-hoc mode. It provides extended network coverage based on heterogeneous wireless technologies through multi-hop communications. In WMNs, the routing mechanisms and network organization need to be improved so that optimal path discovery or different protocols adaptability can be achieved. Hybrid routing is a demanding issue to be discussed these days as need of higher mobility management in the diverse situations and environments. It's required to improve the older schemes for higher data rate and minimum energy consumptions. The proposed work presents a design of a novel routing algorithm for optimal route discovery, congestion reduction, dynamic route selection and scalability in hybrid mesh networks. The authors have focused on Hybrid Routing Protocols to originate a novel routing scheme based on AODV (Ad hoc On-Demand Distance Vector routing protocol) in Ad-Hoc level with clustering scheme and DSDV (Destination Sequence Distance Vector) as proactive routing protocol in Backbone Mesh Router Level to form a new hybrid routing protocol. In this work a Novel Hybrid Distance Vector (NHDV) routing protocol algorithm has been introduced, which is the combination of DSDV (Destination Sequence Distance Vector) and AODV routing protocols. A clustering scheme with the combination of two efficient clustering schemes for Ad-hoc mesh client levels is discussed in detail and a performance metric for DSDV is also discussed which ETX (Expected Transmission Count) is for measuring packet loss ratio at each link for higher throughput. A new performance metric introduced in AODV as Mesh Router Count is used to improve the performance of communication to the Mesh

Routers. The proposed work is the design of new algorithm that presents an optimal solution in bringing out a revolutionary change to Hybrid Routing.

156. **Isaack M. Incidental Prostate Cancer and Associated Factors after Prostatectomy for Benign Prostatic Hyperplasia at Muhimbili National Hospital. Master of Medicine (Urology) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Introduction: Prostate cancer is the most common malignant tumour in ageing men. It may co exist with benign prostatic hyperplasia in some patients presenting with bladder outlet obstruction symptoms. Since many of BPH patients are going to be surgically treated by transurethral resection of the prostate (TURP) or open prostatectomy to relieve bladder outlet obstruction, a significant rate of carcinoma is expected to be found incidentally during surgical specimen analysis. Incidental carcinoma of the prostate is defined as a clinically unapparent/undetectable tumour, neither palpable nor visible by imaging in patients with normal PSA, discovered after histological examination of the specimen obtained by open prostatectomy or transurethral resection of the prostate. **Objectives:** To determine the Incidence of incidental prostate carcinoma and associated factors among benign prostate hyperplasia (BPH) patients operated at Muhimbili National Hospital. **Methodology:** This was a Hospital – based descriptive cross-sectional study conducted at Muhimbili National Hospital from March 2013 to January 2014. Prostate surgical specimens from open prostatectomy and TURP were histologically analysed. Prevalence of incidental prostate carcinoma was determined, its association with variable factors was established and comparison to those with benign prostate hyperplasia was done using statistical tests. The variables analyzed were patient's age, preoperative PSA and PSA density, prostate volume, and postoperative prostate specimen histology results. **Results:** A hundred and one patients were enrolled during the study period, Eight (7.9%) were found to have prostate cancer as an incidental finding in surgical specimens histological analysis. Six were from the TURP group (75%) compared to 2 (25%) from open prostatectomy group. The mean age of patients with prostate cancer was 13 years older than patients with BPH, (Mean age 82.75 ± 6.04 compared to 69.10 ± 10.07). Pre-operative PSA and PSA density were not statistically related to

finding of incidental prostate cancer. (P-value 0.317 and 0.876 respectively)**Conclusion:** Advanced age represents an important risk factor for the diagnosis of an ICP. Incidental prostate cancer may appear even in patients with normal preoperative serum PSA and PSA density rendering PSA an unreliable marker to detect incidental carcinoma of the prostate.

157. **Isaka HJI. Incidence Of Postoperative Nausea And Vomiting And Associated Risk Factors Among Patients Undergoing Elective Surgery At Muhimbili National Hospital, Dar Es Salaam, Tanzania. Master of Medicine (General Surgery) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: Postoperative nausea and vomiting (PONV) are among the most common adverse events related to surgery and anesthesia. Despite of modern an aesthetic and surgical technique the incidence PONV remains at 20% to 40% and it arises from multiple causes in the postoperative period (1). Risk factors associated with PONV have been identified in many studies done worldwide and a risk score has been developed based on these factors for the occurrence of PONV. Risk factors associated with the occurrence of PONV are female gender, non smoking status, history of motion sickness or previous history PONV and use of opioids postoperatively. Despite being a common problem after surgery, no studies have been done in MNH to describe the incidence and risk factors associated with postoperative nausea and vomiting. This study was therefore aimed at establishing the incidence and factors associated with PONV among patients scheduled for elective general surgery at Muhimbili National Hospital (MNH) based on the proposed risk factors by Apfels et al.**Methodology:**The descriptive prospective study that was conducted at MNH, which is the National referral hospital receiving patients from districts and regional hospitals within the country.A total sample of 404patients who had undergone elective surgeries under general and spinal anesthesia in the department of surgery was studied during the study period. The study was conducted from July 2013 to February 2014.Result: From July 2013 to Feb. 2014, a total of 404 patients who met the inclusion criteria and underwent surgical procedure under general and spinal anesthesia were studied (table; 1).Male patients were 207(51.2%) and female patient were197

(48.8%). Post operative nausea 24 hours later after surgery was reported by 70 patients (17.3%). Women were affected more than men (25.4% vs. 9.7%, $p < 0.001$). However, 36 patients (8.9%) vomited with women having more episodes than men (13.2% vs. 4.8%, $p < 0.003$). Patients with BMI higher than 25 had higher incidence of postoperative nausea and vomiting (PONV) (6.71% vs. 1.5%, $P < 0.002$). Patients whose surgical procedures were done in less than one hour had a lower incidence of PONV than those which were done in more than one hour ($p < 0.021$). Conclusion: The incidence of PONV was significantly lower than generally presumed and this might be due to an inherent ethnic/racial variation. The Female gender, BMI, ASA classification, type of anesthesia and duration of operation have shown association with risk of nausea but only BMI and type of anesthesia have association with vomiting 24 hrs after surgery. The findings of this study indicate that the risk of developing PONV is multifactorial. Risk factors for PONV can be described as those related to the patient, the surgical procedure, the anesthesia and the postoperative period.

- 158. Ismail A, Cheong LY, Yahya N, Tammam M. Descriptions of carbon isotopes within the energy density functional theory. In 3rd International Conference On Fundamental And Applied Sciences (ICFAS 2014): Innovative Research in *Applied Sciences for a Sustainable Future*. 2014; 1621:192-196).**

Within the energy density functional (EDF) theory, the structure properties of Carbon isotopes are systematically studied. The shell model calculations are done for both even-A and odd-A nuclei, to study the structure of rich-neutron Carbon isotopes. The EDF theory indicates the single-neutron halo structures in ^{15}C , ^{17}C and ^{19}C , and the two-neutron halo structures in ^{16}C and ^{22}C nuclei. It is also found that close to the neutron drip-line, there exist amazing increase in the neutron radii and decrease on the binding energies BE, which are tightly related with the blocking effect and correspondingly the blocking effect plays a significant role in the shell model configurations.

159. **Ithnin A, Yahya N, Halim AA. Effect of Dust Level towards Working Comfort among Employees in Train Depot. *World Applied Sciences Journal*. 2014; 29(8): 994-999.**

A research was conducted at a locomotive depot from the month of August 2009 until April 2010. The air quality was measured at seven sampling stations using HVS and analyzed using the NMAM 7300, HACH DR 2800 method. The level of comfort among 64 workers was determined by issuing some questionnaire forms. The air pollutants that studied were heavy metals, cation and anion. Results from the research showed that the highest content of heavy metals was arsenic with an average concentration of 2.152 ± 0.352 g/m³, followed by plumbum with 1.127 ± 0.138 µg/m³ and cadmium with 0.371 ± 0.467 µg/m³. Heavy metals have been produced from the released smoke from motor vehicles and most of them exist in lubricating oil. Whereas for the cations parameter, Ca²⁺ ion recorded the highest average concentration 51.119 ± 29.154 µg/m³ followed by Al³⁺ ion (18.104 ± 23.183 µg/m³), K⁺ ion (10.316 ± 2.316 µg/m³) and Mg²⁺ ion (2.969 ± 0.446 µg/m³). The highest composition of anion is NO₃ ion with an average concentration of 0.068 ± 0.006 µg/m³ followed by SO₄ ion- 3 2- (0.058 ± 0.004 µg/m³). Cations and anions are produced due to the fact that these elements reside abundant in the earth's crust and are polluted as a result of the exposure to the air of the outer surface. The highest average concentration of the total suspended particles was 0.694 ± 0.953 µg/m³ whereby this value did not exceed the permissible exposure limit. Overall, the parameters are all below the permissible exposure limit and the questionnaire showed that as much as 56.25% of the workers stated they were comfortable. As a conclusion, the condition of the working environment that was unpolluted with dust provided comfort or convenience of working.

160. **Jabbour E, Kantarjian HM, Saglio G, Steegmann JL, Shah NP, Boqué C, Hochhaus A Early response with dasatinib or imatinib in chronic myeloid leukemia: 3-year follow-up from a randomized phase 3 trial (DASISION). *Blood*. 2014; 123(4): 494-500.**

This analysis explores the impact of early cytogenetic and molecular responses on the outcomes of patients with chronic myeloid leukemia in chronic phase (CML-CP) in the

phase 3 DASatinib versus Imatinib Study In treatment-Naive CML patients trial with a minimum follow-up of 3 years. Patients with newly diagnosed CML-CP were randomized to receive 100 mg dasatinib (n = 259) or 400 mg imatinib (n = 260) once daily. The retrospective landmark analysis included patients evaluable at the relevant time point (3, 6, or 12 months). Median time to complete cytogenetic response was 3 vs 6 months with dasatinib vs imatinib. At 3 and 6 months, the proportion of patients with BCR-ABL transcript levels $\leq 10\%$ was higher in the dasatinib arm. Deeper responses at 3, 6, and 12 months were observed in a higher proportion of patients on dasatinib therapy and were associated with better 3-year progression-free survival and overall survival in both arms. First-line dasatinib resulted in faster and deeper responses compared with imatinib. The achievement of an early molecular response was predictive of improved progression-free survival and overall survival, supporting new milestones for optimal response in patients with early CML-CP treated with tyrosine kinase inhibitors.

161. **Jalil RMA, Yahya N, Sulaiman O, Mat WRW, Teo R, Izaham A, Rahman RA. Comparing the effectiveness of ropivacaine 0.5% versus ropivacaine 0.2% for transabdominis plane block in providing postoperative analgesia after appendectomy. Acta Anaesthesiologica Taiwanica. 2014; 52(2): 49-53.**

Objective: The basis for the transversus abdominis plane (TAP) block involves infiltration of a local anesthetic into the neurofascial plane between the internal oblique and the transversus abdominis muscles, causing a regional block that spreads between the L1 and T10 dermatomes. Thus, the TAP block is said to be suitable for lower abdominal surgery. This study was designed to compare the analgesic efficacy of two different concentrations of ropivacaine for TAP block in patients undergoing appendectomy. **Methods:** Fifty-six patients with American Society of Anesthesiologists physical status I or II, aged 18 years and above, undergoing appendectomy were recruited in this prospective, randomized, double-blind study. They were divided into two groups: Group A patients who received 0.5 mL/kg of ropivacaine 0.5% and Group B patients who received 0.5 mL/kg of ropivacaine 0.2% via TAP block under ultrasound guidance. Postoperative pain was assessed using the visual analog scale upon arrival at the recovery room in the operating theatre, just prior to being discharged to the ward, and at 6 hours,

12 hours, 18 hours, and 24 hours postoperatively to compare the effectiveness of analgesia. **Results:** Intraoperatively, patients in Group B required a significantly greater amount of additional intravenous fentanyl than those in Group A. There were no significant statistical differences in pain scores at rest and on movement at all assessment times as well as in the dose of 24-hour intravenous morphine consumption given via patient-controlled analgesia postoperatively between the two groups. **Conclusion:** The effectiveness of two different concentrations of ropivacaine (0.5% versus 0.2%) given via TAP block was comparable in providing postoperative analgesia for patients undergoing appendectomy.

162. Janabi M, Pollock CM, Chacko AM, Hunter DH. Resin-supported arylstannanes as precursors for radiolabeling with iodine: benzaldehydes, benzoic acids, benzamides, and NHS esters. Canadian Journal of Chemistry. 2014; 93(999): 1-11.

A highly cross-linked polystyrene resin bearing a reactive chlorostannane moiety **1** has been used to generate a variety of arylstannane radiopharmaceutical precursors for no-carrier-added radioiodination. The resins were characterized for their solvent compatibility and sensitivity to acid cleavage. Resin-supported arylstannanes synthesized via their aryllithium analogues include 3- and 4-stannylbenzaldehydes, 3- and 4-stannylbenzoic acids, and 3- and 4-N-succinimidyl benzoates. A three-step route to the resin-supported stannylbenzoic acids **12a/b** was developed through resin-supported benzaldehydes **11a/b**. The aldehyde to acid conversion efficiency is >90%, and acid loading capacities of 0.66–0.94 mmol/g were obtained. Resin-supported N-succinimidyl benzoates **16a/b** were prepared from the acid with 78%–84% conversion efficiency. Libraries of resin-supported benzamides **19a/b** prepared from amine conjugation to corresponding benzoic acids or N-succinimidyl benzoates are described. A third approach describes the preparation of resin-supported benzamides via direct conjugation of the dilithio salt of the intact benzamide to the chlorostannane resin **1**. Lastly, as proof-of-principle, a radiolabeling study with iodine-131 (¹³¹I) was performed with a resin-supported benzamide to afford the corresponding radioligand in moderate yields, and high radiochemical purity.

163. **Janet LM. Complications And Precipitating Factors Among Patients With Rheumatic Heart Disease Admitted At Muhimbili National Hospital, Dar es Salaam. Master of Medicine (Internal Medicine) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: Rheumatic Heart Disease (RHD) is the most common acquired heart disease in children and young adults in many countries of the world especially in developing countries. Acute rheumatic fever primarily affects the heart, joints and central nervous system, and may lead to crippling valvular heart disease. RHD has been associated with complications including heart failure, cardiac hemolytic anemia, arrhythmias especially atrial fibrillation, systemic embolization, pulmonary hypertension and death. Possible precipitating factors for complications in patient with RHD include lack of secondary chemoprophylaxis against RF, recurrent rheumatic fever, infections e.g. UTI, pneumonia and malaria. This study provided information on the complications and likely precipitating factors among RHD patients admitted at MNH. **Objective:** To assess the complications and their possible precipitating factors among patients admitted with RHD at Muhimbili National Hospital (MNH). **Methods:** This was a descriptive, hospital-based cross sectional study. 130 consecutive patients who satisfied the inclusion criteria were recruited over a period of 6 months from June 2013 to Dec 2014 at the Muhimbili National Hospital (Mwaisela and cardiac centre). Data on demographic characteristics, history, and clinical examination was collected by means of a structured questionnaire. All patients had ECG, CXR and echocardiography. Blood tests included hemoglobin, WBC, ESR, serum creatinine and BUN, ASOT, blood culture (where indicated and whenever blood culture bottles were available). **Results:** Among 130 patients recruited into the study 63.1% were females. The peak age of the study group was 19– 28years. The common presenting symptoms were of heart failure, palpitations, and chest pain. The most common complications detected clinically and at echocardiography included heart failure in 63.1% and pulmonary hypertension in 70.5%. In descending order other complications included arrhythmias in 49.2 %, (atrial fibrillation in 38.5%), infective endocarditic in 17.2%, pericardial effusion in 12.6%, cerebrovascular events 10.7%, and thrombus in 2.5%. Among the most common possible

precipitating factors were lack of secondary chemoprophylaxis against ARF in 58.6%, anemia in 48.5%, followed by overcrowding in 47%, UTI in 30.7%, recurrent ARF in 17%, pneumonia in 11.5% and malaria in 8.5%. Most of the patients had multiple valve involvement.**Conclusion:** The proportion of complications among admitted RHD patients were high. Most of the patients were young female students. The common complications detected were PHTN 70.5 % (n=84) and CHF 63.1% (n=82) and the least was thrombus in 2.5 % (n=3). Most of the patients with complications had mixed valvular lesions. The principal precipitating factor for complications detected by this study was lack of secondary chemoprophylaxis against rheumatic fever.

164. **Japhet C. Treatment Outcomes Of Patients With Peritonitis Managed At Muhimbili National Hospital Dar Es Salaam, Tanzania. Master of Medicine (General Surgery) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: Peritonitis refers to inflammation of serosal membrane that lines the abdominal cavity and organs contained therein. Often it is due to introduction of infection into an otherwise sterile peritoneal cavity but also due to spillage of irritative chemicals such as bile from perforated gall bladder. It is an emergency that needs surgical intervention with high mortality when delayed. Mannheim peritonitis index (MPI) can be used to predict outcomes in patients presenting with peritonitis.**Methods:** The study population consisted of 134 patients with peritonitis treated in the surgical wards of Muhimbili National Hospital for a period of nine months. Patients were enrolled into the study after signing consent for participation. A questionnaire was filled for all patients registered during the study period. Socio-demographic, clinical, investigation results, management and its outcome were recorded and analyzed using SPSS software programs. Pearson's Chi-square was used as a statistical test and considered significant if p value was equal or less than 0.05.**Results:** There was a male predominance of 67.2%. The mean age was 31.28 years with a range from 4-81 years and prevalence of HIV infection was 19.4%. The overall mortality was 17.9% and complication rate of 52.2%. The mean MPI score was 26.84 where the lowest score was 8 and highest 38 with 38.8% of patients having scores of more than 29. There was significant difference in terms of mortality,

complications and hospital stay among patients with different MPI scores. There was no death recorded among patients with MPI score of less than 21 while 38.5 percent of those with MPI scores of more than 29 died. Incidence of complications was higher at 86.5% for patients with MPI scores of more than 29 compared to 14.3% of those with MPI scores of less than 21. Patients with higher MPI scores had a longer hospital stay compared to those with lower scores and mean hospital stay for survivors was 12.4 days compared to 16.1 days of non survivors ($p=0.028$) **Conclusion:** Majority of patients treated at MNH have severe peritonitis with a high mortality rate, high complications rate and prolonged hospital stay. Patients with higher MPI scores i.e. scores above 26 had worse treatment outcomes as compared to those with MPI scores of up to 26. The practice of damage control surgery, post surgery ventilation in ICU setting and second look opportunity especially to patients with severe peritonitis i.e. MPI score of above 26 should be studied in order to minimize common complications contributing to profound morbidity and mortality.

165. **James LM. Sonographic Patterns among Adults with Obstructive Uropathy Attending Muhimbili National Hospital. Master of Medicine (Radiology) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam**

Background: Obstructive uropathy is a global health problem with potential morbidity and mortality among the adult population. In Tanzania no significant data is available currently to document the epidemiology of the problem. Obstructive uropathy has a potential to cause end stage renal disease (ESRD). **Objectives:** The study aimed to assess the sonographic patterns among adults with obstructive uropathy attending Muhimbili National Hospital (MNH). **Methodology:** This was a cross-sectional hospital based study; patients referred to the ultrasound unit were randomly recruited, scanned and the findings were evaluated to assess emerging patterns and relationships between components of obstructive uropathy were determined. **Results:** A total of 119 eligible adults were recruited, majority were males (72.3% vs 27.7%). Prevalence of sonographically detected urinary obstruction was 97.5%. Majority of males presented with a symptom of inability to urinate compared to females as seen in (93.2% vs 6.8%,

p=0.000), weak stream was also a predominantly male symptom as seen in (87.3% vs 12.7%, p=0.000). Females were slightly more affected than males and had higher prevalence of hydronephrosis (97% vs 45.3%, p=0.000). Grade 3 hydronephrosis was the most prevalent (p=0.049) grade in both sexes. Among patients with calculus disease few had detectable obstruction (90.0% vs 99.0%, p=0.019). Ureteric calculi were the most detected stone types 9(100.0%, p=0.616) however it was only urinary bladder calculi that showed strong association with obstruction (66.7% vs 99.1%, p=0.000). Presence of the genitourinary mass was strongly associated with hydronephrosis. Prevalence of hydronephrosis was higher among adults with the mass compared to the same who did not have (84.0% vs 45.3%, p=0.001). Carcinoma of cervix and urinary bladder mass were the commonest lesions seen in 17(100%) and 24 (100%) respectively. Prostate enlargement was more prevalent in those above 60 years (67.8% vs 63% p=0.001), and size was statistically significantly related to hydronephrosis (35.6% vs 66.7%, p=0.026). Bladder outlet was observed to be the most affected site amongst those with chronic obstruction (78.6% vs 21.4%, p=0.049) and was observed more in males (75.6% vs 15.2%, p= 0.000), with majority of these detected to have an enlarged prostate (89.8% vs 44.4%, p=0.000). Chronicity of urinary obstruction was strongly associated with presence of hydronephrosis (64% vs 36.7%, p= 0.001) and there was weak association with bladder outlet obstruction (p=0.049). Renal cortical echogenicity pattern showed very strong association with age, it was most severe in the age group (18-25 years) of highest urinary obstruction prevalence (p=0.000). **Conclusion:** Obstructive uropathy is still a disease with significant public health importance. Females were slightly more affected and sonographic positive findings for obstruction were prevalent in 97.5% of the study participants. Commonest causes of urinary obstruction were carcinoma of cervix, urinary bladder mass and benign prostatic enlargement (BPH). Presence of the genitourinary mass was strongly associated with hydronephrosis. Most affected site was the urinary bladder outlet seen more in males. Among all calculi types seen bladder stones were strongly associated with urinary obstruction. Grade of hydronephrosis was associated with obstructive genitourinary mass, prostatic size and duration of urinary obstruction. Duration had positive correlation with urinary bladder outlet obstruction, BOO had strong association with prostatic enlargement with significant preponderance of lower

urinary tract symptoms (LUTS). **Recommendations:** A much wider community based study is needed to evaluate the scale of the urinary obstruction with focus on women as data from this study showed a higher prevalence of obstructive uropathy among them. Ultrasound should be used as a primary modality in evaluation of patterns of urinary obstruction among hospital based patients. Need exists for all patients with urinary obstruction especially males to be evaluated for degree of bladder outlet obstruction and bladder calculi presence.

166. **Jennifer R. Prevalence Of Violence And Associated Factors Among People Who Inject Drugs Attending Medically Assisted Therapy Clinic At Muhimbili National Hospital, Dar es Salaam. Masters of Medicine (Psychiatry and Mental Health) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam**

Background: Violence and illicit drug use are major public health challenges that are strongly linked. Involvement in drug use can increase the risks of being both a victim and or perpetrator of violence while experiencing violence can increase the risk of initiating illicit drug use. Debate continues as to whether the relationship between drugs and violence is causal or an association, with the two being linked through shared risk factors. The impacts of drug-related interpersonal violence can be substantial, damaging individuals' health and the cohesion and development of communities, whilst also shifting resources from other priorities, particularly within health and criminal justice services. **Objective:** To determine the prevalence of violence and associated factors among People Who Inject Drugs (PWIDs) attending Medically Assisted Therapy (MAT) clinic at Muhimbili National Hospital (MNH). Study site and Design: A descriptive cross-sectional study which was conducted between November 2013 through February, 2014 at MAT Clinic, MNH, Dar Es Salaam, Tanzania. **Method:** Researcher administered questionnaire was used to collect information from 400 clients attending MAT clinic at MNH. Sociodemographic information of participants were inquired using a structured questionnaire designed by the researcher while participants' HIV risk behaviors were assessed using questions adopted from Tanzania Demographic Health Survey (TDHS). History of violence in the past one year was assessed by using the Conflict Tactics Scale

II. Bivariate and multivariate analyses were done. A p value of less than 0.05 was considered to be statistically significant. An odds ratio of less than 1 was seen as protective and an odds ratio of greater than 1 was seen as a risk factor. **Results:** The study sample comprised of 400 participants, 363(90.75%) being males, and overall mean age was 33.0 with age range of 18 to 53 years. The prevalence of violence in the last one year was 87.3%. In bivariate analysis, there was a significant association between violence and sex of the participants (p value=0.01), violence and trading for sex (p value=0.005), violence and number of sex partners (p value=0.01) and violence and syringe sharing/‘vijipointi’ practice (p value=0.001). In adjusted multivariate models violence was found to be associated with syringe sharing/‘vijipionti’ practice (Adjusted OR 4.77, 95% CI 2.15-10.57; p<0.001). **Conclusion and Recommendations:** Violence among PWIDs attending MAT clinic at MNH is common. Majority of participants have experienced violence in the past one year. Violence is more prevalent to those below the age of 30 years and those who never went to school. There is a need to implement routine screening for violence among clients attending MAT clinic at MNH.

167. **Jirabi M. Prescribing and Administration of Non-Formulary Medicines to Children Less Than Five Years of Age in Public Hospitals of Dar es Salaam Regio. Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: Lack of medicines for children is a global concern which has greatly affected developing countries. This has encouraged unapproved non-formulary medicine uses in children, and may have led to unexpected events. Furthermore, the lack of information on the use and effects of medicines in paediatric populations has contributed to medication errors.**Objective:** To assess use of non-formulary medicines in children less than five years of age, determine availability of child specific dosage form medicines in public hospitals, assess attitude and practice of health workers on use of non-formulary medicines in treatment of under-five children, determine problems associated with use of non-formulary medicines and assessment of factors influencing use of medicine as non-formulary in the treatment of common diseases in under-five children were assessed in four public hospitals of Dar es Salaam region.**Methods:** This was a cross sectional

descriptive survey study which was conducted between December 2013 and April 2014 in public hospitals of Dar es Salaam region. A total of four public hospitals were conveniently selected from Dar-es Salaam region, from which availability was determined using checklist and inventory document review. Fifty six health workers were interviewed using questionnaires to assess attitude, practice, problems and factors influencing use of medicines as non-formulary. A total of 430 patient files were reviewed to determine proportion of non-formulary medicine used in under-five children. **Results:** The availability of child specific dosage form medicines in public hospitals surveyed had a mean average of 36%. A variation of availability among public hospitals surveyed was noted ranging from 26% to 49%, with Muhimbili national hospital having relatively high availability (49%) of child specific dosage form medicines, while Temeke hospital had low availability (26%). The average number of stock out days per year of child specific dosage form tracer medicines was low for Muhimbili national hospital (129.2 days) indicating relatively good availability, while for Temeke hospital it was high (236.6 days), indicating poor availability. Proportion of medicines used as non-formulary in treatment of child hood illnesses was 82.8%. The use of antibiotics as non-formulary was found to be (41%) as compared to other groups while use of injections as non-formulary dosage form (51.3%) was higher than other dosage forms. Attitude of prescriber's towards use of non-formulary medicines in treatment of children under-five years of age showed strong association with $p < 0.05$. Prescribers showed positive attitude towards use of medicines as non-formulary. Pharmaceutical personnel as a profession showed strong association with attitude on use of non-formulary medicines in treatment of under-five children, $p < 0.05$. Prescribers and Pharmaceutical personnel as professions showed strong association with the practice of using non-formulary medicines in treatment of under-five children $p < 0.05$. Lack of child specific dosage form medicines and instability of paediatric formulations were major factors influencing use of medicines as non-formulary in treatment of paediatric patients in public hospitals. **Conclusion:** Variation in availability of child specific dosage form medicines in the public hospitals surveyed was noted and generally it was poor. Use of adult dosage form medicines in treatment of children younger than five years was very high. Use of antibiotics and injections as non-formulary was very high in all public hospitals surveyed. Prescribers and pharmaceutical

personnel had a positive attitude towards use of non-formulary medicines while nurses showed a negative attitude. Factors influencing use of medicines as non-formulary in treatment of childhood illnesses includes unavailability of child specific dosage form medicines, higher medicines prices and stability problems of extemporaneous paediatric formulations.

168. **Joachim A, Bauer A, Joseph S, Geldmacher C, Nilsson C, Munseri P, Cormack SM. Immune Responses after Two Immunizations with rgp140/GLA Following Priming with HIV-DNA and HIV-MVA in Healthy Tanzanian Volunteers. *AIDS research and human retroviruses*. 30(S1): A188-A189.**

Background: We evaluated the effects of two adjuvanted clade C Env protein immunizations after multi-clade HIV-DNA and HIV-MVA priming in healthy Tanzanian volunteers. The DNA included a plasmid encoding Clade C Env. **Methods:** Thirty-five volunteers primed three times with HIVDNA encoding HIV-1 subtypes A, B, and C and boosted twice with MVA CMDR expressing CRF01_AE were further boosted with two doses of trimeric CN54rgp140 subtype C adjuvanted with GLA-AF (IDRI; rgp140/GLA). Five placebo recipients received the same immunizations with rgp140/GLA. Antibody (Ab)- and cell-mediated immune responses were assessed. **Results:** Boosting DNA/MVA vaccine recipients (n = 35) twice with rgp140/GLA increased median anti-CN54gp140 IgG titers considerably from 900 to 24300 (p < 0.0001). After rgp140/GLA boosts DNA/MVA vaccines had higher median rgp140 IgG titers (24300) compared to placebo recipients (2700, p = 0.0316) and those with elevated titers of \geq 900 after the DNA/MVA prime had higher titers after the first (p = 0.0009) and second rgp140/GLA boost (p = 0.0449). No significant increase in neutralizing antibody activity was seen in an infectious molecular clone (IMC)/ PBMC assay against GS015 subtype C or CM235 CRF01_AE after the second rgp140/GLA. Only one vaccinee developed antibody-dependent cellular cytotoxicity-Ab to HIV 1086 subtype CIMC after two rgp140/GLA vaccinations. The IFN-g ELISpot response rate to Env increased from 29.4% (10/34) at the time of the first rgp140/GLA to 68.6% (24/35) after the second. **Conclusions:** DNA/MVA priming had a significant effect on anti-CN54gp140 IgG responses after boosting with rgp140/ GLA. Immunization with rgp140/GLA enhanced binding Ab

responses and cell-mediated immune responses in HIV-DNA/MVA-primed Tanzanian vaccines, but no significant increase in functional humoral responses could be detected.

- 169. Joachim A, Schwarz L, Hinney B, Ruttkowski B, Vogl C, Mundt HC. Which factors influence the outcome of experimental infection with *Cystoisospora Sui*? *Parasitology research*. 2014; 113(5): 1863-1873.**

For reliable predictions of clinical and parasitological outcome of experimental infections with parasites, different models must be evaluated for possible influences of infection time point, infection dose and host-specific parameters such as breed or litter size. To address these issues for *Cystoisospora* (syn. *Isospora*) suis, the causative agent of porcine neonatal coccidiosis, 181 piglets from 90 litters (hybrid crosses of different breeds) were included in a retrospective study to evaluate differences in time point and dose of infection in four different experimental models ((1) 1,500 oocysts on the 4th day of life, d.o.l.; (2) 1,000 oocysts, 4th d.o.l.; (3) 1,000 oocysts, 1st d.o.l.; (4) 5,000 oocysts, 4th d.o.l.). The target variables body weight gain, faecal consistency and oocyst excretion were evaluated during the acute phase of infection (5–10 days post infection), and the influences of the dependent variables breed or litter size were estimated. Despite differences in the time course of excretion and faecal consistency, neither the average amount of excretion nor the average faecal consistency differed among models, breeds or litters of different size. High individual variability was seen in all four models as described earlier for higher infection doses. When infections on the 1st vs. 4th day of life were compared, no differences in averages could be found, in contrast to previous observations on the influence of age. Other, not yet defined, variables appear to have a greater impact on the outcome of infection than doses and time points in the tested range, despite the reliable outcome of infection with high excretion rates and signs of clinical disease.

- 170. Joachim J. Effect Of Sexual And Reproductive Health Education Intervention On Peer To Peer Sexual Health Communication among Primary School Adolescents Age 12-14 In Kinondoni Municipal, Dar-Es-Salaam. Master of**

Public Health of Muhimbili University *Dissertation* 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.

Background: Sub-Saharan Africa still bears the largest burden of HIV and other Sexually Transmitted Infections (STIs) with youth below 24 years continuing being at the highest risk of infections. This group contributes the large proportion of new HIV infections, with 80% occurring in sub-Saharan Africa. There is more call for innovative and effective interventions for primary preventions. A school-based sexual behavioral intervention named PREPARE was developed to effectively promote healthy sexual and reproductive health practices among primary school adolescents in Dar es Salaam Tanzania. This innovative best practice intervention included classroom teaching, peer led education sessions and strengthening linkages between schools and youth friendly services. **Objective:** This study sought to assess the effect of PREPARE intervention on peer to peer sexual health communication among school children aged 12-14 in Dar es Salaam. **Methods:** A cluster-randomized controlled trial, involving 38, 19 intervention and 19 delayed intervention) primary schools in Dar es Salaam was conducted. Using the same standardized questionnaire, data was collected at baseline and at 6 months follow-up after intervention. **Analysis plan;** Data was analyzed using STATA 12. Frequency was run for categorical variables and comparison between proportions was done using the Chi-square test. Continuous variables were summarized using means and standard deviations and comparison between means was done using t-test. Change in the mean peer to peer communication scale was examined using the extended generalized estimating equation model controlling for dependence of measurement resulting from repeated measure. All analysis was two tailed and significance level was set at 5% level. **Results:** A total of 5099 adolescents completed the survey at baseline. Female participants constituted 49.40% (n= 2488) of all adolescents in the study. The mean age at baseline was 12.4 years with standard deviation (SD) of 0.6. Results of the study shows that male adolescents were significantly older compared to female adolescents (12.51 years (0.7) versus 12.3 years (0.5) (p = 0.000). Same population was followed up after six months. PREPARE intervention was found to have a positive effect in increasing likelihood of peer to peer communication in the intervention group as compared to the control group by 32% When this was controlled for age of the adolescent, class and

gender, adolescents from the intervention schools were 38% more likely to communicate as compared to those from the control group (ARR=1.38, 95%CI: 1.25-1.52, p=0.01) The adjusted determinants for independent predictors of change in peer to peer communication showed that, the intervention had a positive effect among peers with high self-efficacy (ARR2.75, 95%CI:2.56- 2.97; p <0.001) also among peers who communicated with friends and parents(ARR=3.35, 95% CI 2.92- 3.85 ; p<0.001) and (ARR=1.716 95%CI: 1.49-1.96; p<0.001) respectively. Adolescents with high HIV knowledge were more likely to communicate to their peers. (ARR=1.69, 95%CI:1.39-1.95; p <0.001). **Conclusion:** PREP ARE intervention was found to have a positive effect on peer to peer communication and the intervention seems to be more effective among students who were communicates with their friends and parents, who had a good self-efficacy and knowledge on HIV. Ongoing efforts to improve adolescent HIV knowledge needs to incorporate training that will improve self-efficacy with an emphasis on parental communication. Acceptability and flexibility that we observed during the implementation of the intervention, makes PREP ARE a commendable sexual and reproductive health education intervention in primary school settings in Tanzania.

171. **John M. Evaluation of the Performance of Direct Delivery Integrated Logistic System in Lindi Region- Tanzania. Master of Science (Pharmaceutical Management) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: In 2002, the MOHSW introduced the Integrated Logistics System (ILS) in Tanzania to replace the kit and indent systems. The ILS system which became operational in 2005 was not able to solve delays in delivery of medicines and stock outs of essential medicines in the health facilities. To address these problems the MOHSW directed MSD to start delivering directly to health facilities in 2010. With this new system (Direct delivery integrated logistic system) the MSD deliver medicines and medical supplies directly to the health facilities without going through the DMO's office to fulfill the six rights. After it was first piloted in Tanga zone, the Direct Delivery Integrated Logistic System has been implemented in a number of regions including Lindi since 2011. Even though the direct delivery system is fully operational in all health

centres and dispensaries in Lindi region, no studies have been conducted to evaluate its performance prior to this current study. This study evaluated the performance of DDILS in Liwale and Lindi (both Lindi rural and urban council) Districts, Lindi Region in Tanzania. **Objectives:** The objectives of the study were to determine stock-out duration of selected tracer medicines in health facilities, to find out the supply gap and order fulfillment rate of tracer medicines by the MSD in health facilities, to determine if the storage conditions meet the required standards and finally to explore the challenges faced in DDILS. **Methodology:** The research employed a cross sectional design. Logistic indicator assessment tools developed by JSI DELIVER PROJECT were used. **Results:** A total of 8 health centres and 79 dispensaries in Lindi and Liwale were included in the study. Additionally a total of 310 respondents were included in the study where 147 were males and 163 were females. Findings disclosed that about 56.8% of personnel performing pharmacy roles were medical attendants. Moreover, the range of stock-out duration varied from 0 and 150 days for antibiotics. Data suggested that there was a significant difference of stock-outs between health centres and dispensaries for antibiotics, antifungal, antimalarials, ant helminthes and analgesic group of medicine but there was no significant difference of stock outs for Oral rehydration salt (p-value greater than 0.05). Furthermore, the study indicated that there was incomplete supply of medicine by MSD in both Lindi and Liwale district where by the average MSD order fulfillment rate ranged from 61.92% in Liwale district to 66.34% in Lindi district and the average MSD supply gap in primary health facilities ranged from 33.66% in Lindi district to 38.04% in Liwale district. In assessing storage conditions, 18.3 % of health facilities had good storage conditions, 49.3% were in the acceptable range and 32.2% were in unacceptable range as per JSI DELIVER/WHO 2003 storage standards. The key challenges contributing to poor performance of DDILS include delay in delivery of medicines by MSD to health facilities (76.1%) and stock-outs of essential medicines (73.9%). **Conclusion:** The study concludes that it is evident that the DDILS has not been able to solve the stock-out problem facing health facilities. Stock-out medicines were observed in all health facilities though the degree of stock-out varied with health facilities and districts. Dispensaries and health centres received less quantity of medicines supplied than the quantity ordered by the health facilities to Medical Stores Department.

Also there was unsatisfactory storage condition of medicines in a number of health facilities in both Lindi and Liwale district. The key challenges contributing to poor service provision to direct delivery ILS include delay in delivery of medicines by MSD to health facilities and stock-outs of essential medicines. The order fulfillment rate by MSD has been low and varies among the two districts. Large share of the ordered drugs were not delivered by MSD resulting into supply gaps in dispensaries and health centres.

172. **Joseph GK. Awareness and Attitude on Prevention of Mother to Child Transmission of Human Immunodeficiency Virus among Secondary School Students in Dar es Salaam, Tanzania. Master of Medicine (Obstetrics and Gynaecology) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam**

Background: Human Immunodeficiency Virus (HIV) pandemic has been a global challenge for more than 3 decades. New HIV infections through mother to child transmission (MTCT) are still high where antenatal clinic prevalence ranges between 5-30% in sub Saharan Africa. Awareness of prevention of mother to child transmission of HIV (PMTCT) has been associated with significant uptake and positive attitude towards the PMTCT of HIV program. Few studies have been done among secondary school students on awareness and attitude towards PMTCT of HIV services which vital in the virtual elimination of MTCT and achieve HIV free generation. Objective: To determine secondary school students' awareness and attitude on PMTCT services in Dar es Salaam. **Methodology:** A cross-sectional study was conducted among secondary schools students in Dar es Salaam region in 2013. Systematic random sampling was used to recruit 1440 students from 12 randomly selected schools. The data was collected using a self-administered questionnaire. **Results:** Majority of students (78%) were of age group 15-19years (mean age 16.7+1.9). In general awareness of PMTCT services was high (81.1%), although, 16.3% had awareness of MTCT modes as well as prevention methods. The Secondary students from private secondary schools and those who are residing in Temeke were more likely to be aware of PMTCT services ($P<0.05$). The commonest mentioned mode of MTCT of HIV was vagina delivery and it was increasing with age ($P<0.05$). Females were more likely to mention breast-feeding compared to their males

counterpart and this awareness increased with age ($P < 0.05$). Very few (4.2%) students could mention all three modes. Two thirds of respondents had a positive attitude which was associated to awareness of PMTCT of HIV ($p < 0.05$). Television and radio were the commonest (64.2%) sources of information while teachers were found to be less (35.6%) important source of information regarding PMTCT of HIV. **Conclusion:** Majority of students were aware of PMTCT of HIV, however, only few students who knew its prevention interventions. Nearly two thirds of students had the positive attitude towards PMTCT of HIV program. Television and radio was the commonest mentioned source of information regarding PMTCT of HIV, however, teachers were less important source of PMTCT of HIV information. This calls for increased teaching efforts on HIV/AIDS prevention with particular focus on PMTCT of HIV. The awareness in this group contributes to the realization of HIV free generation through reduced new HIV infections both vertically and horizontally.

173. **Jonathan AWM. Characteristics And Factors Associated With Chronic Kidney Disease Among Patients Attending Renal Unit At Muhimbili National Hospital, Dar-Es-Salaam, Tanzania. Master of Medicine (Internal Medicine) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Introduction: There is limited knowledge about chronic kidney disease among high risk populations, especially in the developing countries. Millions of people around the world suffer from chronic kidney disease which eventually needs renal replacement therapy; however prohibitive cost of this treatment remains a challenge especially in developing countries. The magnitude of the problem of chronic kidney disease is enormous, and the prevalence keeps rising. This study is intended to highlight the burden of chronic kidney disease, its characteristics and associated factors as in our setting, this important data is lacking. **Objective:** To describe characteristics and factors associated with chronic kidney disease among patients attending renal unit at Muhimbili National Hospital, Dar-es-Salaam. **Methodology:** A hospital based descriptive cross-sectional study was carried out among patients aged 15 years and above who attended Muhimbili National Hospital renal unit from July 2013 to December 2013. Patients were consecutively sampled until a

sample size of 265 patients was reached. Standardized pre-tested questionnaires were used to collect socio-demographic, clinical and laboratory parameters. Estimated glomerular filtration rate was calculated using Modification of Diet in Renal Disease equation and evidence for renal damage was assessed using abdominal ultrasound imaging and dipstick proteinuria. The collected data were analyzed using Statistical Package for Social Sciences Version 21. **Results:** A total of 265 patients were studied. The overall mean age was 41.72 ± 14.9 years with male preponderance of 55.1%. One third of these patients were from Ilala municipal. The major presenting symptoms were facial swelling and decreased amount of urine which accounted for 78.7% and 70.2% respectively; and lower limb edema being the commonest sign [76.9%]. Ninety four percent [212/225] of chronic kidney disease patients had anemia. Median estimated glomerular filtration rate was 7 ml/min/1.73m². About two thirds of chronic kidney disease patients were categorized as end-stage renal disease. Hypertension, diabetes mellitus and use of non steroidal anti-inflammatory drugs were the commonest factors associated with chronic kidney disease in 66.2%, 29.3% and 28.9% respectively. **Conclusion:** Chronic kidney disease proportion among patients attending renal unit was found to be enormous; affecting mostly young adults. Hypertension, Diabetes Mellitus and use of nephrotoxic agents [non steroidal anti-inflammatory drugs and herbal remedies] were the commonest possible underlying associated factors for chronic kidney disease in our study; with majority of patients presenting late at stage 5 chronic kidney disease. **Recommendation:** A call for earlier chronic kidney disease detection in at risk population and tailored management pertaining to disease stage as well as measures to control etiological factors like hypertension, diabetes and nephrotoxic agents are recommended in order to decrease the burden of the disease.

174. **Joyceline K. Knowledge and Preference on Modes of Delivery among Antenatal Attendees at Muhimbili National Hospital. Master of Medicine (Obstetrics and Gynecology) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: Women's preference on modes of delivery varies from one area to another. Women's preference on modes of delivery are, being considered in some developed

countries however in Tanzania there is no guiding policy on this matter. Preference on modes of delivery can be affected by knowledge on advantages and risks of both modes of delivery. Each mode of delivery has its benefit and risk to both mother and the baby and women have to be aware of them before choosing the mode of delivery. Although health care providers do tell patients of the indicated mode of delivery according to the risks identified, women's preference on modes of delivery is not addressed. Preference on modes of delivery can give a clue on how women in Tanzania perceive modes of delivery. Objective: To assess the knowledge and preference on modes of delivery among antenatal attendees at Muhimbili National Hospital. **Material and methods:** A cross sectional study was conducted at Muhimbili National Hospital antenatal clinic from August–November 2012. An interviewer administered questionnaire was used in data collection. Information obtained was summarized in SPSS database version 17. Data cleaning and analysis was done in SPSS. Respondent's level of knowledge (on advantages and risks of modes of delivery together with knowledge on indications for caesarean delivery) was scored either high or low (50% being the cutoff point). Each of the preference questions was assessed separately. Frequency tables were constructed. Chi square tests, bivariate and multiple logistic regression tests were done to find association between variables. P value of <0.05 was considered statistically significant. **Results:** A total of 654 women were interviewed. The age range was 15-46 years and the mean age (standard deviation) was 28.7 (4.9). Among the respondents, 41.4% were nulliparous. The overall level of knowledge on modes of delivery was high in 26.9% of the respondents. Preference for vaginal delivery was 89.8% and for caesarean delivery was 10.2%. Two thirds of the respondents who had indications for caesarean delivery had preference on vaginal delivery. High level of knowledge on modes of delivery was associated with having secondary school education or more (OR 2.49, CI 1.52-4.08). Factors associated with preference on vaginal delivery were parity (OR 3.42 CI 1.67-7.04), history of previous vaginal delivery (OR 3.82 CI 1.94-7.49) and history of previous caesarean delivery (OR 2.87 CI 1.51-5.43). **Conclusion and recommendations:** Level of knowledge on benefits and risks of vaginal and caesarean delivery was low among majority of the respondents due to lack of enough discussion on modes of delivery during antenatal visits. Health care workers need to spend more time on counseling pregnant

women during antenatal visits regarding their indicated mode of delivery so as to improve women's knowledge on modes of delivery.

175. **Judith M. Influence of Service Delivery Factors on Acceptance of Modern Family Planning Methods among Married Men in Pwani Region. Master of Medicine (Community Health) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: Men as decision makers in most of African cultures play an important role in the adoption of family planning (FP), either themselves as users or supporters of their partners. Notwithstanding the universal knowledge on the methods, their acceptance and use have been low in Tanzania. **Objective:** To determine service delivery factors that influence acceptance of modern FP methods among men in Pwani region. **Materials and methods:** A cross sectional, community-based study was conducted in Kibaha, Pwani region, involving 365 married men aged 18 to 60 years who were living with their spouses and had at least a child below the age of five years. To complement the quantitative data, health workers involved in reproductive health services and community dispensers of FP commodities were interviewed. Quantitative data was entered and analysed using Epidata and STATA computer software respectively whereas thematic analysis was done for the qualitative data. **Results:** A total of 365 men were interviewed, their mean age was 35 years and 65.5% had completed primary education. Slightly over a third (36.7%) of them was using condoms whereas 59.7% additionally approved their spouses to use various modern FP methods. Men were less likely to approve their partners to use FP methods if they did not find a provider at the facility (OR=0.08; CI 0.01-0.54, p=0.00), if they were not counseled as couples (OR=0.10; CI 0.01-1.38, p=0.03) and if they missed preferred FP methods (OR=0.12; CI 0.01-1.54, p=0.05). Furthermore, men who did not visit FP delivery points (OR=0.12; CI 0.01-0.84, p=0.01); did not attend a meeting where FP was an agenda (OR=0.18; CI 0.03-0.99, p=0.02) as well as men who did not attend meetings which had messages targeting them were less likely to use FP methods. **Conclusion:** Men accept the use of modern FP, but mostly female oriented methods. Whereas the existing strategies to involve men do not reach all

of them, the current health system in terms of providers, infrastructure, equipment and supplies is inadequate to respond to men FP needs.

176. **Juliana J. Effect Of Sexual And Reproductive Health Education Intervention On Peer To Peer Sexual Health Communication among Primary School Adolescents Age 12-14 In Kinondoni Municipal, Dar-Es-Salaam. Master of Public Health Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: Sub-Saharan Africa still bears the largest burden of HIV and other Sexually Transmitted Infections (STIs) with youth below 24 years continuing being at the highest risk of infections. This group contributes the large proportion of new HIV infections, with 80% occurring in sub Saharan Africa. There is more call for innovative and effective interventions for primary preventions. A school-based sexual behavioural intervention named PREPARE was developed to effectively promote healthy sexual and reproductive health practices among primary school adolescents in Dar es Salaam Tanzania. This innovative best practice intervention included classroom teaching, peer led education sessions and strengthening linkages between schools and youth friendly services. **Objective:** This study sought to assess the effect of PREPARE intervention on peer to peer sexual health communication among school children aged 12-14 in Dar es Salaam. **Methods:** A cluster-randomized controlled trial, involving 38 (19 intervention and 19 delayed intervention) primary schools in Dar es Salaam was conducted. Using the same standardized questionnaire, data was collected at baseline and at 6 months follow-up after intervention. **Analysis plan;** Data was analyzed using STATA 12. Frequency was run for categorical variables and comparison between proportions was done using the Chi-square test. Continuous variables were summarized using means and standard deviations and comparison between means was done using t-test. Change in the mean peer to peer communication scale was examined using the extended generalized estimating equation model controlling for dependence of measurement resulting from repeated measure. All analysis was two tailed and significance level was set at 5% level. **Results:** A total of 5099 adolescents completed the survey at baseline. Female participants constituted 49.40% (n= 2488) of all adolescents in the study. The mean age

at baseline was 12.4 years with standard deviation (SD) of 0.6. Results of the study shows that males adolescents were significantly older compared to female adolescents (12.51 years (0.7) versus 12.3 years (0.5) ($p = 0.000$). Same population was followed up after six months. PREPARE intervention was found to have a positive effect in increasing likelihood of peer to peer communication in the intervention group as compared to the control group by 32%. When this was controlled for age of the adolescent, class and gender, adolescents from the intervention schools were 38% more likely to communicate as compared to those from the control group (ARR=1.38, 95%CI: 1.25-1.52, $p=0.01$). The adjusted determinants for independent predictors of change in peer to peer communication showed that, the intervention had a positive effect among peers with high self-efficacy (ARR2.75, 95%CI:2.56- 2.97; $p <0.001$) also among peers who communicated with friends and parents(ARR=3.35, 95% CI 2.92- 3.85 ; $p<0.001$) and (ARR=1.716 95%CI: 1.49-1.96; $p<0.001$) respectively. Adolescents with high HIV knowledge were more likely to communicate to their peers. (ARR=1.69, 95%CI1.39-1.95; $p <0.001$). **Conclusion:** PREPARE intervention was found to have a positive effect on peer to peer communication, and the intervention seems to be more effective among students who were communicates with their friends and parents , who had a good self-efficacy and knowledge on HIV. Ongoing efforts to improve adolescent HIV knowledge needs to incorporate training that will improve self-efficacy with an emphasis on parental communication.. Acceptability and flexibility that we observed during the implementation of the intervention, makes PREPARE a commendable sexual and reproductive health education intervention in primary school settings in Tanzania.

177. Jusoh M, Yahya N, Hamid FHA, Safiei NZ. Effect of Coolant Temperature on Progressive Freeze Concentration of Refined, Bleached and Deodorised Palm Oil. *Jurnal Teknologi*. 2014; 69(4).

This study focused on the possibility of separating refined, bleached and deodorized palm oil (RBDPO) into olein and stearin by using progressive freeze concentration (PFC) as an alternative method to replace the conventional fractionation process. PFC has the potential to be a more effective technique for olein-stearin separation, with minimal changes in the product's quality for producing high quality edible oil. Apart from that, it

requires fewer unit operations compared to conventional methods. In this research, the parameter of coolant temperature was selected to investigate the performance of PFC using stainless steel crystallizer. In order to determine the system efficiency, effective partition constant (K) was investigated, while the quality of the oil was evaluated by iodine value (IV), slip melting point (SMP) and the percentage of olein yield. From the results, all the determinant parameters were found to be optimum at the coolant temperature of 28°C. At this optimum point, K value, IV, SMP and olein yield were found to be 0.2715, 55.84 wijs, 23.10°C and 67.8537%, respectively.

178. **Jusoh M, YahyaN, Hamid FHA, Safiei NZ. Effect of Coolant Temperature on Progressive Freeze Concentration of Refined, Bleached and Deodorised Palm Oil. *Jurnal Teknologi*, 2014; 69(4).**

This study focused on the possibility of separating refined, bleached and deodorized palm oil (RBDPO) into olein and stearin by using progressive freeze concentration (PFC) as an alternative method to replace the conventional fractionation process. PFC has the potential to be a more effective technique for olein-stearin separation, with minimal changes in the product's quality for producing high quality edible oil. Apart from that, it requires fewer unit operations compared to conventional methods. In this research, the parameter of coolant temperature was selected to investigate the performance of PFC using stainless steel crystallizer. In order to determine the system efficiency, effective partition constant (K) was investigated, while the quality of the oil was evaluated by Iodine Value (IV), Slip Melting Point (SMP) and the percentage of olein yield. From the results, all the determinant parameters were found to be optimum at the coolant temperature of 28°C. At this optimum.

179. **Justin-Temu M, Lyamuya EF, Makwaya CK. Sources of Microbial Contamination of Local Herbal Medicines Sold on the Open Market in Dar es Salaam, Tanzania. *East and Central African Journal of Pharmaceutical Sciences*. 2014; 12.**

Four hundred traditional herbalists operating in an open air market in Ilala, Dar es Salaam, Tanzania were interviewed using a questionnaire to establish the stage at which

contamination takes place during the processing of herbal medicine preparations. Among the interviewees, 82.0 % were true traditional medicine herbalists while the rest were vendors. Most of the practitioners had received primary school education while 17.0 % were illiterate. Seventy five percent of the herbalists displayed their medicines along the streets despite being aware of the potential hazards of microbial contamination at such locations. Of the true herbalists, 70 % personally processed the herbal medicines they sold. Most of these herbalists reported using boiled and cooled tap water in the preparation of liquid forms of the medicines. The containers in which the medicines were handled were washed using unboiled tap water and soap. Previous research has shown that the use of tap water in the processing of herbal medicines and exposure in the open market are possible sources of contamination. These results point to the need for educational intervention directed at traditional medicine practitioners to curb microbial contamination of herbal medicines.

180. Justin-Temu M, Mwambete KD, Willard TE. The Role of the Pharmacist in Animal Health Care: Case Study in Ilala District, Dar es Salaam Tanzania. *East and Central African Journal of Pharmaceutical Sciences*. 2014; 12(2).

In this cross-sectional study, the role of pharmacists in animal health care, particularly in the distribution of veterinary medicines in community pharmacies in Dar es Salaam was investigated. Using a semi-structured questionnaire a total of 260 pharmacists was interviewed. The study revealed that majority of the pharmacists play a very limited role in the dispensing of veterinary pharmaceutical products. Pharmacists and veterinary practitioners should compliment each other for the betterment of animal health care. The study highlighted the necessity for introducing veterinary pharmacy lectures in the pharmacy undergraduate curriculum in Tanzania. It further recommends that the Pharmacy Council and the Tanzanian Ministry of Health and Social Welfare enforce continuing professional development as a precondition for the renewal of practice licences for all practising pharmacists.

181. Kagashe GAB, Maregesi SM, Mashaka A. Availability, Awareness, Attitude and Knowledge of Emergency Contraceptives in Dar es Salaam. Age. 2014; 20(22): 48-2.

Contraceptive methods are useful in family planning and prevention of unwanted pregnancies. Studies done in different countries however have reported poor knowledge and low use of these contraceptives especially the emergency contraceptive pills (ECP). In Tanzania, the awareness and knowledge of women about ECP is not well documented. The aim of this study was to assess awareness, knowledge and attitude of female university students on ECP and the availability of these pills in selected medicines outlets located in Dar es Salaam city. A descriptive cross sectional study was carried out using a self administered questionnaire to assess knowledge and attitude towards emergency contraceptive pills among female university students. The simulated client method was used to assess availability of the pills in pharmacies and part II shops in the city. A total of 350 female students participated in this study of whom, 57% were aware of ECP and only 14% had used them. About half (49%) of the participants had poor knowledge on ECP. The study revealed that 42.3% of the pharmacies and 30% of Part II shops surveyed stock only one brand of ECP which was not registered by the regulatory Authority. To conclude, low awareness and poor knowledge on ECP was observed among the study population. Only one brand of emergency contraceptive pills was available in both Pharmacies and Part II shops. Unfortunately this brand was not registered by the regulatory authority.

182. Kahabuka FK, Mselle CK. Natal teeth - Two Case Reports. 2014.

Natal teeth are the teeth present in the mouth at birth where as neonatal teeth erupt during the first month of life. Occurrence of these teeth is rare and when they occur, they cause apprehension to parents. For centuries, these teeth have been associated with diverse superstition and folklore or myths. The aim of this report is to describe two cases of natal teeth that were attended at the Paediatric dental clinic, School of Dentistry, Muhimbili University of Health and Allied Sciences (MUHAS) in the year 2013. Both children were satisfactorily managed. They were followed up regularly. At the most recent appointment one child was aged seven and the other eight months where both were growing normally.

183. **Kahabuka FK, Petersen PE, Mbawala HS, Jürgensen N. General and Oral Health Related Behaviors among HIV Positive and the Background Adult Tanzanian Population. *Oral Hyg Health*.20104; 2(162): 2332-0702.**

Objectives: To assess the general and oral health related behaviors among HIV positive adults and the background population.**Methods:** A case-control study utilizing a structured questionnaire to collect data. Cross tabulations and Chi square statistics were conducted for bivariate analyses and simple logistic regression was used for multivariate analyses **Results:** 898 individuals aged 15-80 years participated in the study of which 66.8% were females. Slightly more than half (51.2%) self-reported to be living with HIV/AIDS. Of the health behaviors investigated, positive behaviors frequently reported were: hand washing, eating fresh fruits, eating green vegetables, infrequent snacking or consumption of sweetened soft drinks, not smoking or consuming alcohol. Behaviors seldom reported were; tooth brushing (twice a day), use of fluoride toothpaste and regular dental visits. The OR for reporting hand washing before eating among people living with HIV/AIDS was 0.5 (0.3, 0.9). People living with HIV/AIDS had significantly higher odds for daily eating of fresh fruits and vegetables, OR 2.2 (1.6, 3.1) and 1.7 (1.2, 2.3), respectively. They were as well less likely to smoke and consume alcohol than the comparative general population. They were significantly less likely to use sweetened soft drinks (OR 0.6 CI (0.4, 0.8) but more likely than the general population. to have not used fluoridated toothpaste. **Conclusion:** From the findings of this study, we conclude that most HIV positive individuals had better general health behaviors than the background population but only a few (18%) had good oral health behaviors (using fluoridated toothpaste and dental visit due to oral problem). HIV positive individuals should be encouraged to maintain positive health behaviors and be facilitated to practice the positive behaviors currently reported by few.

184. **Kajula LJ, Sheon N, De Vries H, Kaaya SF, Aarø LE. Dynamics of Parent–Adolescent Communication on Sexual Health and HIV/AIDS in Tanzania. *AIDS and Behavior*. 2014; 18(1): 69-74.**

Communication between parents and their adolescent children has been identified as one of the potential protective factors for adolescent sexual health. Qualitative exploration of sexual health communication with adolescents aged 12–15 (N = 114) and a sub-group of the parents (N = 20) was carried out. Four major themes emerged: reasons for parent–adolescent communications, or lack thereof; the focus of parental messages; the moral of the message; and the barriers to communication between parents and adolescents. Findings revealed similarities and discrepancies in views and perceptions between parents and adolescents. Adolescents and parents suggested that some sexual health communication was happening. Parents were reportedly likely to use fear to ensure that their children do not engage in risky sexual activities, while adolescents reported that conversations with their parents were mostly ambiguous and filled with warnings about the dangers of HIV/AIDS. Several communication barriers were reported by parents and adolescents. Parents of adolescents would benefit from HIV/AIDS specific communication skills.

185. **Kalombola AH. Thyroid Profile in Children and a Dolescents with Type I diabetes in Dar Es Salaam, Tanzania. Master of Medicine (paediatrics and Child Health) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: Currently developing countries face a double disease burden with the risk of both communicable and non-communicable diseases. Type 1 Diabetes Mellitus (T1DM) is among the non-communicable disease in children which is a growing problem in Africa. It has been reported that thyroid disease and T1DM tend to coexist because of the autoimmune nature of both diseases. In Tanzania no study has been conducted to investigate the coexistence of both diseases, hence baseline data is needed in order to improve on management of diabetes in children and adolescents. **Objective:** This study therefore aimed to assess the thyroid profile among children and adolescents with T1DM. **Methodology:** This was a hospital-based cross-sectional study which was carried out in two Paediatric diabetes clinics in Dar es Salaam. The study duration was nine months. The study Population was children and adolescents with T1DM who met the inclusion criteria. A structured questionnaire was used for collection of quantitative data. Thyroid

gland examination was performed to all study participants by the principal investigator and thyroid swelling grading was with accordance with WHO grading system. Venopuncture was performed to every study participant and the collected blood sample was analyzed for biochemistry (TSH, T4, and T3) and HbA1c. All samples were analyzed by the same person using the same method. **Results:** We enrolled 150 children and adolescents with T1DM, with sex distribution of 63(42%) females and 87(58%) males. Over 90% of children had poor glycemic control. The main findings from this study were the proportion of abnormal thyroid hormone levels which was 4.7%. The proportion of overt hypothyroidism was 0.7%, subclinical hypothyroidism was 3.3%. There was no case of overt hyperthyroidism in this study. **Conclusion:** More than 95% of children have normal thyroid hormone levels and this is reflected by the low rates of thyroid dysfunctions found in this study. Therefore the null hypothesis failed to reflect that T1DM is not associated with thyroid dysfunctions and that only specific character needs suspicion. **Ethical Clearance:** The research protocol was approved by the Research Review Board of Muhimbili University of Health and Allied Sciences.

186. Kamazima SR, Kazaura MR, Ezekiel MJ, Fimbo B. Reported human traffickers' profiles: a key step in the prevention of trafficking in persons through HIV and AIDS interventions in Tanzania. *East African Journal of Public Health*. 2014; 8(2): 83-87.

Objective: a gap in comprehensive knowledge of trafficking in persons and the traffickers exists globally and in Tanzania in particular. Consequently, information on the profiles of human traffickers in the country is tremendously scanty. **Methods:** we conducted a baseline study in eight administrative regions of Tanzania Mainland using both qualitative and quantitative methods to generate data in to inform anti-human trafficking health interventions and programs to be implemented in the country. Study participants included the national, regional and district Community Development Officers, District Medical Officers, local government leaders, managers or representatives of non-governmental organizations involved in anti-trafficking in persons activities, members of the community and victims. **Results:** different individuals or

groups, knowingly or ignorantly, contribute to trafficking in persons and their roles differ at the places of origin, transit and destinations. Traffickers are males or females with varied age, marital status, and relationships with victims, socio-economic status, experience and occupations. **Conclusions:** active traffickers at many stages of this crime rarely come into contact with the law enforcement system; fled or rescued victims may not be willing or unable to testify against their traffickers and coercing. Victims to do so could further traumatize them. Further research is needed to generate knowledge on human traffickers' profiles to inform trafficking in persons control programs through HIV and AIDS interventions in Tanzania.

187. **Kamazima SR. The Typology of Female Sex Workers in Dar-es-Salaam: Implications to HIV and AIDS Interventions Targeting Female Sex Workers in Tanzania. *East African journal of public health*. 2014, 9(2): 62-69.**

Objective: To establish the categories of female sex workers in Dar es Salaam. **Methods:** We conducted in depth-interviews with 32 female sex workers (FSWs) in five geographic areas of Dar-es-Salaam known to be the primary residential and working places, three local government leaders in three of the five areas known to have brothels and two NGO representatives working with this population. **Results:** There are about 14 categories of FSWs with fluid perceived 'boundaries', which could change given factors like the availability of clients, active prostitution control mechanisms, the weather, the female sex worker's need for money and the type of sexual services demanded. **Conclusions:** different categories provided by the study participants are only useful in the Dar-es-Salaam context but generalization to other places in Tanzania might not be quite possible. However, using these classifications provides an understanding of how they construct their real world with regard to sex work, experiences, (health) needs and shared characteristics that are important when planning for all aspects of research designs and the implementation of interventions targeting them. The Ministry of Health and Social Welfare (MoHSW), through the National AIDS Control Program (NACP), stakeholders and development partners should conduct more research in this area to generate more information that would facilitate lobbying and advocating for repealing colonial-rooted anti-prostitution laws and replacing them with policies aiming at assisting them.

188. Kamuhabwa AR, Charles E. Predictors of poor glycemc control in type 2 diabetic patients attending public hospitals in Dar es Salaam. *Drug, healthcare and patient safety*. 2014; 6: 155.

Tanzania has recently experienced a significant rise in the burden of diabetes, and it is estimated that more than 400,000 people are living with diabetes. A major concern in the management of diabetes is the occurrence of diabetic complications that occur as a result of poor glycemc control. Identification of the factors associated with poor glycemc control is important in order to institute appropriate interventions for the purpose of improving glycemc control and prevention of chronic complications. **Aim:** The aim of this study was to determine the level of glycemc control and explore the factors associated with poor glycemc control among patients with type 2 diabetes mellitus (T2DM). **Methodology:** A cross-sectional study was carried out at the diabetic clinics for T2DM patients at the national and municipal hospitals in Dar es Salaam. A total of 469 patients were enrolled over a period of 8 weeks from March 2013 to May 2013. Patients' information such as sociodemographic characteristics, self-care management behaviors, and medication adherence were obtained through interviews. Blood pressure, weight, and height were measured during the day of the interview. All available last readings for fasting blood glucose (FBG) measurements, lipid profile, and other clinical characteristics were obtained from patients' records. **Results:** The mean age of patients was 54.93 years. The majority (63.5%) of patients was females and only eight patients had records of lipid profile measurements. Out of 469 patients, 69.7% had FBG of ≥ 7.2 mmol/L, indicating poor glycemc control. Females aged between 40 years and 59 years had significantly higher poor glycemc control (76.1%) as compared with their male counterparts. Thirty-eight percent of patients had poor medication adherence, which was associated with poor glycemc control. The proportion of poor glycemc control increased with age. A significantly high proportion of poor glycemc control was observed in patients who had had the disease for more than 20 years since diagnosis. Factors associated with poor glycemc control included lack of health insurance, using more than one oral hypoglycemc agent, normal body mass index, obesity, and nonadherence to diabetic medications. **Conclusion:** Patients in this study had generally poor glycemc

control. From these findings it is recommended that diabetic patients should be routinely screened for lipid profile to determine levels of cholesterol, triglycerides, and low-density lipoproteins, which are risk factors for cardiovascular events. An education program should be developed to educate patients on the importance of medication adherence and weight management for better glycemic control.

189. **Kanisia I. Sexual and Physical Violence among Students of Higher Learning Institutions in Morogoro Region, Tanzania. Master of Public Health Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background and Objectives: A descriptive cross-section study was conducted in three higher learning institutions in Morogoro; Sokoine University of Agriculture (SUA), Mzumbe University and Jordan University College. The objectives of the study were to determine the proportion of students who have experienced different forms of sexual and physical violence; the perpetrators and the factors associated with sexual and physical violence. **Method:** A total of 415 students from Sokoine, Mzumbe and Jordan University participated in the study. SUA sample size was 197 (58 females and 139 males), Mzumbe was 150 (70 female and 80 Male) and Jordan sample size was 68 (15 female and 53 Male). Sample size calculated was proportionate to the overall percentage of students in each university. Data from students were collected through structured self administering questionnaires. The quantitative data were analyzed using SPSS version 16. **Results:** The overall reported prevalence of sexual violence was 101 (24.3%). The main form of sexual violence reported was attempted rape 81(20.3%) while unwanted sexual touching was 57 (14.1%) and rape was 20 (5.1%). Total of 103 (24.8%) students reported to have experienced one or more forms of physical violence. The reported forms of physical violence ranged from being pushed or hit by objects that hurts 59 (14.2%), slapped 16 (3.9%), twisted arms or pulled 44 (10.6%), punched 38 (9.2%) to being choked or burnt 7 (1.7%). Additionally 49 (11.8%) students reported to have experienced both physical and sexual violence. Reported perpetrators of such violent acts were schoolmates, classmates, friends and lecturers. After adjusting for confounders, physical and sexual violence was independently associated with being females students, who were two times more likely to report experiencing physical violence than males (OR=2.2; 95% CI = 1.3,

3.5). Students with past history of physical violence prior joining the university were four times more likely to report experience of physical violence compared to their counterparts (OR = 4.1; 95%CI = 2.3, 7.5). Female students had more than three times the odds of reporting sexual violence than male students (OR = 3.6; 95%CI = 2.1, 6.3). Students with prior experience of forced sexual intercourse were having significant odds of more than four times of reporting experiencing sexual violence while in university compared to their counterparts (OR = 4.6; 95%CI = 2.6, 2.6). **Conclusion and Recommendations:** All forms of physical and sexual violence prevail in the study site. Both female and male students reported to have experienced violence. Female students reported experiencing more of almost all forms of violence than their counterparts. Findings of this study pave the way for other researchers to survey the extent and nature of physical and sexual violence in other higher learning institutions in Tanzania. It is recommended that future studies to broaden the scope and study wide range of factors including relationship, social attitudes, emotions and behaviours associated with physical and sexual violence in university campuses, so as to achieve outstanding insight regarding the problem of physical and sexual violence in higher learning institutions. It is also recommended that higher learning institutions should strengthen the units under the office of the dean of students dealing with matters and issues of physical and sexual violence. These special units should encourage students who experience any form of violence to report the matter to the appropriate authorities to ensure that right steps are taken in dealing with violence issues.

190. **Kapeshi C. Pattern Of Occurrence, Presentation And Management Of Midface Fractures Among Patients Attending The Muhimbili National Hospital, Dar Es Salaam, Tanzania. Master of Dentistry (Oral and Maxillofacial Surgery) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: Midface fractures are a common occurrence among patients who attend for treatment at the Muhimbili National Hospital (MNH). Trauma has been implicated as a major cause of midface fracture, resulting into considerable morbidity and presents a challenge in terms of resources for management of these cases. Diagnosis and treatment

of midface fractures remain a challenging problem that frequently requires a multidisciplinary approach. **Objective:** The main objective of this study was to determine the pattern of occurrence, presentation and management outcome of midface fractures among patients attending MNH in Dar es Salaam, Tanzania. **Material and methods:** A descriptive prospective hospital based study was carried out at MNH for a period of one year, from May 2013 to April 2014. All patients with midface fractures were included in the study. They were interviewed using a structured questionnaire followed by a thorough clinical examination. Radiological imaging and basic laboratory investigations were done. Details were recorded in a special clinical form. Thereafter, patients were managed according to the MNH protocol. Data obtained were analysed using the Statistical Package for Social Sciences (SPSS) version 19. **Results:** Three hundred patients were enrolled in this study. The age range was from 6-62 years with a mean of 29.64 (SD 9.78). Female to male distribution was 8.7% and 91.3% respectively making a female to male ratio of 1:10.5. The 20-29-year age group was the most affected. Road traffic accident (RTA) was the most common cause of midface fractures accounting for 82%. Of the RTA, the predominant was motorcycle accidents 63.9%. Five hundred and ninety four midface fractures were recorded; of which zygomatic complex were the most 26.77% prevalent. Definitive treatment was given to 79.7% of the patients. Closed methods were predominantly used. Among the patients who were treated 18% had one or more complications, the most 81.5% common were aesthetic impairment. **Conclusion:** Road traffic accidents and in particular motorcycle accidents constituted the major cause of midface fractures in our setting. Young adult males were the main victims. Zygomatic complex fracture was the most frequently occurring midface fracture. The common complication was aesthetic impairment. The majority of fractures were treated by closed methods.

191. **Kapingu MC, Mbwambo ZH, Moshi MJ, Magadula JJ. Brine Shrimp Lethality of Alkaloids from *Croton sylvaticus* Hoechst. *East and Central African Journal of Pharmaceutical Sciences*.2014; 15(2).**

Three compounds were isolated from the leaves of *Croton sylvaticus* (Euphorbiaceae) and evaluated for their brine shrimp lethality. Julocrotine, a glutarimide alkaloid, was very toxic in vitro with a LC50 (95% confidence interval) value of 0.074 (0.052-0.105)

µg/ml. Lupeol and penduliflaworosin were not toxic. The structures of the isolated compounds were determined by spectroscopic methods.

192. **Katale BZ, Mbugi EV, Botha L, Keyyu JD, Kendall S, Dockrell HM, Matee MI. Species diversity of non-tuberculous mycobacteria isolated from humans, livestock and wildlife in the Serengeti ecosystem, Tanzania. *BMC infectious diseases*.2014; 14(1): 616.**

Background:Non-tuberculous mycobacteria (NTM), which are ubiquitous microorganisms occurring in humans, animals and the environment, sometimes receive public health and veterinary attention as opportunistic disease-causing agents. In Tanzania, there is limited information regarding the diversity of NTM species, particularly at the human-livestock-wildlife interface such as the Serengeti ecosystem, where potential for cross species infection or transmission may exist. **Methods:** Mycobacterial DNA was extracted from cultured isolates obtained from sputum samples of 472 suspect TB patients and 606 tissues from wildlife species and indigenous cattle. Multiplex PCR was used to differentiate NTM from Mycobacterium tuberculosis complex (MTBC) members. NTM were further identified to species level by nucleotide sequencing of the 16S rRNA gene. **Results:** A total of fifty five (55) NTM isolates representing 16 mycobacterial species and 5 isolates belonging to the MTBC were detected. Overall, Mycobacterium intracellulare which was isolated from human, cattle and wildlife, was the most frequently isolated species (20 isolates, 36.4%) followed by M. lentiflavum (11 isolates, 20%), M. fortuitum (4 isolates, 7.3%) and M. chelonae-abscessus group (3 isolates, 5.5%). In terms of hosts, 36 isolates were from cattle and 12 from humans, the balance being found in various wildlife species. **Conclusion:** This study reveals a diversity of NTM species in the Serengeti ecosystem, some of which have potential for causing disease in animals and humans. The isolation of NTM from tuberculosis-like lesions in the absence of MTBC calls for further research to elucidate their actual role in causing disease. We are also suggesting a one health approach in identifying risk factors for and possible transmission mechanisms of the NTM in the agro-pastoral communities in the Serengeti ecosystem.

- 193. Kennedy CE, Brahmbhatt H, Likindikoki S, Beckham SW, Mbwambo JK, Kerrigan D. Exploring the potential of a conditional cash transfer intervention to reduce HIV risk among young women in Iringa, Tanzania. *AIDS care*.2014; 26(3): 275-281.**

Cash transfer programs seek to alter structural determinants of HIV risk such as poverty and gender inequality. We sought to explore the feasibility and potential effectiveness of a cash transfer intervention for young women as part of combination HIV prevention in Iringa, Tanzania. Qualitative, in-depth interviews were conducted with 116 stakeholders and residents from the region, including key informants, service delivery users, and members of key populations. Most respondents felt a cash transfer program would assist young women in Iringa to have more control over sexual decision-making and reduce poverty-driven transactional sex. Respondents were divided on who should receive funds: young women themselves, their parents/guardians, or community leaders. Cash amounts and suggested target groups varied, and several respondents suggested providing microcredit or small business capital instead of cash. Potential concerns included jealousy, dependency, and corruption. However, most respondents felt that some intervention was needed to address underlying poverty driving some sexual risk behavior. A cash transfer program could fill this role, ultimately reducing HIV, sexually transmitted infections, and unintended pregnancies. As increased attention is given to economic and structural interventions for HIV prevention, local input and knowledge should be considered in a program design.

- 194. Khan VA, Shafiq M, Ebadullah K. On Paranormed I-Convergent Sequence Spaces of Interval Numbers. *Journal of Nonlinear Analysis and Optimization: Theory & Applications*. 2014; 5(1): 103-114.**

- 195. Khan VA, Shafiq M, Lafuerza-Guillen B. On paranorm I-convergent sequence spaces defined by a compact operator. *Afrika Matematika*. 2014; 1-12.**

In this article we introduce and study paranorm I -convergent sequence spaces $S I (p)$, $S I 0 (p)$ and $S I \infty (p)$ with the help of compact operator T on the real space R and a bounded sequence $p=(p_k)$ of positive real numbers. We study some topological and

algebraic properties, prove the decomposition theorem and study some inclusion relations on these spaces.

196. **Khavari N, Jiang H, Manji K, Msamanga G, Spiegelman D, Fawzi WW, Duggan C. Maternal multivitamin supplementation reduces the risk of diarrhoea among HIV-exposed children through age 5 years. *International health*. 2014; 6(4): 298-305.**

Background: The aim of this study was to determine whether maternal vitamin supplementation affects long-term mortality and morbidity of children born to HIV-infected mothers. **Methods:** In total, 1078 HIV-infected pregnant woman were enrolled in a double-blind, 2×2 factorial, and randomised, placebo-controlled trial in Tanzania. Data were collected for 874 children at monthly clinic visits through a median age of 51 months. **Results:** Maternal receipt of multivitamins (HR=0.93; 95% CI: 0.70–1.22) or vitamin A (HR=1.00; 95% CI: 0.76–1.32) did not affect all-cause child mortality through age 5 years. Among HIV-negative children, maternal multivitamin supplementation was associated with a lower mortality rate up to 5 years (HR=0.60; 95% CI: 0.38–0.95), primarily in children <2 years of age. Maternal vitamin A supplementation did not significantly affect child mortality up to 5 years (HR=0.76; 95% CI: 0.48–1.20). Children born to mothers who received multivitamins had a lower risk of all types of diarrhoea (RR=0.86; 95% CI: 0.75–0.98) through 5 years of age. The reduced risk of watery diarrhoea persisted in children from 2–5 years of age (RR=0.71; 95% CI: 0.54–0.95). **Conclusions:** Maternal vitamin supplementation during pregnancy and lactation may be associated with long-lasting affects in HIV-exposed children

197. **Kim F, Neke NM, Hendricks K, Wamsele J, Lukmanji Z, Waddell R, von Reyn CF. Brief Report: Deficiencies of Macronutrient Intake Among HIV-Positive Breastfeeding Women in Dar es Salaam, Tanzania. *JAIDS Journal of Acquired Immune Deficiency Syndromes*.2014; 67(5): 569-572.**

We compared macronutrient intake, food insecurity, and anthropometrics in breastfeeding women: 40 HIV-positive women not yet on antiretroviral therapy and 40 HIV-negative women. Calculated deficits at 2 weeks were 517 kcal per day for HIV-

positive women vs 87 kcal per day surplus for HIV-negative women ($P = 0.01$) and 29 g protein per day for HIV-positive women vs 16 g protein per day for HIV-negative women ($P = 0.04$). Food insecurity scores were 11.3 for HIV-positive women vs 7.8 for HIV-negative women ($P < 0.01$). Enhanced dietary education together with macronutrient supplementation may be required to improve health outcomes in HIV-positive women and their infants.

198. Kimario JC. Level And Determinants Of HIV Testing Among Children Of Parents Enrolled In Care And Treatment Clinics In Rombo District. Masters of Public Health Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.

Background: According to 2010 WHO Antiretroviral Therapy (ART) guidelines, in Tanzania only 69% of adults and 25% of children aged 0 - 14 in need of treatment are receiving it. In Tanzania, National HIV/AIDS treatment guidelines recommend that at least 20% of people living with HIV on treatment be children. However, since the beginning of the care and treatment program in Tanzania performance across the country has been less than 11 %. **Aim:** This study assessed level and determinants of HIV testing among children's of parents enrolled into CTCs in Rombo District, Kilimanjaro region of Tanzania. **Methods:** A cross sectional study was conducted in HIV care and treatment centers (CTC) in Rombo district. Parents living with HIV I AIDS aged 18 and above who had a child younger than 18 years enrolled in all care and treatment sites in the district were randomly recruited and interviewed using a semi-structured questionnaire. Data were analyzed using statistical software for social scientists. **Results:** A total of 280 people living with HIV with mean age of 40 years were recruited and interviewed. The prevalence of reported HIV testing among children of adults enrolled in care and treatment in Rombo district was 86.4% (242). The prevalence of HIV infection among children was reported to be 25.0% (60). Parents aged above 40 years were 74% less likely to have their children tested for HIV as compared to those aged 40 years or less (Adjusted Odds ratio (AOR, 0.26, 95% Confidence interval:0.1-0.71). Moreover, parents with CD4 cells of 200 or below were 88% less likely to test their children as compared to those with CD4 cells above 200 (AOR, 0.22, 95%CI: 0.08-0.16). However, parents with

good HIV transmission knowledge were 5 times more likely to report testing of their children as compared to those with poor knowledge (AOR, 5.32, 95%CI: 1.69-16.74).

Conclusion: Level of HIV testing among children of parents enrolled in care and treatment in Rombo district was high, with a quarter of tested children reported to be infected with HIV. Age below 40 years, lower CD4 cells (200 or less), and good HIV transmission knowledge were significant determinants of child HIV testing. Future intervention should target older age group with more advanced disease should aim at improving knowledge of HIV transmission.

199. Kirway VN. Depressive Symptoms and Associated Factors among Children with Autism Spectrum Disorders in Tanzania, And Patterns of Stress among Their Caretakers. Master of Science (Clinical Psychology) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.

Introduction: Several studies have suggested that children with Autism Spectrum Disorders (ASD) are at an increased risk of also having other co-morbid mental health problems. Depression is among the common co-morbid disorders associated with children affected with ASD. There are also reports of increase in parent's perceived stress level compared to parents of children with other developmental disorders, and higher still in comparison to parents of typical children without developmental disorders. Currently there are limited studies in sub-Saharan Africa that look at ASD, and none that focus on psychosocial adjustment i.e. depression in affected children. This study aims to highlight the need to expand the services provided to children with ASD in Tanzania. **Objectives:** To estimate the magnitude of parent-reported depressive symptoms among children with ASD. The study also served to identify factors that might be associated with the severity of those symptoms. These factors assessed included; the child's functioning status, self-perceived caregiver stress level, as well as demographic variables (i.e. age, gender, socioeconomic, etc) of the child. Another goal of the study is to measure and explore patterns of stress among the caregivers. Study design: This was a descriptive cross-sectional study, which utilized a mixed method approach (Combination of Qualitative and quantitative design) and was conducted among children registered in special needs education units in Dar-es-Salaam, Tanzania. **Methods:** The study used convenient

sampling; and utilized caregivers as informants.' A total of 52 caregivers willingly took part in this study. The study had both a quantitative and qualitative component; a self-administered structured questionnaire and in-depth interviews (IDIs) were used respectively to collect data. The questionnaire contained four standardized scales used to screen for ASD, depressive symptoms, child's functioning status, and caregiver's stress level. It also included questions on socio-demographic traits. Ten of the 52 participants were also subjected to in-depth interviews, which served to get a deeper understanding of the obstacles faced by caregivers as well as the coping strategies utilized. **Results:** Out of 52 caregivers who participated in the study, 5 were excluded from analysis because their children did not screen within the ASD spectrum. Majority of the children were male 80.9% (n=38) of all participants. The mean age (SD) of the children was 10.2 years (2.21). 59.6% (n=28) of the children had mild to moderate symptoms of ASD. All the children (47) included in the analysis had depressive symptoms, with 55.3% showing low-moderate symptoms of depression and 44.7% with severe symptoms of depression. 59.6% of the caregivers reported high levels of stress. Factors that showed significant association with depressive symptoms included total number of children in a family (p=0.05), caregiver's stress level (p=0.036), and difficulties with peers (p=0.001). The remaining demographic and psychosocial factors did not show any significant association with depressive symptoms. In the qualitative component, caregivers identified the following as recurring stressors providing care for children with ASD - lack of awareness, poor support, lack of staff/specialists in the field, and lastly, manifestation of ASD symptoms in their children. Participants also identified some helpful coping strategies such as religion, spousal support, parental association, as well as the special needs education units. **Conclusion and recommendations:** There is high magnitude of depressive symptoms among children with ASD registered in special education units in Dar-es-salaam, Tanzania. Factors significantly associated with the symptoms include number of children in the family, and perceived stress level of the primary caregiver. Having severe difficulties in the peer problems domain showed highly significant association with the depressive symptoms. It is therefore recommended that children with ASD get screened and treated for depressive symptoms. It is also important for caregivers

of children with ASD to receive information on impact of stress as well as training so as to better manage the stress associated with caretaking.

200. **Kitabi EN, Minzi OMS, Mugusi S, Sasi P, Janabi M, Mugusi F, Burhenne J. Investigating the determinants of efavirenz pharmacokinetics after long term treatment with and without rifampicin among Tanzanian HIV/TB and HIV patients. In *The Second Scientific Conference*. 2014.**

Background: The extent of pharmacokinetic interaction between rifampicin and efavirenz is still uncertain. **Aim:** We investigated the determinants of efavirenz pharmacokinetics after long term antiretroviral therapy (ART) with and without rifampicin co-treatment. **Patients and methods:** We recruited patients on efavirenz based ART alone (arm1, n=20) and patients on efavirenz/rifampicin based HIV/Tuberculosis co-treatment (arm2, n=34). Intensive blood sampling (at around 0, 1, 3, 6, 12, 16 and 24 hours after taking efavirenz) was performed 16 weeks after initiation of ART and repeated in arm2 patients (n=31) 8 weeks after completion of Tuberculosis treatment. Data were analyzed by nonlinear mixed effects modelling. Treatment arms, sampling occasions, demography, clinical, laboratory and single nucleotide polymorphisms data were tested as potential covariates for the model parameters. **Results:** The patients had median age and weight of 42 years (IQR, 36-50) and 48 Kilograms (IQR, 43-60) respectively. The proportion of CYP2B6*1/*1 and CYP2B6*6/*6 genotypes were 38.2% and 23% respectively. Efavirenz pharmacokinetics was described by 1 compartment model. The estimated population values for absorption rate constant (Ka) and apparent volume of distribution (V/F) were 1.5h⁻¹ (95%CI, 0.9-2.1) and 696L/70Kg (95%CI, 551-841) respectively. CYP2B6 genetic polymorphism was the only determinant of efavirenz oral clearance (CL/F) being highest in patients with CYP2B6*1/*1 genotype (22.8 L/h/70kg; 95%CI, 16.4-29.2) and 58% (95%CI, 41-75) lower in patients with CYP2B6*6/*6 genotypes. Regardless of genotype, the ratio of efavirenz clearance, arm1 to arm2, during and after co-treatment were 1.2 (95%CI, 0.80 -1.60) and 1.1(95%CI, 0.76-1.46) respectively. **Conclusion:** Our results support the hypothesis that after long term efavirenz treatment the magnitude of its auto induction of metabolism and cellular transport is comparable to that due efavirenz/rifampicin co-treatment. The CYP2B6

genetic polymorphism but not rifampicin co-treatment should be taken into account when adjusting for efavirenz dosage during both ART and HIV/TB co treatment.

201. **Kohi TW, Mselle LT, Mashauri PM, Mpandana C, Vermond N, Mfalila L. Using a collaborative approach to address task shifting during the HIV epidemic: The Tanzania experience. *African Journal of Midwifery and Women's Health*. 2014; 8(2): 17-19.**

The shortage of trained health workers is particularly severe in Tanzania. Due to the health worker shortage, many nurses and midwives in Tanzania provide critical HIV services that were formerly provided by physicians. This service delivery strategy, called task sharing, is recommended by the World Health Organization, but it has not yet been formally endorsed by the Tanzanian government. Using a collaborative approach developed by the African Health Profession Regulatory Collaborative (ARC) for nurses and midwives, Tanzanian nursing leaders from four professional sectors, the 'Quad', along with in-country partners have successfully advocated for nursing on a number of issues important to the profession. With continued support from ARC and other partners, the Quad is working to advance task sharing in a collaborative, sustainable way, which could be an important example for the rest of the region.

202. **Kulola IB. Seventy two-hour outcomes in adult trauma patients presenting to mnh emd who undergo ultrasound evaluation for trauma. Master of Medicine (Emergency Medicine) *Dissertation* 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: Trauma is one of the leading causes of death in the world. In patients with intra-abdominal injuries, proper and immediate diagnosis is needed in order to rule out life threatening injuries and facilitate early surgical intervention when needed. Bedside ultrasound (Focused Assessment with Sonography for Trauma - FAST) has become a common tool for rapid evaluation but it is still a new concept in Tanzania. There is limited data on the diagnostic test performance of ultrasound for trauma in limited resource settings (LRS), where delayed presentation is common and where other imaging modalities may not be available. Problem statement: There is no literature on outcomes of

trauma patients in LRS found to have positive FAST. **Rationale:** The results of this study will provide data on intra-operative findings and outcomes of trauma patients after bedside ultrasound (Focused Assessment with Sonography for Trauma - FAST). They will also guide development of an algorithm on disposition of trauma patients with positive FAST findings. **Aim of the Study:** To describe ultrasound findings and 72-hour outcomes of adult trauma patients who undergo ultrasound evaluation for trauma at Muhimbili National Hospital Emergency Department (MNH EMD). **Materials and Methods:** This was a prospective cohort study of adult trauma patients presenting to MNH EMD who undergo ultrasound evaluation for trauma. The data was collected into a standardized form, entered into Excel spreadsheet and analyzed using SPSS v16. **Results:** Majority of the adult trauma patients presenting to EMD MNH were between the ages of 18 and 39 years (71%) with a median of 31 years, and a predominance of male victims (84.4%). The leading cause of trauma was motor traffic accidents in (82%) of the patients. About 8.4% had a positive FAST exam and 2.4% had indeterminate FAST results. Eighty-one percent of the patients passed through one or two other hospitals before arriving at MNH EMD, with most of them presenting from 1 to 6 hours after trauma (53%) or 6 to 24 hours later (27.8%). From the EMD, 97% of patients with positive FAST were admitted in general surgical wards and 2.9% died in the department. Eighty eight percent of patients with positive FAST exams were taken to theatre from the EMD. The intra-abdominal injuries most commonly encountered were liver injuries, large and small bowel injuries, retroperitoneal bleeds and abdominal vasculature injuries, while spleen was not among the top five common injuries. Blood was the most commonly found free fluid intra-operatively, but other types of fluid included urine, bile, fecal matter and pus. Blood transfusion among the patients with positive FAST exam was more frequently given intra-operatively followed by in the ward than at the EMD. In the 72-hour period, 44% of patients had been discharged and 62.7% were improving in the ward. And 5.8% of the patients had died, including 20% of those with positive FAST exams. **Conclusion:** There is a prognostic value in using FAST examination, as 88% of trauma patients who had positive FAST were taken to operating theatre directly from the EMD. Furthermore, up to 20% of trauma patients who had positive FAST died within 72 hours, with or without surgical management? **Recommendation:** To encourage use of

ultrasound as Point of Care (POC) test in Emergency departments / casualties and improve availability of blood for Blood Transfusion in hospitals. Further research is needed to determine factors affecting mortality of trauma patients with positive FAST even after surgical management.

203. Künzel F, Peschke R, Tichy A, Joachim A. Comparison of an indirect fluorescent antibody test with Western blot for the detection of serum antibodies against *Encephalitozoon cuniculi* in cats. *Parasitology research*. 2014; 113(12): 4457-4462.

Current clinical research indicates that *Encephalitozoon* (E.) *cuniculi* infections in cats may be underdiagnosed, especially in animals with typical ocular signs (cataract/anterior uveitis). Although molecular detection of the pathogen in tissue appears promising, serology remains the major diagnostic tool in the living animal. While serological tests are established for the main host of E. *cuniculi*, the rabbit, the routine serological diagnosis for cats still needs validation. The aim of the study was to evaluate the consistency of indirect fluorescence antibody test (IFAT) and Western blot (WB) for the detection of IgG antibodies against E. *cuniculi* in the serum of 84 cats. In addition, PCR of liquefied lens material or intraocular fluid was performed in those of the cats with a suspected ocular E. *cuniculi* infection. Twenty-one cats with positive PCR results were considered as a positive reference group. Results obtained by IFAT and WB corresponded in 83/84 serum samples, indicating a very good correlation between both serological methods. Using WB as the standard reference, sensitivity and specificity for the detection of antibodies against E. *cuniculi* by the IFAT were 97.6 and 100 %, respectively. The positive and negative predictive values for the IFAT were 100 and 97.7 %, respectively. The accuracy (correct classified proportion) for the detection of IgG antibodies against E. *cuniculi* in cats was 98.8 %. The comparison of both serological methods with the PCR results also revealed a good agreement as 20 out of 21 PCR-positive samples were seropositive both in IFAT and WB. Both tests can be considered as equally reliable assays to detect IgG antibodies against E. *cuniculi* in cats. As the IFAT is quicker and easier to perform, it is recommended for routine use in the diagnosis of feline encephalitozoonosis.

- 204. Kweon JJ, Fu R, Steven E, Lee CE, Dalal NS. High Field MAS NMR and Conductivity Study of the Superionic Conductor LiH₂PO₄: Critical Role of Physisorbed Water in Its Protonic Conductivity. *The Journal of Physical Chemistry C*. 2014; 118(25): 13387-13393.**

LiH₂PO₄ (LDP) is a favored candidate for hydrogen fuel cells, but the mechanism of its high protonic conductivity remains unclear. A complicating factor has been the lack of resolution in the reported proton NMR spectra. We now report multinuclear magic angle spinning NMR in LDP at magnetic fields up to 21.2 T. Well-resolved ¹H NMR spectra are observed that are assignable to protons in the short and long O–H•••O hydrogen bonds and a peak to physisorbed H₂O. The position and intensity for the H₂O peak depend on the H₂O content, implying fast exchange between the adsorbed H₂O and the O–H•••O protons. ³¹P and ⁷Li NMR spectra and spin–lattice relaxation measurements showed that the proton hopping/exchange processes involve concerted hindered rotational fluctuations of the phosphate groups. Conductivity data from adsorbed H₂O-controlled samples clearly suggest that the mechanism of LDP’s protonic conductivity is dominantly the exchange (and hopping) of the adsorbed H₂O protons with the short O–H•••O hydrogen bonds, in contrast to an earlier model that ascribed it to intermolecular hopping of O–H•••O protons. The new findings enable us to modulate LDP’s protonic conductivity by several orders of magnitude via controlling physisorbed water.

- 205. Lachance L, Sean Martin M, Kaduri P, Godoy-Paiz P, Ginieniewicz J, Tarasuk V, McKenzie K. Food insecurity, diet quality, and mental health in culturally diverse adolescents. *Ethnicity and Inequalities in Health and Social Care*. 2014; 7(1): 14-22.**

Purpose: The purpose of this paper is to increase the understanding of adolescents’ perceptions of food insecurity and diet quality, and the impact that these factors have on mental health. **Design/methodology/approach:** This study used a community-based research approach. It gathered qualitative data from 11 in-depth interviews conducted with adolescents aged 13-19. Participants were recruited through various programmes they attended at a community organization in Toronto. **Findings:** Overall, results indicate

that respondents clearly identified a linkage between food insecurity and mental health. They also identified several effects of poor diet quality on mental health. Respondents understood food insecurity and poor diet quality to exist on a continuum. However, they also identified other reasons for making poor dietary choices such as peer pressure. Mental health effects of food insecurity and poor diet quality included sadness, stress, worry, anger, shame, impaired concentration, and fatigue. **Practical implications:** This research will help to inform future research design in the field of social determinants of mental health. As well, the findings will help guide the development of interventions targeted towards this vulnerable age group. **Originality/value:** This is the first qualitative study to explore food insecurity and poor diet quality, as existing on a continuum, from the perspective of adolescents. The authors are also the first to explore the impact of these factors on the mental health of adolescents, based on their own understanding. What is more, the authors focused on a culturally diverse population living in an underprivileged neighbourhood in Toronto. The authors chose this population because they are at higher risk of both food insecurity and poor diet quality.

206. Lambdin BH, Masao F, Chang O, Kaduri P, Mbwambo J, Magimba A, Bruce RD. Methadone Treatment for HIV Prevention-Feasibility, Retention and Predictors of Attrition in Dar es Salaam, Tanzania: A Retrospective Cohort Study. *Clinical Infectious Diseases*. 2014; 382.

Background: People who inject drugs (PWID) in Dar es Salaam have an estimated HIV prevalence of 42%-50% compared to 6.9% among the general population. Extensive evidence supports methadone maintenance to lower morbidity, mortality and transmission of HIV and other infectious diseases among PWID. In 2011, the Tanzanian government launched the first publicly funded methadone clinic on the mainland of sub-Saharan Africa at Muhimbili National Hospital. **Methods:** We conducted a retrospective cohort study of methadone-naïve patients enrolling into methadone. Kaplan-Meier survival curves were constructed to assess retention probability. Proportional hazards regression models were used to evaluate the association of characteristics with attrition from the methadone program. **Results:** Overall, 629 PWID enrolled into methadone during the study. At 12-months, the proportion of clients retained in care was 57% (95%

Confidence Interval (CI): 53%-62%). Compared to those receiving a low dose (<40 mg), clients receiving a medium (≥ 40 - ≤ 85 mg) [aHR=0.50; (95%CI: 0.37-0.68)] and high (>85 mg) [aHR=0.41; (95%CI: 0.29-0.59)] dose of methadone had a lower likelihood of attrition, adjusting for other characteristics. Clients who were older (aHR=0.53 per 10yrs; 95%CI: 0.42-0.69) and female (aHR=0.50; 95%CI: 0.28-0.90) had a significantly lower likelihood of attrition, while clients who reported a history of sexual abuse (aHR=2.84; 95%CI: 1.24-6.51) had a significantly higher likelihood of attrition. **Conclusions:** Patient retention in methadone maintenance is comparable to estimates from programs in North America, Europe, and Asia. Future implementation strategies should focus on higher doses and flexible dosing strategies to optimize program retention and strengthened efforts for clients at higher risk of attrition.

207. Langwieser N, Prothmann S, Buyer D, Poppert H, Schuster T, Fusaro M, Ibrahim T. Safety and efficacy of different stent types for the endovascular therapy of extracranial vertebral artery disease. *Clinical Research in Cardiology*. 2014; 103(5): 353-362.

Objectives: This study aims to determine safety and efficacy of different stent types for extracranial vertebral artery stenting (EVAS) at a single-center institution. **Background:** Although endovascular revascularization techniques are well established for a variety of arterial vessel territories, its role within the vertebrobasilar system is less well defined. **Methods:** We retrospectively analyzed all EVAS procedures performed at our institution between 1997 and 2012. **Results:** A total of 35 EVAS procedures were attempted in 35 patients with symptomatic occlusive extracranial vertebral artery (EVA) disease. Carotid self-expanding bare-metal stents (BMS-SE; n = 18), coronary balloon-expandable bare-metal stents (BMS-BE; n = 7) or drug-eluting stents (DES-BE; n = 16) were used according to physician's choice. The overall technical and clinical success rate was 100 and 94 %, respectively. Periprocedural complications included one death 14 days after intervention due to complications of initial stroke and 3 (9 %) patients with access site complications. Follow-up after a median of 18 ± 21 months yielded an overall in-stent restenosis rate of 23 % and a recurring clinical symptoms rate of 20 % whereas both endpoints were closely associated as 83 % of patients with recurring symptoms

showed significant restenosis. Concerning the stent type, BMS-SE were associated with a significant higher in-stent restenosis rate compared to balloon-expandable stents ($p = 0.012$), and although not statistically significant, there was a clear trend towards a lower in-stent restenosis rate in drug-eluting compared to bare-metal stents ($p = 0.068$). **Conclusions:** In patients with symptomatic extracranial vertebral artery disease, stenting is a safe and effective treatment option whereas balloon-expandable stents, and particularly drug-eluting stents, are superior to self-expanding stents.

208. Lawman HG, Vander Veur S, Mallya G, McCoy TA, Wojtanowski A, Colby L, Foster GD. Changes in quantity, spending, and nutritional characteristics of adult, adolescent and child urban corner store purchases after an environmental intervention. *Preventive medicine*. 2014.

Objectives: The purpose of this study was to assess one-year changes in corner store purchases (nutritional characteristics, amount spent) of children, adolescents, and adults in a low-income urban environment before and after implementing an environmental intervention to increase the availability of healthier products. **Methods:** Corner store owners were provided tools (trainings, signage, and refrigeration) to increase the promotion and availability of several healthy foods. Based on the degree of support provided, stores were classified as “basic” or “high-intensity” intervention stores. Data on purchases and their nutrient content were gathered ($n = 8671$ at baseline, $n = 5949$ at follow-up) through customer purchase assessment interviews and direct observation outside of 192 corner stores in Philadelphia from March 2011 to August 2012. **Results:** At baseline, shoppers spent $\$2.81 \pm 3.52$ for 643 ± 1065 kcal. Energy, select nutrients, and the total amount spent did not significantly change in the overall sample from baseline to follow-up. Similarly, there was no effect on energy and nutrient content when comparing changes over time between basic and high-intensity stores. **Conclusions:** There were no significant changes in the energy or nutrient content of corner store purchases one year after implementation of environmental changes to increase the availability of healthier products.

209. **Layer EH, Kennedy CE, Beckham SW, Mbwambo JK, Likindikoki S, Davis WW, LTC Tanzania Collaborative Study Team. (2014). Multi-level factors affecting entry into and engagement in the HIV continuum of care in Iringa, Tanzania. *PloS one*. 2014; 9(8): e104961.**

Progression through the HIV continuum of care, from HIV testing to lifelong retention in antiretroviral therapy (ART) care and treatment programs, is critical to the success of HIV treatment and prevention efforts. However, significant losses occur at each stage of the continuum and little is known about contextual factors contributing to disengagement at these stages. This study sought to explore multi-level barriers and facilitators influencing entry into and engagement in the continuum of care in Iringa, Tanzania. We used a mixed-methods study design including facility-based assessments and interviews with providers and clients of HIV testing and treatment services; interviews, focus group discussions and observations with community-based providers and clients of HIV care and support services; and longitudinal interviews with men and women living with HIV to understand their trajectories in care. Data were analyzed using narrative analysis to identify key themes across levels and stages in the continuum of care. Participants identified multiple compounding barriers to progression through the continuum of care at the individual, facility, community and structural levels. Key barriers included the reluctance to engage in HIV services while healthy, rigid clinic policies, disrespectful treatment from service providers, stock-outs of supplies, stigma and discrimination, alternate healing systems, distance to health facilities and poverty. Social support from family, friends or support groups, home-based care providers, income generating opportunities and community mobilization activities facilitated engagement throughout the HIV continuum. Findings highlight the complex, multi-dimensional dynamics that individuals experience throughout the continuum of care and underscore the importance of a holistic and multi-level perspective to understand this process. Addressing barriers at each level is important to promoting increased engagement throughout the continuum.

210. **Lee DW, Mohamed F, Will R, Bauer R, Shelander D. Integrating Mechanical Earth Models, Surface Seismic and Microseismic Field Observations at the Illinois Basin-Decatur Project. *Energy Procedia*. 2014; 63: 3347-3356.**

The Illinois Basin - Decatur Project (IBDP) is a carbon dioxide (CO₂) storage project that has a goal to inject 1 million tonnes of CO₂ over a three-year period. As a part of managing the CO₂ storage, several measurement, monitoring, characterization, data integration, and modelling technologies originally developed for hydrocarbon exploration and production applications were adapted for use on this project. Real-time continuous measurement of microseismicity in the project area showed that these events consistently cluster instead of being randomly located, suggesting the pre-existence of rock imperfections in the injection site. Geomechanics and finite element models that duplicate the location of observed small amplitude microseismic clusters with injection show a high correlation with measured events locations. This work advances the direct use of surface seismic data to constrain mechanical model assumptions pertaining to features associated with injection-induced microseismicity.

211. **Lekashingo LD. Exploring the effects of user fees, quality of care and utilization of health services on enrolment in community health fund, Bagamoyo district, Tanzania. Masters of Medicine (Community Health) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: The co-existence of Community Health Fund (CHF) and user fees in Tanzania as health financial mechanisms have affected to CHF enrolment. However, little is known about the effect of user fees on CHF enrolment, non-enrollment and drop-out. **Objectives:** The study aimed at exploring the effects of coexistence of user fees and Community Health Fund scheme, quality of care and utilization of health services on CHF enrolment, non enrollment and drop out in Bagamoyo District, Coast Region, Tanzania. **Methods:** An exploratory cross sectional community and health facility study was conducted in Bagamoyo District between April and May 2012. The study involved heads of households who were categorized in four groups; CHF members from community (63), non CHF members from the community (60), CHF members from health facilities (145) and non CHF members from health facilities (144). The study participants were interviewed using a semi structured questionnaire. Univariate and multivariate analyses were done to find factors associated CHF enrollment, non-enrollment and drop-out. **Results:** Although user fee was not pointed as the reason for

not joining CHF, CHF members were significantly more likely to pay higher amount of user fee than non CHF members ($p < 0.01$). Being a CHF member was associated with non- payment of user fees and higher expenditure on health services. Furthermore, health services utilization, although slightly lower among non CHF members, was not statistically different between CHF and non CHF members ($p = 0.09$). Poor quality of health services at health services and poor referral mechanisms were the main reasons for dropping out from CHF. **Recommendations:** The co-existence of user fees and CHF should be re-visited. Efforts should be taken to improve quality of health services and referral mechanisms in the public health facilities in Bagamoyo in order to reduce unnecessary distress to the CHF members, decrease drop out and improve the performance of CHF in Bagamoyo.

212. **Leonard D. Factors Hindering Case Tracing Of Pediatric Tuberculosis In Dodoma Municipality, Tanzania, Master of Public Health Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: Childhood Tuberculosis (TB) is among the top ten causes of childhood morbidity and mortality particularly in high-burden TB settings. According to 2012 Annual Report, the TB cases diagnosed and notified in Dodoma Municipal was 198/100,000; which is only 59% of what WHO recommends (3331100,000); the municipality diagnosed and notified only 39 TB cases of children aged 0-14 years. For children this figure is only 4.8% of the WHO recommendations. **Aim of the study:** The study aimed at finding out specific factors hindering case tracing of Tuberculosis in children in Dodoma Municipality. **Methodology:** A cross sectional descriptive study was done in April 2014 in Dodoma Municipality. It used purposive sampling technique to obtain 80 health care workers (HCWs) on convenience basis from all twelve TB diagnostic facilities and multistage cluster sampling technique to obtain 385 community members of Nzuguni ward. Self- administered questionnaire and interviewer guide were used for HCWs and community members respectively to collect demographic data, number of HCW s trained on TB related interventions, availability of TB tools/job aids, contact case tracing strategies and awareness of TB signs in children among community members. Data were sorted and processed using SPSS version 17. Descriptive statistics

were generated and summarized for socio-demographic characteristics, TB trainings attended by HCWs, availability of job aids/tools and equipment, contact case tracing strategies. Community awareness of the signs and symptoms of TB in children were also analyzed using descriptive statistics to find out those who had received any health education of Pediatric TB or had any information on TB signs and symptoms in children.

Results: Study population composed of 80 HCWs and 385 community members. Among the HCWs, 43(53.8%) were males and 37(46.2%) females. HCWs included 10(12.5%) Medical Officers, 20(25%) Assistant Medical Officers, 21 (26%) were Clinical Officers and 2(2.5%) Clinical Assistants; Laboratory technicians were 13(16.2%), Laboratory Assistants 10(12.5%) the rest were put under others 4(5%). Among the community members, 167 (43.4%) were males and 218 (56.6%) females. The age of community members ranged from 18 to 81 years (mean = 27.79 ± 10.80) and majority of them 304 (79%) were in the age group (18-34) years. Most of the study community members 192(49.9%) had secondary school education and only few 34 (8.8%) had no formal education. The most mentioned pediatric TB case detection challenges included; few staff trained on TB related trainings 53 (66.3%), about 17(31.5% and 15(57.7%) clinicians and laboratory staff had not attended any TB related training respectively; lack of awareness of parents about Pediatric TB 34 (62.9%), inadequate support for HCWs to visit homes of index patient 37 (68.5%) and difficult to read and interpret chest x-ray 33 (61.1%). None of HCWs reported to have Gene X-pert MTBIRIF at their facility. **Conclusion:** This field based study has established that; few HCWs are trained on TB related interventions, there is low awareness of the community of TB among children; difficult interpretation of chest x-ray results, unavailability of currently used equipment such as Gene X-pert MTBIRIF and inadequate TB contact case tracing strategies are factors influencing TB case tracing among children in Dodoma Municipality. **Recommendations:** The MORSWINTLP need to train more HCWs on Pediatric TB and other TB related trainings, in-service educational programs among HCW s will emphasize TB case detection, treatment as well as prevention of TB in children aged 0-14 years. The Provision of equipment (gene x-pert)/job aids to TB diagnostic health facilities in Dodoma Municipality is also very important ; more effort is needed to raise community awareness through health education towards TB in children and further studies are

needed on why parents/caregivers provide wrong information/address when they have index TB patients (children & adults) .

213. **Lema AN. Multidrug Resistant Tb among Patients Attending Kibongoto Referral Hospital – Risk Factors and Anti-Tuberculosis Susceptibility Pattern of Second-Line Drugs. Master of Science (Epidemiology and laboratory Management) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: Global control of tuberculosis (TB) has been jeopardized by 2 major threats: HIV/AIDS and multidrug-resistant TB (MDR-TB). Drug resistance has reached alarming levels with the emergence of strains untreatable with existing drugs. In Tanzania the prevalence MDR TB has been found to be 20.6% and 3.9% among retreatment and new cases respectively. However, the risk factors for MDR-TB and efficacy of second-line anti-TB drugs in treating MDR TB have not been fully investigated. **Objectives:** The objectives of this study was to determine risks factors associated with the occurrence of MDR and antimicrobial susceptibility pattern of MDR TB isolates to second line drugs among patients attending Kibong'oto national TB Hospital in Kilimanjaro, Tanzania and iii) correlation of DST results obtained by the conventional proportion method with those obtained using gene expert method. **Methodology:** An unmatched Case control study with equal number of subjected of 102 for case and control group were enrolled from October 2013 to March 2014 A structured questionnaires were used for data collection. Two sputum specimens were collected, analyzed by .smear microscopy, Xpert MTB, conventional culture and DST for first and second line drugs. Data were analyzed using Epi Info 3.5.1. Association between variable were determined using OR and 95% CI. **Results:** A total 204 patients were recruited including 102 cases and 102 controls. There was significant association between history of smoking, (AOR =1.9, 95% cl 1.0-3.5), History of TB contact (AOR, 2.7(1.4-5.1), history of previous treatment (AOR =8.1,95%CI 4.3-15.2), size of family member >5 (AOR 1.7, 95% 0.9-1.2) HIV status (AOR 1.7, 95% cl 0.9-1) with MDR-TB sensitivity, specificity, positive predictive value and negative predictive value of gene expert was 100%. **Conclusion and Recommendation:** History of contact TB, smoking habit, family

size, history of TB treatment and HIV status, were associated with MDR-TB. Effort should be made to priorities and implementation of the Gene Xpert MTB/RIF as the screening tool in order to improve treatment outcome and minimize the emergency of XDR TB.

214. **Lema IA, Sando D, Magesa L, Machumi L, Mungure E, Sando MM, Bärnighausen T. Community health workers to improve antenatal care and PMTCT uptake in Dar es Salaam, Tanzania: a quantitative performance evaluation. *Journal of acquired immune deficiency syndromes (1999)*. 2014; 67(4): 195.**

Background: Home visits by community health workers (CHW) could be effective in identifying pregnant women in the community before they have presented to the health system. CHW could thus improve the uptake of antenatal care (ANC), HIV testing, and prevention of mother-to-child transmission (PMTCT) services. **Methods:** Over a 16-month period, we carried out a quantitative evaluation of the performance of CHW in reaching women early in pregnancy and before they have attended ANC in Dar es Salaam, Tanzania. **Results:** As part of the intervention, 213 CHW conducted more than 45,000 home visits to about 43,000 pregnant women. More than 75% of the pregnant women identified through home visits had not yet attended ANC at the time of the first contact with a CHW and about 40% of those who had not yet attended ANC were in the first trimester of pregnancy. Over time, the number of pregnant women the CHW identified each month increased, as did the proportion of women who had not yet attended ANC. The median gestational age of pregnant women contacted for the first time by a CHW decreased steadily and significantly over time (from 21/22 to 16 weeks, P-value for test of trend <0.0001). **Conclusions:** A large-scale CHW intervention was effective in identifying pregnant women in their homes early in pregnancy and before they had attended ANC. The intervention thus fulfills some of the conditions that are necessary for CHW to improve timely ANC uptake and early HIV testing and PMTCT enrollment in pregnancy.

215. **Lent MR, Vander Veur S, Mallya G, McCoy TA, Sanders TA, Colby L, Foster GD. Corner store purchases made by adults, adolescents and children: items, nutritional characteristics and amount spent. *Public health nutrition*. 2014; 1-7.**

Objective: Corner stores, also known as bodegas, are prevalent in low-income urban areas and primarily stock high-energy foods and beverages. Little is known about individual-level purchases in these locations. The purpose of the present study was to assess corner store purchases (items, nutritional characteristics and amount spent) made by children, adolescents and adults in a low-income urban environment. Design Evaluation staff used 9238 intercept surveys to directly examine food and beverage purchases. Setting Intercepts were collected at 192 corner stores in Philadelphia, PA, USA. Subjects Participants were adult, adolescent and child corner store shoppers. **Results:** Among the 9238 intercept surveys, there were 20 244 items. On average, at each corner store visit, consumers purchased 2.2 (SD 2.1) items (1.3 (SD 2.0) foods and 0.9 (SD 0.9) beverages) that cost \$US 2.74 (SD \$US 3.52) and contained 2786.5 (SD 4454.2) kJ (666.0 (SD 1064.6) kcal). Whether the data were examined as a percentage of total items purchased or as a percentage of intercepts, the most common corner store purchases were beverages, chips, prepared food items, pastries and candy. Beverage purchases occurred during 65.9 % of intercepts and accounted for 39.2 % of all items. Regular soda was the most popular beverage purchase. Corner store purchases averaged 66.2 g of sugar, 921.1 mg of sodium and 2.5 g of fibre per intercept. Compared with children and adolescents, adults spent the most money and purchased the most energy. **Conclusions:** Urban corner store shoppers spent almost \$US 3.00 for over 2700 kJ (650 kcal) per store visit. Obesity prevention efforts may benefit from including interventions aimed at changing corner store food environments in low-income, urban areas.

216. **Lima CRA, Mirandolli TB, Carneiro LC, Tusset C, Romer CM, Andreolla HF, Pasqualotto AC. Prolonged respiratory viral shedding in transplant patients. *Transplant Infectious Disease*. 2014; 16(1): 165-169.**

Respiratory viral infections are frequent causes of morbidity in transplant patients. We screened symptomatic adult transplant recipients for respiratory viruses in a cohort of

patients attending a referral medical center in Brazil. The duration of viral shedding and the prevalence of viral co detections were also determined. During a 1-year period (2011–2012), swabs were obtained from 50 patients. An in-house polymerase chain reaction panel designed to detect 10 viruses was used. Viruses were identified in 19 (38%) patients, particularly par influenza III (32%) and the respiratory syncytial virus (20%); multiple viruses were identified in 26% of patients. Prolonged viral shedding was observed with 60% of individuals excreting viruses for >10 days. The clinical and epidemiologic relevance of prolonged viral shedding remains to be determined.

217. **Liney LM. Development and Validation of High Performance Thin Layer Chromatography Analytical Method for Bisphenol A Released From Infant Feeding Bottles. Master of Pharmacy (Quality Control and Quality Assurance) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

A high performance thin layer chromatography (HPTLC) method for the qualitative and quantitative analysis of bisphenol A (BPA) was developed and validated according to ICH and USP guidelines. The method was developed using a mobile phase prepared with environment-friendly solvents namely: toluene: methanol: ethyl acetate in a ratio of (20:5:5 v/v/v), on pre-coated TLC silica gel 60 F254 glass plates with a saturation time of 20 min, application volume of 90 µl and a densitometer detection wavelength of 230 nm in the reflectance absorbance mode. The RF of bisphenol A was at 0.55 while that of internal standard paracetamol was 0.37. The method was repeatable with good selectivity and specificity. The regression functions were established over the range of 72-108 ng/spot with regression coefficient (r^2) of 0.997 for polynomial regressions. The percentage relative standard deviation (%rsd) for repeatability was 8.2%, while intermediate precision was 7.08%. The method had acceptable level of accuracy with percentage relative standard deviation of less than 10% and the mean recoveries in the range of 90 and 110. The validated assay method for biphenyl A is simple and inexpensive, with good precision and useful in resource constrained countries. A bisphenol a detection analysis was conducted using polycarbonate baby bottles. Water was used to simulate migration into aqueous and acidic foods and 50% ethanol solution to simulate migration to fatty foods such as infant formula. By combining rotary

evaporator extraction and bisphenol A (BPA) analysis using HPTLC, bisphenol A leaching from polycarbonate bottles was favored by high temperature and incubation time.

218. Lingala SG, Mohsin Y, Newell JD, Sieren JC, Thedens D, Kollasch P, Jacob M. Accelerating dynamic imaging of the lung using blind compressed sensing. Journal of Cardiovascular Magnetic Resonance.2014; 16(1): 1-3.

Background: Real time dynamic lung MRI is a promising tool to noninvasively assess lung function and mechanics. However, its potential is not realized in the clinic due to the restricted spatio-temporal resolution and volume coverage. The main focus of this work is to overcome these drawbacks using the recent blind compressed sensing (BCS) scheme [Lingala et al., IEEE TMI 2013], which enables recovery from undersampled k-t measurements. **Methods:** The BCS scheme exploits the sparsity of the dynamic dataset in a learned dictionary, which is estimated from undersampled measurements. Since the non-orthogonal basis functions are learnt from the data, they offer more compact representations than conventional compressed sensing (CS) schemes [Otazo et al MRM 2010] that utilize predetermined dictionaries and conventional low rank models [Lingala et al., IEEE TMI 2011] that utilize few orthogonal learned bases. We test the feasibility of the proposed scheme by recovering a retrospectively undersampled 2D free breathing lung MRI dataset using BCS. The data from a single coronal slice was acquired on an anesthetized swine using a TrueFISP sequence (TR = 138.62 msec, TE = 1.06 msec, phase encoding steps: 128, Image matrix size after interpolation: 256×256 , FOV 320 mm², GRAPPA factor: 3) on a 3 T Siemens Trio with a 12 channel coil. The 28 second acquisition resulted in 200 2D images with a temporal footprint of ~140 msec/image. The reconstructed images were retrospectively undersampled using a radial k-t sampling pattern, whose spokes were uniformly distributed in a single frame. The pattern was rotated by random angles in subsequent frames to ensure incoherence. Subsampling was performed by considering 40 to 10 spokes/frame. Image reconstruction was performed by the BCS, k-t FOCUSS (CS using Fourier bases), and the low rank schemes. **Results:** The BCS scheme provided superior spatio-temporal fidelity than CS and low rank methods. The CS scheme was found to be sensitive to motion artifacts, while the low rank

reconstructions suffered from spatio-temporal blurring. Feasible subsampling levels upto 25 spokes/ frame where the mean square error was within 0.1 percent was achieved with the BCS scheme. **Conclusions:** The blind compressed sensing scheme utilizing learned dictionaries has potential to accelerate free breathing dynamic lung MRI. The preliminary results in this work demonstrated high fidelity reconstructions of the BCS scheme in comparison to existing compressed sensing and low rank models. Further validation on patients is required to evaluate the clinical utility.

219. Liverani C, Mercatali LC, La Manna F, De Vita A, Riva N, Ibrahim T. CSF-1 blockade impairs breast cancer osteoclastogenic potential in co-culture systems. *Bone*. 2014; 66, 214-222.

Metastatic bone disease has a major impact on the morbidity and mortality of breast cancer patients, and studies on bone metastasis biology have led to the development of the most widely used drugs for bone metastases treatment: zoledronate (Zol) and denosumab (Den). The aim of the present study was to assess the effect of soluble mediators produced by breast cancer cells on human osteoclast maturation in a co-culture model. We also tested the ability of zoledronate, denosumab and 5H4, an antibody directed against CSF-1, to interfere with the osteoclastogenic potential of breast cancer. The study was performed on the triple negative cell line MDA-MB-231 and on human osteoclasts obtained from the differentiation of peripheral blood monocytes of a healthy volunteer. Osteoclastogenesis was evaluated by TRAP assay after 14 days of differentiation with 10% MDA-MB-231-conditioned media or with CSF-1 and RANKL. Den, Zol and 5H4 were administered after 7 days of differentiation. MDA-MB-231-conditioned media doubled the differentiation of monocytes into osteoclasts. MDA-MB-231 secreted CSF-1, especially when cells were cultured to confluence. Induced osteoclasts were sensitive to bone-targeted drugs: Den and 5H4 blocked osteoclast differentiation and survival, while Zol induced osteoclast apoptosis. Osteoclasts differentiated by breast cancer cells were less sensitive to Zol than those induced by differentiation factors, whereas sensitivity to Den was similar. Conversely, breast cancer-induced osteoclast activation resulted in a higher sensitivity to 5H4. A significant increase in CSF-1 secretion was observed in osteoclast precursors after treatment with the

highest concentration of Den. Further research is ongoing to evaluate the efficacy of 5H4 combination with Den.

- 220. Lwoga ET, Questier F. A Model for Measuring Open Access Adoption and Usage Behavior of Health Sciences Faculty Members. In XIII Mediterranean Conference on *Medical and Biological Engineering and Computing*.2014; (2013): 1298-1301.**

In the last few years a significant challenge has been faced in the healthcare world, after the development of the LOINC (Logical Observation Identifiers Names And Codes) and the HL7 (Health level 7) standards; in order to provide systems of interoperable platforms, interconnected and utilizing standard language for the processing, communication and treatment of data. The aim of this paper is to demonstrate how a small local laboratory can easily communicate with a central data repository using these standards. This was realized by creating: a database with laboratory observations codified in LOINC, a web server that represents the general repository of data and by using two clients that directly link to the Web Service (WS) and which also allows clinicians and laboratory biologists to communicate with each other. The results clearly demonstrate that these standards are able to realize interoperability among heterogeneous systems. A future development should consist in testing this reality at a national level, with a national data repository.

- 221. Lwoga ET, Sife AS. Research productivity and citation patterns of librarians in Tanzania: A scientometric analysis. 2014.**

Purpose: A scientometric study was conducted to analyze the research productivity and citation patterns of librarians in Tanzania for a period of 30 years from 1984 to 2013.

Research methods: Data were obtained using the Publish or Perish software which uses Google Scholar to retrieve scholars' publications, citations and related metrics. For each librarian, the retrieved metrics were the total number of papers, total number of citations, average citations per paper, average papers per author, average citations per year, average citations per author, and four indices - the h-index, g-index, Hc-index, and the HI-norm.

Findings: The study findings indicate that a total of 434 publications were recorded for

all librarians, giving an average of 14.5 publications per year. The year 2008 had the most (9.9%) publications followed by 2010 (7.8%) while the years 1985 and 1987 had the lowest (0.2%) number of publications. About 43% of the publications were single-authored and the degree of collaboration was 0.57. The top ten ranked librarians contributed more than half (53.2%) of all publications although they showed considerable variation among different metrics. Only three journal articles had 25 or more citations. Librarians in Tanzania had been publishing their research findings in a wide range of international scholarly journals with the University of Dar es Salaam Library Journal being the only Tanzanian journal with a substantial number of articles. **Originality:** This is the most comprehensive study to be conducted in the country focusing on the research performance of librarians **Research implications:** The study findings call for scholars to recognize the importance of publishing in visible journals in order to receive large citation counts. These findings suggest that many factors should be considered in combination when evaluating the research performance of librarians and other scholars. Institutions are urged to employ scientometrics in evaluating the research performance of their scholars since such techniques take into account a combination of several measures.

222. Lwoga ET, Sife AS. Publication productivity and scholarly impact of academic librarians in Tanzania: A scientometric analysis. 2014.

Purpose: The purpose of this scientometric study was to conduct an analysis of the research productivity and scholarly impact of academic librarians in Tanzania for a period of 30 years from 1984 to 2013. **Design/methodology/approach:** Data were obtained using the Publish or Perish software which uses Google Scholar to retrieve scholars' publications, citations and related metrics. For each librarian, the retrieved metrics were the number of papers, papers per author, citation counts, average citations per paper, average papers per author, average citations per year, average citations per author and four indices, namely, the h-index, g-index, Hc-index and the HI-norm. **Findings:** The study findings indicate that 434 publications were recorded for all librarians, giving an average of 14.5 publications per year. The year 2008 had the most (9.9 per cent) publications followed by 2010 (7.8 per cent), while the years 1985 and 1987 had the lowest (0.2 per cent) number of publications. About 43 per cent of the

publications were single-authored and the degree of collaboration was 0.57. The top-ten ranked librarians contributed more than half (53.2 per cent) of all publications, although they showed considerable variation among different metrics. Only three journal articles had 25 or more citations. **Originality/value:** Previous studies on the topic are scarce, and, therefore, this paper provides useful recommendations to library and information science (LIS) schools, libraries and universities to improve research productivity of their academic librarians in Tanzania and other countries with a similar setting.

223. **Lwoga ET, Sife AS. Research Productivity and Web Visibility of Dental Faculty in Tanzania: A Scientometric Analysis. 2014.**

A scientometric study was conducted to analyze the research productivity and web visibility of dental faculty at the Muhimbili University of Health and Allied Sciences (MUHAS) in Tanzania from 1983 to 2013. Data were extracted using the Publish or Perish software which uses Google Scholar to retrieve publications, citation counts and related metrics. For each faculty, the retrieved metrics were the total number of papers, total number of citations, average citations per paper, average papers per author, average citations per year, average citations per author, and four indices - the h-index, g-index, Hc-index, and the HI-norm. The study findings indicate that a total of 364 publications were produced by dental faculty members, giving an average of 12 publications per year. The year 2006 had the most (14.6%) publications followed by 2009 (9.9%) while the years 1984 and 1986 had no publications at all. Majority (81.5%) of publications were multiple-authored with 37.6% of the publications having four or more authors and the degree of collaboration was very high (0.82). Overall, J.R. Masalu was the top ranking scholar followed by E.N. Kikwilu and E.N. Simon. All dental faculty members showed variation in their performance as no single scholar maintained the same rank in all nine metrics. Only eleven journal articles had 50 or more citation counts. Dental faculty in Tanzania had been publishing their research findings in a wide range of international scholarly journals with the Tanzania Dental Journal being the only Tanzanian journal with a substantial number of articles. These findings suggest that many factors should be considered in combination when evaluating researchers' productivity and impact.

224. Lwoga ET, Stilwell C, Ngulube P. Knowledge management and indigenous organizations with special reference to Tanzania and South Africa. 2014.

Indigenous organizations have been formed over the past decades in response to local people claiming their land, human rights and ethnic identities (Roper 2003). The indigenous communities have been marginalized in terms of socio-economic, cultural and political rights and their use of natural resources due to lack of recognition in the national and regional policies according to the Pastoralists' Indigenous Non Governmental Organizations (PINGO Forum 2013a) and lack of representation and participation in decision-making bodies at both local and national levels (International Work Group for Indigenous Affairs 2013a). These factors make it very hard for indigenous people to advocate and lobby for the issues that affect them. Indigenous organizations aim to empower the indigenous people so that they can make better-informed decisions affecting their future, play a key role in influencing political and social issues and address the needs of indigenous people by advocating for transformation in the legal and institutional structures of their countries (Uquillas and Gabara 2000). Despite their importance to the grassroots, national and regional levels, these indigenous organizations' movements are generally weak, and the indigenous organizations are very few on the African continent (International Work Group for Indigenous Affairs 2013c). Indigenous knowledge (IK) and other knowledge systems can improve the management and movement of indigenous organizations in Africa if there are appropriate approaches to managing these knowledge systems.

225. Lwoga ET. Critical success factors for adoption of web-based learning management systems in Tanzania. 2014.

This paper examines factors that predict students' continual usage intention of web-based learning content management systems in Tanzania, with a specific focus at Muhimbili University of Health and Allied Science (MUHAS). This study sent a questionnaire surveys to 408 first year undergraduate students, with a rate of return of 66.7%. This study adapted the information system success (ISS) model, and it used structural equation modelling (SEM) for data analysis. The results show that quality-related factors (instructor and system) were a key predictor of perceived usefulness and user satisfaction,

and that information quality was found to significantly affect perceived usefulness. Further, perceived usefulness was a key determinant of user satisfaction, which in turn predicted continual usage intention of students within the e-learning system under the analysis. The researcher's paper is among the few exploratory studies that examines constructs of IS success model in the e-learning systems in sub-Saharan Africa, and Tanzania in particular, and presents e-learning success factors that should be of value to higher learning institutions management, e-learning systems designers and providers, and instructors when planning and implementing e-learning projects in the region and beyond.

226. **Lwoga ET. Health sciences faculty perception and practices on OA scholarly communication.2014.**

This study sought to investigate the faculty's awareness, attitudes and use of open scholarly communication in Tanzanian health sciences universities. Based on a questionnaire survey, 415 faculty members were selected through a stratified random sampling from a population of 679 in all eight health sciences universities in Tanzania. The response rate was 71.1%. The study found a high level of engagement with scholarly publishing, where senior members were more likely to participate in scholarly communication as journal authors, referee and editors. The majority of respondents were aware about open access (OA) issues; however, a small proportion of faculty's research materials was made available in OA. Senior faculties with more proficient technical skills are more likely to use OA than junior faculty. Major barriers to OA usage were related to ICT infrastructure, awareness, skills, journal author pay model, and copyright and plagiarism concerns. This study recommends the following: universities to improve information and communication technology infrastructure, and develop institutional repositories and policies, and librarians to create awareness about OA, conduct information literacy programmes, and provide information services on copyright management issues and other related OA aspects. This is first comprehensive and detailed study focusing on the health sciences faculty use behaviour of OA initiatives in Tanzania, and reveals findings that are useful for planning and implementing OA initiatives in other institutions with similar conditions.

227. Lwoga ET. Mapping Information Literacy Outcomes and Learning Experiences of Health Sciences Undergraduate Students. *Partnership: the Canadian Journal of Library and Information Practice and Research*. 2014; 9(1).

This study assessed whether first year undergraduate students are applying the research skills taught in information literacy (IL) module in course IT 100 to their work in other classes and for anything unrelated to classes at the Muhimbili University of Health and Allied Sciences (MUHAS) in Tanzania. A total of 275 students took part in a printed questionnaire survey which was distributed to all second year undergraduate students at MUHAS, a return rate of 77.2 percent. The study demonstrated that students continue to use the skills gained during the IL course both in other classes and for purposes unrelated to the class. However, there was low use of scholarly databases and the library catalogue for academic and non-academic activities. These findings show a need to address some issues concerning the information literacy module (IT 100.2), such as an increased emphasis on teaching topics related to search strategies, information sources, and evaluation of resources as a practical and useful skill. The study findings further showed that issues related to facilities (internet connectivity and electrical power) will also need to be addressed. This study is based on self-reports by first year undergraduate students, which may not be a precise predictor of their actual health information competencies and their actual use of skills in courses other than IL and for anything unrelated to the class. Further research is needed to validate differences between students' self-reports of their IL competence with their actual competence as measured by a strenuous post-test.

228. Machugu MM, Urassa DP, Pembe AB. Clients' perception of service quality of care in health facilities in Kibaha district, Tanzania. *East African Journal of Public Health*. 2014; 11(1): 610-619.

Introduction: Clients perception of service quality is important for utilization of health services. Clients with positive perception are more likely to comply with treatment and to continue to use health care services. Assessing clients' perception of services offered is crucial for improving delivery and organization of the services. **Objective:** To compare clients' perception of quality of care in government and non-government health facilities in Kibaha district, Tanzania. **Method:** Across sectional study was conducted using a

modified service quality framework (SERVIQUAL) questionnaire that contained five domains including tangibles, reliability, responsiveness, assurance and empathy. Expectations and perceptions of service quality were collected for all domains. Data are presented as mean gap scores by subtracting perception mean scores from the expectations mean scores. **Results:** The overall clients' mean gap score was higher (-0.46) in the government health facilities than the nongovernment health facilities (-0.18). The clients in both government and non-government health facilities had higher expectations of quality of service in all five domains than their perceptions except for the assurance and empathy domains in the non-government health facilities which were equal. The government health facilities had higher negative mean gap score for all domains except for tangible domain which had higher negative mean gap score (- 0.53) in the non-government health facilities. **Conclusion:** The clients' expectations of service quality in the district health facilities were not met. This was higher in the Government than the non-government health facilities. It is recommended that health facilities in Kibaha district improve structural quality of care, timeliness of health services and communication skills.

229. Maduwage K, O'Leary MA, Scorgie FE, Shahmy S, Mohamed F, Abeysinghe C, Isbister GK. Detection of Venom after Antivenom Is Not Associated with Persistent Coagulopathy in a Prospective Cohort of Russell's viper (*Daboia russelii*) Envenomings. PLoS neglected tropical diseases. 2014; 8(12): e3304.

Background: Venom recurrence or persistence in the circulation after antivenom treatment has been documented many times in viper envenoming. However, it has not been associated with clinical recurrence for many snakes, including Russell's viper (*Daboia* spp.). We compare the recovery of coagulopathy to the recurrence or persistence of venom in patients with Russell's viper envenoming. **Methodology/Principal Findings:** The study included patients with Russell's viper (*D. russelii*) envenoming presenting over a 30 month period who had Russell's viper venom detected by enzyme immunoassay. Demographics, information on the snake bite, and clinical effects were collected for all patients. All patients had serum collected for venom specific enzyme immunoassay and citrate plasma to measure fibrinogen levels and prothrombin time

(international normalised ratio; INR). Patients with venom recurrence/persistence were compared to those with no detectable recurrence of venom. There were 55 patients with confirmed Russell's viper envenoming and coagulopathy with low fibrinogen concentrations: 31 with venom recurrence/persistence and 24 with no venom detected post-antivenom. Fibrinogen concentrations increased and INR decreased after antivenom in both the recurrence and non-recurrence patients. Clinical features, laboratory parameters, antivenom dose and length of hospital were similar for both groups. Pre-antivenom venom concentrations were higher in patients with venom recurrence/persistence with a median venom concentration of 385 ng/mL (16–1521 ng/mL) compared to 128 ng/mL (14–1492 ng/mL; $p = 0.008$). **Conclusion:** Recurrence of Russell's viper venom was not associated with a recurrence of coagulopathy and length of hospital stay. Further work is required to determine if the detection of venom recurrence is due to the venom specific enzyme immunoassay detecting both venom-antivenom complexes as well as free venom.

230. Mafwiri MM, Kisenge RR, Gilbert CE. A pilot study to evaluate incorporating eye care for children into reproductive and child health services in Dar-es-Salaam, Tanzania: a historical comparison study. *BMC nursing*. 2014; 13(1): 15.

Background: Many blinding eye conditions of childhood are preventable or treatable, particularly in developing countries. However, primary eye care (PEC) for children is poorly developed, leading to unnecessary visual loss. Activities for control by health workers entail interventions for systemic conditions (measles, vitamin A deficiency), identification and referral of children with sight threatening conditions and health education for caregivers. This pilot study evaluated integrating a package of activities to promote child eye health into Reproductive and Child Health (RCH) services in Dar-es-Salaam, Tanzania. **Methods:** Design: historical comparison study. Fifteen Clinical Officers and 15 nurses in 15 randomly selected RCH clinics were trained in PEC for children in July 2010. They were given educational materials (poster and manual) and their supervisors were orientated. Knowledge and practices were assessed before and 3 weeks after training. One year later their knowledge and practices were compared with a

different group of 15 Clinical Officers and 15 nurses who had not been trained. **Results:** Before training staff had insufficient knowledge to identify, treat and refer children with eye diseases, even conjunctivitis. Some recommended harmful practices or did not know that cataract requires urgent referral. Eye examination, vitamin A supplementation of mothers after delivery and cleaning the eyes at birth with instillation of antibiotics (Crede's prophylaxis) were not routine, and there were no eye-specific educational materials. Three weeks after training several clinics delivering babies started Crede's prophylaxis, vitamin A supplementation of women after delivery increased from 83.7% to 100%, and all staff included eye conditions in health education sessions. At one year, trained staff were more likely to correctly describe, diagnose and treat conjunctivitis ($z=2.34$, $p=0.04$)(30%-vs-60.7%). Mystery mothers observed health education sessions in 7/10 RCH clinics with trained staff, five (71.4%) of which included eye conditions. **Conclusions:** Primary eye care for children in Dar-es-Salaam is inadequate but training RCH staff can improve knowledge in the short term and change practices. Attendance by mothers and their children is high in RCH clinics, making them ideal for delivery of PEC. Ongoing supportive supervision is required to maintain knowledge and practices, as well as systems to track referrals.

231. **Magadula JJ, Innocent E, Mbwambo ZH, Kapingu MC. International Journal of Current Research and Academic Review. *Int. J. Curr. Res. Aca. Rev.* 2014; 2(10): 99-111.**

In the past 6 years of our phytochemical and pharmacological studies of important medicinal plants growing in Tanzania, we investigated 11 plant genera namely *Allanblackia*, *Annona*, *Antidesma*, *Baphia*, *Croton*, *Dalbergia*, *Garcinia*, *Harrisonia*, *Mammea*, *Millettia* and *Teclea*. In different species of these genera, we isolated and reported over 50 secondary metabolites, among them 15 compounds were new to the chemical literature. Furthermore, we explored the biological activities of extracts and pure compounds isolated from these plants. Our focus was on anti-HIV, anticancer, antimicrobial, and antimalarial and antioxidant activities. Interesting biological activities were noted and paved ways for further studies that might lead to potential drug discovery.

232. **Magadula JJ, Masimba PJ, Tarimo RB, Msengwa Z, Mbwambo ZH, Heydenreich M, Richomme P. Mammea-type coumarins from *Mammea usambarensis* Verdc. *Biochemical Systematics and Ecology*. 2014; 56: 65-67.**

Phytochemical investigations of *Mammea usambarensis* resulted into the isolation a δ -tocotrienol (1) and five known mammea-type coumarins (2–6). Their structures were determined by NMR, IR, and LC-MS spectroscopic methods and by comparison of their spectral and physical data with those reported previously in the literature. The presence of these compounds is consistent with the compound classes reported from other members of the genus *Mammea*. Compound 6 is isolated from the *Mammea* genus for the first time. This is the new source of mammea-type coumarin compounds while the chemotaxonomic significance of this investigation is summarized.

233. **Magadula JJ, Mbwambo ZH, Gatto J, Derbré S, Guilet D, Richomme P. Polyphenolic compounds with anti-ages activity from three Clusiaceae plants. *European Journal of Medicinal Plants*. 2014; 4(11): 1336-1344.**

Aim: This study focused on finding molecules with inhibitory effects on Advanced Glycation End-products (AGEs) formation from Tanzanian some Clusiaceae plant species Study Design: Field study and Laboratory experimental tests. Place and Duration of Study: Institute of Traditional Medicine, Muhimbili University of Health and Allied Sciences, P.O. Box 65001, Dar es Salaam, Tanzania and PRES LUNAM, Université d'Angers, EA 921 SONAS, 16 Bd Daviers, 49045 Angers, France, between June 2011 and July 2013. **Methodology:** Three Clusiaceae plant species (*Garcinia semseii*, *G. volkensii* and *Allanblackia ulugurensis*) were collected and dried in the field with the assistance of a botanist. Extraction and concentration of plant samples to obtain crude extracts were done in the laboratory following standard procedures. The isolation of the phenolic compounds was carried out by using normal phase column chromatography as well as High-performance liquid chromatography (HPLC). The isolated compounds were tested for anti-AGE activity using the in vitro automated assay. **Results:** Two polyphenolic compounds exhibiting phloroglucinol moieties [e.g. polyprenylated benzophenones, such as guttiferone F, 2 (18 mg)] or biflavonoids [such as morelloflavone, 1 (22 mg)] were isolated and identified from *A. ulugurensis* and *G.*

volkensis respectively. The results further indicated that compound 1 is an excellent inhibitor of AGE formation exhibiting an IC₅₀ values of 78 and 64 μM at wavelength of 370/440 (vesperlysines-like AGEs) and 335/385 (pentosidine-like AGEs) respectively. **Conclusion:** Plants belonging to the Clusiaceae family commonly used in Tanzanian traditional medicine need to be considered as a potential source of molecules exhibiting pharmacological activities such as anti-AGE activity. Morelloflavone (1) and other biflavonoids prove to be very good anti-AGE compounds using our automated screening assay. Hence, our automated in vitro assay allows a fast, effective and quite inexpensive screening of natural compounds and can therefore be applied to high throughput screening projects.

234. **Magadula JJ. Phytochemistry and pharmacology of the genus Macaranga: A review. *Journal of Medicinal Plants Research*. 2014; 8(12): 489-503.**

The genus *Macaranga* Thou. (Euphorbiaceae) comprises of about 300 species that are native mainly to the tropics of Africa, Asia, Australia and the Pacific regions. Plants of this genus have a long history of use in traditional medicine to treat cuts, swellings, boils, bruises and sores. Phytochemical work on this genus has reported over 190 secondary metabolites being isolated mainly from the leaf extracts of different species of this genus. The isolated compounds included stilbenes, flavonoids, coumarins, terpenoids, tannins and other types of compounds. The crude extracts and isolated compounds showed a wide spectrum of pharmacological activities including anti-cancer, anti-inflammatory, anti-oxidant, anti-microbial and anti-plasmodial activities. The aim of this review is to coherently document the valuable but scattered reports on the phytochemistry and pharmacology of medicinal plants of the genus *Macaranga* collected from different parts of the globe.

235. **Maganda BA, Minzi OM, Kamuhabwa AA, Ngasala B, Sasi PG. Outcome of artemether-lumefantrine treatment for uncomplicated malaria in HIV-infected adult patients on anti-retroviral therapy. *Malar J*. 2014; 13(209): 10-1186.**

Background: Malaria and HIV infections are both highly prevalent in sub-Saharan Africa, with HIV-infected patients being at higher risks of acquiring malaria. The

majority of antiretroviral (ART) and anti-malarial drugs are metabolized by the CYP450 system, creating a chance of drug-drug interaction upon co-administration. Limited data are available on the effectiveness of the artemether-lumefantrine combination (AL) when co-administered with non-nucleoside reverse transcriptase inhibitors (NNRTIs). The aim of this study was to compare anti-malarial treatment responses between HIV-1 infected patients on either nevirapine- or efavirenz-based treatment and those not yet on ART (control-arm) with uncomplicated falciparum malaria, treated with AL. **Method:** This was a prospective, non-randomized, open-label study conducted in Bagamoyo district, with three arms of HIV-infected adults: efavirenz-based treatment arm (EFV-arm) n = 66, nevirapine-based treatment arm (NVP-arm) n = 128, and control-arm n = 75, with uncomplicated malaria. All patients were treated with AL and followed up for 28 days. The primary outcome measure was an adequate clinical and parasitological response (ACPR) after treatment with AL by day 28. **Results:** Day 28 ACPR was 97.6%, 82.5% and 94.5% for the NVP-arm, EFV-arm and control arm, respectively. No early treatment or late parasitological failure was reported. The cumulative risk recurrent parasitaemia was >19-fold higher in the EFV-arm than in the control-arm (Hazard ratio [HR], 19.11 [95% confidence interval {CI}, 10.5–34.5]; P < 0.01). The cumulative risk of recurrent in the NVP arm was not significantly higher than in the control-arm ([HR], 2.44 [95% {CI}, 0.79–7.6]; P = 0.53). The median (IQR) day 7 plasma concentrations of lumefantrine for the three arms were: 1,125 ng/ml (638.8-1913), 300.4 ng/ml (220.8-343.1) and 970 ng/ml (562.1-1729) for the NVP-arm, the EFV-arm and the control-arm, respectively (P < 0.001). In all three arms, the reported adverse events were mostly mild. **Conclusion:** After 28 days of follow-up, AL was statistically safe and effective in the treatment of uncomplicated malaria in the NVP-arm. The results of this study also provide an indication of the possible impact of EFV on the performance of AL and the likelihood of it affecting uncomplicated falciparum malaria treatment outcome.

236. Magesa DJ, Mtui LJ, Abdul M, Kayange A, Chiduo R, Leshabari MT, Tungaraza D. Barriers to men who have sex with men attending HIV related health services in Dar es Salaam, Tanzania. *Tanzania Journal of Health Research*. 2014; 16(2).

The HIV/ AIDS disease burden is disproportionately high among men who have sex with men (MSM) worldwide. If this group will continue to be ignored they will continue to be the focus of HIV infection to the general population. This study explored barriers impeding MSM utilizing the HIV related health services currently available. The objectives of the study were to: (i) determine how stigma and discrimination affect MSM attendance to HIV related health services; (ii) determine how health care worker's (HCW's) practices and attitudes towards MSM affect their attendance to HIV related health service; (iii) learn MSM's perception towards seeking HIV related health services and other factors affecting accessibility of HIV related health services among MSM in Dar es Salaam, Tanzania. This was a descriptive study whereby qualitative methods were employed, using in-depth interviews for 50 individuals and focus group discussions for 5 groups which were conducted at PASADA premises, in Temeke district in 2012. After transcription data was read through, codes created were then collapsed into themes which were interpreted. The findings of this study show that majority of the study participants access HIV related health services in Dar es Salaam when they need to. However, they reported stigma and discrimination, lack of confidentiality and privacy, lack of availability and MSM friendly HIV related health services, financial challenges, poor practices and negative attitudes directed towards them by health workers, fears and lack of HIV knowledge among them as barriers for them to access these services. With these findings, there is an importance of enabling MSM to overcome the perceived stigma when seeking for HIV related health services. Also there is a need to conduct further research with regards to how HCW's treat this group and their understanding on same sex practices.

237. **Magessa MM. Nevirapine-Induced Hepatotoxicity in HIV Patients Attending Care and Treatment Clinics in Iringa Regional Hospital. Master of Pharmacy (Hospital and Clinical Pharmacy) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: Nevirapine is one of the most widely used antiretroviral drugs (ARVs) in low- and middle-income countries. One of the primary concerns with the use of nevirapine containing regimens is nevirapine-associated hepatotoxicity. Nevirapine

associated early hypersensitivity reactions and intrinsic drug toxicity has been reported in some studies. **Aim:** This study aimed to assess the prevalence of hepatotoxicity in HIV-infected patients taking nevirapine-containing ARVs in comparison with patients using efavirenz-based ARVs. **Materials and methods:** The study involved screening of 373 HIV patients (224 taking nevirapine and 149 taking efavirenz-based regimens); who were using ARVs for ≥ 2 weeks. Blood samples were collected and assayed for ALT and AST levels using HumaLizer 3500. Liver toxicity was defined as a 2.5-fold increase in aminotransferases levels above the ULN range (5-35 IU/L). Data were analyzed using SPSS version 20. Frequency distribution table, chi-square/Fisher exact test and Multivariate logistic regression were used for data analysis. **Results:** Grade 1 and 2 hepatotoxicity was observed in 12.1% and 4% in nevirapine and efavirenz-based regimens respectively ($P = 0.004$). Hepatotoxicity was common (13.2%) in nevirapine treated patients for > 12 months than those who were using the same regimens (4.3%) for ≤ 12 months. Patients with CD4 cell count >250 cells/mm³ had 10 times high risk of developing hepatotoxicity. No significant association was found between hepatotoxicity and age, sex, BMI and duration of use of ARVs. **Conclusion:** Grade 1 and 2 liver damage was 3 times higher in nevirapine treated patients than in efavirenz treated patients. Routine monitoring of liver aminotransferases may be of benefit in patients taking nevirapine containing ARV regimen, especially in patients with CD4 cell count > 250 cells/mm³.

238. Mahende C, Ngasala B, Lusingu J, Butichi A, Lushino P, Lemnge M, Premji Z. Aetiology of Acute Febrile Episodes in Children Attending Korogwe District Hospital in North-Eastern Tanzania. *PloS one*. 2014; 9(8): e104197.

Introduction: Although the burden of malaria in many parts of Tanzania has declined, the proportion of children with fever has not changed. This situation underscores the need to explore the possible causes of febrile episodes in patients presenting with symptoms at the Korogwe District Hospital (KDH). **Methods:** A hospital based cross-sectional study was conducted at KDH, north-eastern Tanzania. Patients aged 2 to 59 months presenting at the outpatient department with an acute medical condition and fever (measured axillary temperature $\geq 37.5^\circ\text{C}$) were enrolled. Blood samples were examined for malaria parasites,

human immunodeficiency virus (HIV) and bacterial infections. A urine culture was performed in selected cases to test for bacterial infection and a chest radiograph was requested if pneumonia was suspected. Diagnosis was based on both clinical and laboratory investigations. **Results:** A total of 867 patients with a median age of 15.1 months (Interquartile range 8.6–29.9) were enrolled from January 2013 to October 2013. Respiratory tract infections were the leading clinical diagnosis with 406/867 (46.8%) of patients diagnosed with upper respiratory tract infection and 130/867 (15.0%) with pneumonia. Gastroenteritis was diagnosed in 184/867 (21.2%) of patients. Malaria infection was confirmed in 72/867 (8.3%) of patients. Bacterial infection in blood and urine accounted for 26/808 (3.2%) infections in the former, and 66/373 (17.7%) infections in the latter. HIV infection was confirmed in 10/824 (1.2%) of patients. Respiratory tract infections and gastroenteritis were frequent in patients under 36 months of age (87.3% and 91.3% respectively). Co-infections were seen in 221/867 (25.5%) of patients. The cause of fever was not identified in 65/867 (7.5%) of these patients. **Conclusions:** The different proportions of infections found among febrile children reflect the causes of fever in the study area. These findings indicate the need to optimise patient management by developing malaria and non-malaria febrile illnesses management protocols.

239. Mahoo H, Henry PE, Masakia J, Pyumpa G, Kija E, Pangapanga C. Strengthening the capacity for climate change adaptation through sustainable land and water management in Kiroka village, Morogoro, Tanzania. *Adapting to climate change through land and water management in Eastern Africa*. 2014; 117.

Introduction: Over the last four decades, Tanzania has been hit by a series of severe droughts and flood events (Kandji et al., 2006; Tumbo et al., 2011). These are undeniably part of the impacts of increasing weather variability and climate change, which are already affecting ecosystems, biodiversity and people all over the world. The observed increase in variability in most countries and especially Tanzania has increased the uncertainty in seasonal rainfall prediction. Increasing weather variability and climate change are therefore increasing the need for actions to overcome the challenges and provide accurate and reliable weather and climate predictions that will enable the

agricultural sector not only ensure food security of the majority of the population but also help them get out of poverty, which is in line with Tanzania's Vision 2025 and Kilimo Kwanza Policy (URT, 2010).

240. Maier D, Njoku I, Schmutzhard E, Dharsee J, Doppler M, Härtl R, Winkler AS. Traumatic brain injury in a rural and an urban Tanzanian hospital—a comparative, retrospective analysis based on Computed Tomography. *World neurosurgery*. 2014; 81(3): 478-482.

Background: In a resource-poor environment such as rural East Africa, expensive medical devices such as computed tomographic (CT) scanners are rare. The CT scanner at the rural Haydom Lutheran Hospital (HLH) in Tanzania therefore offers a unique chance to observe possible differences with urban medical centers in the disease pattern of trauma-related cranial pathologies. The purpose of this study was to compare traumatic brain injuries (TBIs) between a rural and an urban area of Tanzania. **Methods:** HLH has 350 beds and one CT scanner. The urban Aga Khan Hospital is a private hospital with 80 beds and one CT scanner. This was a retrospective study. Data of 248 patients at HLH and of 432 patients at Aga Khan Hospital with TBI could be collected. **Results:** The prevalence of TBI was significantly higher in the rural area compared to the urban area (34.2% vs. 21.9%, $P < 0.0001$). TBI due to violence was noted to occur more frequently at HLH, whereas road traffic accidents were more frequent at the Aga Khan Hospital. The number of patients showing a normal CT result was significantly higher in the urban area (53.0% vs. 35.9%, $P < 0.0001$). Bone fractures (35.9% vs. 15.7%, $P < 0.0001$) and pneumocephalus (6.9% vs. 0.9%, $P < 0.0001$) were diagnosed significantly more frequently in the rural survey. Soft tissue swelling (11.6% vs. 1.2%, $P < 0.0001$) and frontal sinus injuries (7.4% vs. 0.4%, $P < 0.0001$) were observed significantly more often in the urban setting. **Conclusions:** This study documents the burden of TBI and the differences in TBI-related CT diagnoses and their incidence between urban and rural areas in Eastern Africa. These results are important as they demonstrate that patients with severe TBI are not a primarily urban concern. Management of TBI should be included in the training curricula for health personnel alike irrespective of whether their workplace is primarily urban or rural.

241. **Makala BT. Evaluation Of Potential In Appropriate Medication In Elderly Patients Admitted To Muhimbili National. Masters of Science (Clinical Pharmacology) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: Prescribing in elderly is a challenging and complex process due to age and physiological related changes which compromise drug handling and response. The process is further complicated by presence of co morbidity and co medication. Elderly population is increasing worldwide including Tanzania, Thus with an increase in this elderly population, quality and safety of medication becomes more important for improving health and drug use. **Aim of the study:** We have conducted a study on potential inappropriate in medication elderly, patients using the STOPP/START criteria and in addition the study assessed the magnitude of reduced renal function requiring dose adjustment. **Methodology:** This was a descriptive study conducted using medical records from MNH, involving 297 elderly patients admitted at Muhimbili national hospital between September 2013 and February 2014. Data was analyzed by STATA software Version 12. (Stata Corp. College Station, Texas, USA) and summarized using appropriate standard statistics. Statistical tests i.e. chi square, T -test and fisher exact was used to measure associations. A P value of <0.05 was considered to be statistically significant. **Results:** sixty one patient out of 297 (20.5%) had at least one potential inappropriate medication (PIM). Many patients with at least one inappropriate medication were admitted through emergency medicine department (22.5%). Majority of PIM were related to Glibenclamide use in patient with type two diabetics (21.3%). A total of 58 (19.5%) medications were omitted and majority (67.2 %) of the patient to whom medication were omitted came from emergency admission. A significant reduction in renal function was very common in our cohort; about 200 (68%) out of 297 had an eGFR of less than 60 ml min⁻¹per 1.73 m⁻². Of the 200 patients with significantly reduced renal functions, 117 (58.5%) were females; in the 297 elderly patients, 116 (39.3%) of them had a moderate reduction in eGFR

242. **Makanga GV. Rev Alence and Outcome of Acute Kidney Injury in the Intensive Care Unit at Muhimbili National Hospital, Dar Es salaam, Tanzania. Master of Science (Nephrology) Muhimbili University Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: Acute kidney injury (AKI) is common among hospitalized patients worldwide and has a poor prognosis among intensive care unit (ICU) patients with mortality rates ranging from 10-90%. The reported incidence of AKI in the ICU ranges between 1-24%; this high incidence varies from region to region and is attributable to factors such as differences in definition of AKI, regional disparities and etiological regional differences. To date, there is a paucity of data on the burden and spectrum of AKI in the ICU in Tanzania and at Muhimbili National hospital (MNH). We therefore conducted this study to determine the prevalence and some outcome predictor variables of AKI in the ICU at MNH that could be easy distinguishable outcome factors of AKI to aid in future prompt intervention.**Objective:** The main objective of this study was to determine the prevalence and outcome of acute kidney injury in the intensive care unit at Muhimbili National Hospital. **Methodology:** This was a retrospective descriptive study of all patients admitted to the MNH- ICU from January 2009 through December 2012. Medical records of the patients admitted to the ICU during the study period were reviewed and those with AKI were identified. Standardized pre-tested data instrument tools were used to collect socio-demographic data, clinical and laboratory parameters which included; date of admission to the ICU, type of patient (surgical or medical patient), duration of ICU stay, modality of ICU treatment for AKI, need for mechanical ventilation and or inotropic support. For purposes of this study, serum creatinine and urine output based on the AKIN criteria was used to define AKI. Data entry was done usmg Epi Data (version 3.1) and statistical analyses performed usmg STATA (StataCorp. STATA 12.0, College Station, Texas 77845 USA). Continuous variables were summarized as means and standard deviations, categorical variables as frequencies and percentages. Bivariate analysis was used to test for the association between the outcome of AKI in ICU which was death or survival and each predictor variable. The study was approved by the MUHAS review Sub-committee of senate research and publication with clearance reference number MU/PGS/SAECN 01. IV /.

243. **Makwani HR. Evaluation of the Effectiveness of Oral Morphine for Pain Control in Patients with Carcinoma of the Cervix at Ocean Road Cancer Institute. Masters of Medicine (Clinical Oncology) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Morphine is a drug which is grouped in the category of opioids. There are several forms of morphine one being in liquid form which is taken orally. It is used to relieve moderate to severe pain that does not respond to non opioids specifically the NSAID's. However morphine is highly addictive once used incorrectly can lead into side effects such as constipation, drowsiness, abdominal cramps, excessive sweating and even weight loss.

Objective: The objective of this study is mainly to investigate the effectiveness of oral morphine in the control of pain in cancer patients specifically patients with carcinoma of the cervix who form the majority of patients attended at ORC! Also to assess the level of pain of the majority of patients seen at ORC! and the most common side effects of morphine that the. Patients experience. This will lead to the relationship between level of pain, morphine dosage and the side effects encountered. **Methodology:** The study was conducted at ORC! This is located along Indian Ocean. It is a teaching and referral Hospital and approximately 230 staffs are enrolled. Approximately 5500 cancer patients visit our hospital per year. This is a prospective hospital based cohort study which has been conducted for three months focusing on the patients response to morphine specifically patients who have not shown response to NSAID's. The patients with carcinoma of the cervix who have been assessed for pain before treatment have been included in the study and whole patients with other gynecological malignancies and cancer of the cervix patients who have started radiation or chemotherapy have been excluded from the study. Dose titrations after careful pain assessment have been performed as to keep patients free from pain. **Findings:** The research findings among 93 patients investigated (36.6%) were observed to be of age group 50-59 as the majority. (62.4%) were of primary education and among the group (72%) were married and the leading zone was Lake zone covering (27%).The disease stage 1m were mostly seen with (50.5%) of the total studied group. Before morphine administration (54.8%) had moderate pain covering more than half of the population. After morphine administration

(80.6%) had no further pain. The commonest side effect was constipation (69.6%), drowsiness (48.9%) and sweating (27.7%) **Discussion:** The above findings are consistent with several studies done worldwide that supports that morphine is effective in control of pain and should be titrated according to patients responsiveness to pain (21, 25, 30).The study further shows that reducing morphine does not have significance in constipation as it may be caused by other factors like locally advanced disease to the pelvis example rectal involvement.

244. Maleko AS. The profile of patients with carcinoma of the oesophagus at Muhimbili National Hospital. Master of Medicine (General Surgery) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.

Background: Oesophageal cancer is one of the most distressing types of malignancy of gastrointestinal tract. Cancer of the oesophagus varies widely in incidence between different parts of the world. One area of high incidence is in Southern and Eastern Africa, where it constitutes 11.5% of cancers in men. In Tanzania carcinoma of oesophagus is the seventh among malignant conditions encountered, preceded only by breast, skin, thyroid, lymphoma, and cervix and bladder cancer. It forms 1.8% of all tumours according to the Tanzania Cancer Registry records. So this study was set to determine the profile of patients with carcinoma of the esophagus, attended at MNH over a specific period. So this study may be used as preliminary data representing the recent profile of these patients in our country to formulate a large scale study and identify various risk factors, to assist in the planning of screening programs to detect the disease at early stages and strengthening of therapeutic interventions. **Material and methods:** A prospective hospital based study involving all patients with histologically confirmed diagnosis of carcinoma esophagus was conducted from March to December 2012 at MNH. Oesophagoscopy and barium swallow were used to document on the site of esophagus involved. Patient demography and perceived risk factors for the development of the malignancy was probed using a structured questionnaire. Follow up at 4 weeks post chemoradiotherapy was conducted to document response as graded using Takita's method. The data were analyzed using SPSS software. **Results:** A total of 114 patients with histological diagnosis of ca oesophagus were enrolled over the 10 months of study.

Of all the patients 78 were male, with the male to female ratio of 2:1. Most of patients were above 40 years of ages constituting 79% of all cases. Of all the patients, 59 patients (51.7%) had history of dysphagia for a period of 5-8 months with dysphagia grade VI in 53 patients (46.4%). Squamous cell carcinoma was the common histological type found in 99 patients (87%). Chemoradiation therapy was the most effective palliation modality treatment offered in 52 patients (45.6%). Dysphagia was partially relieved in 45 among 87 patients who received treatment. **Conclusion:** Male to female ratio has narrowed to 2:1 compared to previous results and the cancer is taking its toll in the young age. Squamous cell carcinoma is still the most predominant type with late presentation in most of the cases. Nearly half of patients still had dysphagia after chemoradiotherapy. **Recommendations:** There is a need to popularize feeding gastrostomy to those patients with carcinoma of the oesophagus accompanied with total dysphagia. Stenting as a means of palliating dysphagia should also be considered among patients with carcinoma esophagus. A comparative study analyzing risk factors among male and female should be carried out to formulate risk reduction strategies.

245. **Makoye N. Dental Esthetics, Impact On Oral Health Related Quality Of Life And Treatment Needs Among Dental Patients Dar Es Salaam City. Masters of Dentistry (Restorative Dentistry) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam**

Background: Dental appearance is an important feature in determining the attractiveness of the face, thus plays a key role in satisfaction, social interaction and quality of life. Objective: The main objective of this study was to assess Dental esthetics satisfaction, impact on Oral Health Related Quality of Life and Treatment Needs of among Dental patients in Dar es Salaam city. **Materials and Methods:** A descriptive cross sectional study was conducted in dental clinics of Dar es Salaam city. The study involved patients aged 18 - 85 years old attending the dental clinics in Dar es Salaam during August to December, 2013. Multistage cluster sampling method was used to select 400 participants for this study. A structured questionnaire and clinical examination form were used to collect data. The questionnaire inquired information about socio-demographic characteristics, factors associated with satisfaction with dental appearance, treatment

desired, impact of dental esthetics factors on the oral health related quality of life and clinical examination to assess treatment needs (special designed form). Data fed into a computer, processed and analyzed using SPSS software for Windows version 19.0. Frequency distributions were done. Chi square test was used to compare proportions for bivariate association, logistic regression was used for multivariate association and p -value =0.05 used as a cut-off level for statistical significance. **Results:** A total of 400 patients with a participation rate of 95%, (58% females) were obtained in public and private dental clinics. The age ranged from 18 to 85 years (mean age: 31.9, SD=11.4). Of all participants 58.8% were dissatisfied with general dental appearance, 60% dissatisfied with colour of their teeth. Other reasons for dissatisfaction were dental caries, non esthetics restoration and poor alignment of anterior teeth. Those with old age (55+ yrs) were more significantly dissatisfied than younger age groups. Multivariate logistic regression showed participants who did not have discoloured teeth (OR=0.50, 95% CI:0.31-0.80), poor alignment (OR=0.42, 95% CI:0.20-0.89), protrusion (OR=0.35, 95% CI:0.16-0.75), dental caries (OR=0.36, 95% CI:0.85-4.10) and non-esthetics restoration (OR=0.31, 95% CI:0.14-0.70) were less likely to have impacts regarding OHRQoL. Tooth whitening was the most desired treatment. Objective treatment needs were 35.5% needed treatment due to colour discrepancies and other factors shape, size, alignment, quality of restoration, tooth fracture, caries and missing only less than 10% needed treatment. Tooth coloured restoration were the most objective treatment needed (76%). **Conclusion:** Dental esthetics dissatisfaction was high which influenced by colour of teeth, dental caries, non-esthetics restorations and poor alignment of anterior teeth. Dental esthetics has impact Ora Health Related Quality of Life. Tooth whitening and tooth coloured restorations were the main treatment needed f improve dental esthetics. Dentists should thoroughly assess dental problems and provide proper treatment.

246. **Makubi A, Hage C, Lwakatare J, Kisenge P, Makani J, Rydén L, Lund LH. Contemporary aetiology, clinical characteristics and prognosis of adults with heart failure observed in a tertiary hospital in Tanzania: the prospective Tanzania Heart Failure (TaHeF) study. Heart, heartjnl-2014.**

Objective: This study aimed to describe the contemporary aetiology, clinical characteristics and mortality and its predictors in heart failure (HF) in Tanzania. **Methods Design:** Prospective observational study. Setting; Cardiovascular Center of the Muhimbili National Hospital in Dar es Salaam, Tanzania. Patient's ≥ 18 years of age with HF defined by the Framingham criteria. Main outcome measure All-cause mortality. **Results:** Among 427 included patients, 217 (51%) were females and the mean (SD) age was 55 (17) years. HF aetiologies included hypertension (45%), cardiomyopathy (28%), rheumatic heart disease (RHD) (12%) and ischaemic heart disease (9%). Concurrent atrial fibrillation (AF), clinically significant anaemia, diabetes, tuberculosis and HIV were found in 16%, 12%, 12%, 3% and 2%, respectively, while warfarin was used in 3% of the patients. The mortality rate, 22.4 per 100 person-years over a median follow-up of 7 months, was independently associated with AF, HR 3.4 (95% CI 1.6 to 7.0); in-patient 3.2 (1.5 to 6.8); anaemia 2.3 (1.2 to 4.5); pulmonary hypertension 2.1 (1.1 to 4.2) creatinine clearance 0.98 (0.97 to 1.00) and lack of education 2.3 (1.3 to 4.2). **Conclusions:** In HF in Tanzania, patients are younger than in the developed world, but aetiologies are becoming more similar, with hypertension becoming more and RHD less important. Predictors of mortality possible to intervene against are anaemia, AF and lack of education.

247. Makubi A, Hage C, Lwakatare J, Mmbando B, Kisenge P, Lund LH, Makani J. Prevalence and prognostic implications of anaemia and iron deficiency in Tanzanian patients with heart failure. *Heart, heartjnl-2014.*

Objective: To determine the prevalence, correlates and prognostic implications of anaemia and iron deficiency (ID) in patients with heart failure (HF) in Tanzania. **Method:** This was a cross-sectional and prospective observational study conducted at Muhimbili National Hospital in Dar es Salaam, Tanzania. Patients were ≥ 18 years of age, with HF defined according to the Framingham criteria. The primary outcome was anaemia and the secondary outcome was a composite of hospitalisation for HF or all-cause mortality. **Results:** A total of 401 HF patients (median age 56 years, IQR 41–67 years; women 51%) were included. The prevalence of anaemia was 57%. The overall prevalence of ID was 49% distributed as 69% versus 21% in subjects with and without

anaemia ($p < 0.001$). Normocytic anaemia was seen in 18% of the patients while none had macrocytic anaemia. The risk of having anaemia was positively associated with residency outside Dar es Salaam (OR 1.72 (95% CI 1.02 to 2.89); $p = 0.038$), atrial fibrillation (4.12 (1.60 to 10.61); $p = 0.003$), LVEF $< 45\%$ (2.70 (1.57 to 4.67); $p < 0.001$) and negatively (ORs per unit decrease) with creatinine clearance (0.98 (0.97 to 0.99); $p = 0.012$) and total cholesterol (0.78 (0.63 to 0.98); $p = 0.029$). One-year survival free from a composite endpoint was 70%. The presence of ID anaemia increased the likelihood for an event (HR 2.67; 95% CI 1.39 to 5.07; $p = 0.003$), while anaemia without ID did not influence the risk. **Conclusions:** ID anaemia was common in Tanzanian patients with HF and was independently associated with the risk for hospitalisation or death.

248. Makundi RH, Massawe AW, Mulungu LS. Ecological Considerations for Management of Rodent Pests in Tanzania. 2014.

Introduction: More than 25 species of rodents have been recorded as pests in East Africa (Fiedler 1994, Hubbard 1972). They cause a wide range of damage in crops including cereals, legumes, vegetables, root crops, cotton and sugar cane; some species create problems in forestry and industry. They play an important role as reservoirs and carriers of zoonotic diseases (Gratz 1997). Some of the pest species are found in certain geographical and environmental conditions, while others are widely distributed (Kingdon 1974). Rodents show a wide range of adaptation enabling them to successfully colonize and inhabit almost any type of habitat (De Graaf 1981). Among the pest species, the multimammate rat, *Mastomys natalensis* Smith 1834, the Nile rat, *Arvicanthis niloticus* Desmarest and the roof rat, *Rattus rattus*, are widely distributed in East Africa (Kingdon 1974). In Sub-Saharan Africa, the major rodent species causing severe damage to crops belong to the genus *Mastomys* (Muridae). The commonest and by far the most serious rodent pest in East Africa is *M. natalensis* (Smith 1834) (Fiedler 1988, 1994). *Mastomys natalensis* is a very serious pest in Tanzania (Makundi et al. 1999). In rural communities, crop damage in the field and during storage is undoubtedly high. Previous estimates indicated that losses were about 15% (Makundi et al. 1991), but much higher losses occur during rodent outbreaks, particularly at planting and seedling stage (Mwanjabe and Leirs 1997, Mulungu et al 2005). The need to control outbreaks becomes urgent taking into

consideration the associated losses and the benefits which can be realized with successful rodent management. Studies conducted in China for example, showed that the benefit-cost ratio for rodent management was 71:1, which achieved good economic, social and ecological benefits (Zhuang et al. 1999). Certain characteristics of *M. natalensis* such as high reproductive capacity and dispersal are thought to contribute to its success as a pest (Meester et al. 1979, Leirs et al. 1993). This species, in some seasons or in some years, erupt in large numbers. The outbreaks can reach high densities and are favoured by certain ecological conditions that were previously not well understood, but are now the subject of intensive research in Tanzania. Outbreaks of *M. natalensis* are a recurring problem in some areas of Tanzania, but this and other species of rodents are also a chronic problem in farmers field, which require some control measures. The management of *M. natalensis* and other pest species in the past was on ad-hoc basis, with control strategies based on the use of rodenticides particularly during outbreaks (Myllymaki 1987). However, farmers have always considered as inevitable, certain levels of crop damage due to rodents (Makundi et al. 2005a). Thus, they consider chronic rodent damage as something beyond their control. The application of rodenticides however, unless it is carried out synchronously on a wide area, has little impact in reducing damage and losses of crops.

249. **Maligo RK. Exploring the Contribution of Microfinance Institutions in Providing Health Insurance to Informal Sector Workers a Case of Crdb Bank, Dares-Salaam. Master of Public Health Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: Health insurance coverage for the informal sector workers remains very low in Tanzania. Membership in MFIs has been found to be an important factor to facilitate participation of informal sector workers in health insurance. MFIs can have a significant contribution on extending health insurance to the informal sector workers. This approach has not been explored enough in Tanzania. **Objectives:** The main objective of this study was to explore the extent MFIs could facilitate provision of health insurance to people working in the informal sector. Specific objectives were: 1) To explore the capability of MFIs to provide health insurance 2) To explore the possibilities of MFI

members to accept health insurance services if provided by MFI 3) To determine the attitude of MFI members towards health insurance 4) To find out the extent to which MFI members use health insurance provided by MFIs and other health insurance providers.

Methods: The study used a descriptive cross-sectional design with both quantitative and qualitative approaches. It was carried out in Dares-Salaam region. Quantitative data was collected through a structured questionnaire with both closed and open ended questions. A Sample of 221 MFI client was interviewed. Qualitative data was obtained through in-depth interviews and Focus group discussions. The respondents for quantitative study were selected using a two stage sampling technique while convenient sampling was used to recruit respondents for the qualitative study. Data processing and analysis: Data was processed using SPSS software package. Frequencies for categorical variables were run. Data was presented in frequency tables. Chi-square was computed to determine the relationship between dependent variable and independent variables of the study. A bivariate analysis was done to determine the presence of a statistically significant association ($p < 0.05$) between independent variables and the outcome variable. Qualitative data was analyzed using a content analysis approach. **Results:** Majority of the MFI clients, more than 50% and the workers were of the opinion that MFIs have the capability to provide health insurance to informal sector workers. 2) Possibility to accept a health insurance if provided by MFIs was high as most (75.1%) of the MFI clients would accept a health insurance provided by MFIs and 84.2 would accept if it was facilitated by MFIs. 3) The use of health insurance provided by MFIs and other health insurance providers among MFI clients was low. Only 26% of the respondents had health insurance. 4) A relatively higher proportion of the MFI clients, 131 (59.6%) had a positive attitude towards health insurance provision by MFIs. **Conclusions and recommendations:** Generally, the results of the study showed that MFIs clients had a positive attitude towards health insurance. The possibility of the MFI clients to accept health insurance was high indicating a trust among the MFI clients on the capability of their MFIs to provide health insurance. The Public health insurance schemes such as those of TIKA, SHIB and NHIF are recommended to consider partnership with MFIs if they are to increase health insurance coverage to people working in the informal sector. It is also recommended that CHF/TIKA/SHIB collaborate with MFIs to design appropriate

educational programmes to increase the knowledge of the informal sector workers about the benefits of health insurance, the benefit package and procedures for enrolment in the schemes.

250. **Manji KP, McDonald CM, Kupka R, Bosch RJ, Kisenge RR, Aboud S, Duggan CP. Effect of Multivitamin Supplementation on the Neurodevelopment of HIV-exposed Tanzanian Infants: A Randomized, Double-blind, Placebo-controlled Clinical Trial. *Journal of tropical pediatrics*. 2014; 60(4): 279-286.**

Background: Micronutrient deficiencies and in utero exposure to HIV may impair infant neurodevelopment. **Objective:** To evaluate the effect of daily multivitamin supplementation on the cognitive, language and motor development of HIV-exposed Tanzanian infants. **Methods:** A total of 2387 infants were randomized to receive daily oral supplementation of multivitamins (B-complex, C and E) or placebo from age 6 weeks for 24 months. The cognitive, language and motor scales of the Bayley Scales of Infant and Toddler Development, third edition, were administered to a subset of 206 infants at age 15 months. **Results:** Multivitamin supplementation did not improve measures of cognitive development, expressive or receptive language or gross motor capabilities. There was a trend toward improved fine motor skills among infants randomized to the multivitamin group (difference in mean score = 0.38; 95% CI = -0.01, 0.78, $p = 0.06$). **Conclusion:** Daily provision of multivitamins to HIV-exposed infants does not substantially improve developmental outcomes at age 15 months.

251. **Manyahi J, Matee MI, Majigo M, Moyo S, Mshana SE, Lyamuya EF. Predominance of multi-drug resistant bacterial pathogens causing surgical site infections in Muhimbili national hospital, Tanzania. *BMC research notes*. 2014; 7(1): 500.**

Background: Surgical site infections (SSIs) remain a common and widespread problem contributing to a significant morbidity and mortality, attributed partly by the increase in antimicrobial resistance among the etiological agents. This study was done to determine the spectrum of bacterial isolates and their susceptibility patterns causing SSIs at Muhimbili National Hospital, Tanzania. **Methods:** This descriptive cross sectional study

was conducted between September, 2011 and February, 2012. Pus swabs or pus were cultured on blood agar (Oxoid, UK) and MacConkey agar (Oxoid, UK) and incubated aerobically at 37°C for 18–24 hours. Bacterial identification was done using API 20E and VITEK and antimicrobial susceptibility was determined by Kirby Bauer disc diffusion. Results: Of the 100 patients, from whom wound swabs were collected, 90 (90%) had positive aerobic bacterial growth. A total of 147 pathogenic bacteria were isolated, including 114 (77.5%) gram negative and 33(22.5%) gram positive organisms. The most prevalent bacterial species were *Pseudomonas aeruginosa* (16.3%), followed by *Staphylococcus aureus* (12.2%) and *Klebsiella pneumoniae* (10.8%). Of the 18 *S. aureus*, 8 (44%) were methicillin resistant *Staphylococcus aureus* (MRSA) and three of them (17%) were carrying both MRSA and induced clindamycin resistance (ICR). Extended spectrum beta-lactamase (ESBL) producing Enterobacteriaceae were observed in 23 (79.3%) of the 29 isolates tested. Majority of *Escherichia coli* 12 (92.3%) and *K. pneumoniae* 11 (69%) isolates were ESBL producers. About 63% (93/147) were multiple-drug resistance (MDR) isolates, and the overall MDR among Gram positive and Gram negative bacteria was 60.6% (20/33) and 61.4%, (73/114), respectively. The prevalence of MDR for *E. coli*, *A. baumannii* and *P. stuartii* was 100% each. Majority (97%) of the Gram negative bacteria were resistant to more than four categories (classes) of antibiotics. **Conclusion:** A high proportion (63%) of the isolates causing SSIs in this tertiary hospital were MDR, of which (90%) was resistant to more than four classes of antibiotics. In the light of these findings, an urgent and significant change in antibiotic prescription policy is required at this National hospital.

252. Manyanga VP, Minzi O, Ngasala B. Prevalence of malaria and anaemia among HIV infected pregnant women receiving co-trimoxazole prophylaxis in Tanzania: a cross sectional study in Kinondoni Municipality. *BMC Pharmacology and Toxicology*. 2014; 15(1): 24.

Background: HIV-infected pregnant women are particularly more susceptible to the deleterious effects of malaria infection particularly anaemia. In order to prevent opportunistic infections and malaria, a policy of daily co-trimoxazole prophylaxis without the standard Sphadoxine-Pyrimethamine intermittent preventive treatment (SP-

IPT) was introduced to all HIV infected pregnant women in the year 2011. However, there is limited information about the effectiveness of this policy. **Methods:** This was a cross sectional study conducted among HIV-infected pregnant women receiving co-trimoxazole prophylaxis in eight public health facilities in Kinondoni Municipality from February to April 2013. Blood was tested for malaria infection and anaemia (haemoglobin <11 g/dl). Data were collected on the adherence to co-trimoxazole prophylaxis and other risk factors for malaria infection and anaemia. Pearson chi-square test, Fischer's exact test and multivariate logistic regression were used in the statistical analysis. **Results:** This study enrolled 420 HIV infected pregnant women. The prevalence of malaria infection was 4.5%, while that of anaemia was 54%. The proportion of subjects with poor adherence to co-trimoxazole was 50.5%. As compared to HIV infected pregnant women with good adherence to co-trimoxazole prophylaxis, the poor adherents were more likely to have a malaria infection (Adjusted Odds Ratio, AOR = 6.81, 95% CI = 1.35-34.43, P = 0.02) or anaemia (AOR = 1.75, 95% CI = 1.03-2.98, P = 0.039). Other risk factors associated with anaemia were advanced WHO clinical stages, current malaria infection and history of episodes of malaria illness during the index pregnancy. **Conclusion:** The prevalence of malaria was low; however, a significant proportion of subjects had anaemia. Good adherence to co-trimoxazole prophylaxis was associated with reduction of both malaria infection and anaemia

253. **Maregesi SM, Kagashe GA, Felix F. Documentation and Phytochemical Screening of Traditional Beauty Products Used in Missenyi District of Tanzania. *Journal of Cosmetics, Dermatological Sciences and Applications*. 2014; 4(05): 355.**

Background Information: The concept of beauty and cosmetics is as old as mankind and civilization. Raw materials for beauty products are dominated by petroleum and synthetic products. In recent years, there has been an increase of natural product-based cosmetics along with creating beauty from the inside by consumption of nutraceuticals. Tanzania traditional beauty products are still in use especially rural areas, but the documentation is lacking. **Objectives:** This work aimed at documenting traditional beauty products in Kagera region as an effort to avoid loss of useful information and available useful traditional findings for safe utilization in beauty products. **Meth-**

odology: Information was obtained from knowledgeable people in Missenyi district by focus group discussion. Collected materials were identified in Botany and Zoology Departments at the University of Dar es Salaam followed by literature search and phytochemical screening. **Results:** This study afforded to record 13 plants, 4 animal products, mineral and other organic products. Most products are used for skin care (57%) followed by hair care (22%). Literature search supported the use of some of the products and plants subjected to qualitative analysis showed presence of phytochemicals relevant to beautification. Discussion: Some of the recorded plant and animal products are incorporated in natural based cosmetic products. Hazardous practice of using skin lightening plant products and dry cell powders was noted. **Conclusion:** The use of products which are already incorporated in the cosmetic products especially in countries where these products are well regulated should be promoted. Products reported for the first time require scientific studies to establish their effectiveness and safety. Since this study recorded the use of some dangerous materials, people need to be educated through media.

254. Maro II, Moshi N, Clavier OH, MacKenzie TA, Kline-Schoder RJ, Wilbur JC, Buckey JC. Auditory Impairments in HIV-Infected Individuals in Tanzania. *Ear and hearing*, 35(3), 306-317.

Objectives: Abnormal hearing tests have been noted in human immunodeficiency virus (HIV)-infected patients in several studies, but the nature of the hearing deficit has not been clearly defined. The authors performed a cross-sectional study of both HIV+ and HIV- individuals in Tanzania by using an audiological test battery. The authors hypothesized that HIV+ adults would have a higher prevalence of abnormal central and peripheral hearing test results compared with HIV- controls. In addition, they anticipated that the prevalence of abnormal hearing assessments would increase with antiretroviral therapy (ART) use and treatment for tuberculosis (TB). **Design:** Pure-tone thresholds, distortion product otoacoustic emissions (DPOAEs), tympanometry, and a gap-detection test were performed using a laptop-based hearing testing system on 751 subjects (100 HIV- in the United States, plus 651 in Dar es Salaam, Tanzania, including 449 HIV+ [130 ART- and 319 ART+], and 202 HIV-, subjects. No U.S. subjects had a history of

TB treatment. In Tanzania, 204 of the HIV+ and 23 of the HIV- subjects had a history of TB treatment. Subjects completed a video and audio questionnaire about their hearing, as well as a health history questionnaire. **Results:** HIV+ subjects had reduced DPOAE levels compared with HIV- subjects, but their hearing thresholds, tympanometry results, and gap-detection thresholds were similar. Within the HIV+ group, those on ART reported significantly greater difficulties understanding speech in noise, and were significantly more likely to report that they had difficulty understanding speech than the ART- group. The ART+ group had a significantly higher mean gap-detection threshold compared with the ART- group. No effects of TB treatment were seen. **Conclusions:** The fact that the ART+/ART- groups did not differ in measures of peripheral hearing ability (DPOAEs, thresholds), or middle ear measures (tympanometry), but that the ART+ group had significantly more trouble understanding speech and had higher gap-detection thresholds indicates a central processing deficit. These data suggest that: (1) hearing deficits in HIV+ individuals could be a CNS side effect of HIV infection, (2) certain ART regimens might produce CNS side effects that manifest themselves as hearing difficulties, and/or (3) some ART regimens may treat CNS HIV inadequately, perhaps due to insufficient CNS drug levels, which is reflected as a central hearing deficit. Monitoring of central hearing parameters could be used to track central effects of either HIV or ART.

255. Mark ASM. The Clinical Outcome And Associated Factors Among Patients With Oesophageal Cancer Treated At Ocean Road Cancer Institute, Dar es Salaam Tanzania. Masters of Medicine (Clinical Oncology) *Dissertation* 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam

Background: The oesophageal cancer generally is the disease with very poor prognosis. Late presentation has always been the scenario since the disease has no symptoms in early stages. The commonest presenting complaints have been dysphagia and weight loss. Other symptoms include chest pain, back pain, heartburns, hoarse voice, vomiting blood, painful swallowing and choking. The extreme variability of EC incidence in different geographical locations makes its epidemiological characteristics unusual. The incidence of EC varies from 1 in 100,000 in Israel to 547 in 100,000 in Kazakhstan. Many studies

have been conducted globally to understand the clinical and epidemiological profile of patients with EC for the purpose of understanding the relationship between the profile and treatment outcomes. Problem statement and Rationale EC is the fourth commonest malignancy in ORCI and the second commonest among males. The disease is very aggressive and carries a poor prognosis. The data on clinical characteristics of the disease and their impact on treatment outcome in Tanzania is missing and this study intends to provide such information to help clinicians make informed decisions for betterment of our patients. **Objectives:** The aim of this study was to determine the clinical treatment outcome and associated factors among patients with EC treated at ORCI from 2010 to 2012. **Methods:** The study was conducted at the ORCI which is currently the only specialized cancer treatment center in Tanzania. The data from 165 sampled study subjects was collected using standardized questionnaires. Of these only 150 study subjects met all the criteria and the data was analyzed using the Statistical Package for Social Sciences version 21.0. The variable means and frequencies were compared using Student's t test and Chi square test respectively. Univariate analysis was done and the significancy level of ≤ 0.05 was chosen for Multivariate logistic regression to examine the association between clinical characteristics and the treatment outcome. **Results:** In the study, 150 out of the 165 recruited study subjects were analysed. 96% of the subjects were not staged. The mean age of the study subjects was 57.2. The study found that treatment modality was the only factor that significantly affected treatment outcome. Cigarette smoking and alcohol consumption which are important risk factors do not have an association with treatment outcome. **Conclusion:** This study gives us further evidence that EC is a very lethal disease with only 16.7% of the study subjects surviving at 6 months post treatment. The disease affects more elderly men with mean age around 58 years. Of the factors assessed in this study only treatment modality is the factor that significantly affects the treatment outcome. Chemoradiation should be the treatment of choice as it has been shown statistically to be superior to chemotherapy or radiotherapy alone

256. **Martin H. Studies on Plague Reservoirs and Vectors in Mbulu and Karatu Districts, Tanzania from 2012 to 2013. Master of Science (Microbiology and**

immunology by publications) *Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.*

Background: *Yersinia pestis*, the etiologic agent of plague, is normally transmitted to animals through infective flea-bites. Fleas associated with rodents, cats, dogs and other small mammals are considered important for the maintenance and transmission of the bacterium. The aims of this study were to determine flea prevalence and diversity on small mammals, to establish factors associated with flea infestation on rodents and to determine the presence of *Y. pestis* fleas in Mbulu and Karatu districts, Tanzania. **Methodology:** House rodents were trapped with box traps while field and forest rodents were trapped with Sherman live traps. House dwelling fleas were trapped with light traps while fleas from rodents, cats, dogs goats and pigs were collected by rubbing their fur with ether soaked cotton wool followed by scrubbing with a shoe-shiners brush, they were identified to genus level using existing taxonomic keys before being subjected to *Y. pestis* DNA PCR. **Results:** From January 2012 to July 2013, a total of 340 rodents were captured of which 52% were male and most of them (91%) fell into the following four species; *Rattus*, *Lophuromys flavopunctatus*, *Praomys* sp. and *Mastomys natalensis*. A total of 805 fleas comprising 9 genera were collected from 61% of the captured rodents with an overall flea index of 2.4 fleas/ rodent. In addition, a total of 270 house dwelling fleas with an overall index of 3.6 fleas/ house were collected. Fleas from domestic animals were mostly *Ctenocephalides* sp. (>90%). Peridomestic rodents had statistically significant higher flea infestation rates compared to rodents in other settings. Rodent' species and settings were the factors associated with flea infestation among the rodents population. These fleas, which were collected during a period of disease quiescence, were all negative for *Y. pestis* DNA PCR. **Conclusion:** The results showed a high flea abundance and density especially those belonging to *Xenopsylla*, *Ctenophthalmus* and *Dinopsyllus* species which were mostly hosted by 4 species of rodents (*M. natalensis*, *R. Rattus*, *Praomys* sp. and *L. flavopunctatus*) in Mbulu and Karatu districts. The non-detection of *Y. pestis* in all fleas collected from rodents, domestic animals and residential dwellings in the current study suggests that the ectoparasites rarely harbor the bacterium during plague outbreak-free periods. It is recommended that during outbreaks of plague, appropriate samples should be collected

concurrently from rodents, fleas and human beings for *Y. pestis* detection in order to establish the dynamics of plague transmission comprehensively, efforts to control plague in these two foci should focus on the above fleas and rodent species.

257. **Marwa KJ, Schmidt T, Sjögren M, Minzi OM, Kamugisha E, Swedberg G. Cytochrome P450 single nucleotide polymorphisms in an indigenous Tanzanian population: a concern about the metabolism of artemisinin-based combinations. *Drugs (artemisinin and arteether)*. 2014; 1: 19.**

Background: Artemisinin-based combinations currently recommended for treatment of uncomplicated *Plasmodium falciparum* malaria in many countries of sub-Saharan Africa are substrates of CYP enzymes. The cytochrome enzyme system is responsible for metabolism of about 80-90% of clinically used drugs. It is, therefore, important to obtain the pharmacogenetics of the population in the region with respect to these combinations and thereby enable practitioners to predict treatment outcomes. The aim of this study was to detect and determine allelic frequencies of CYP2C8*2, CYP2C8*3, CYP3A4*1B, CYP3A5*3 and CYP2B6*6 variant alleles in a Tanzanian indigenous population. **Methods:** Genomic DNA extraction from blood obtained from 256 participants who escorted patients at Karume Health Centre in Mwanza Tanzania, was carried out using the Gene JET™ Genomic DNA purification kit (Thermo Scientific). Genotyping for the cytochrome P450 variant alleles was performed using predesigned primers. Amplification was done by PCR while differentiation between alleles was done by restriction fragment length polymorphism (PCR-RFLP) (for CYP2C8*2, CYP2C8*3) and sequencing (for CYP2B6*6, CYP3A5*3 and CYP3A4*1B). **Results:** CYP2C8*2, CYP2C8*3, CYP3A5*3, CYP3A4*1B and CYP2B6*6 variant allelic frequencies were found to be 19,10,16,78 and 36% respectively. **Conclusion:** Prevalence of CYP2C8*2, CYP3A5*3, CYP3A4*1B and CYP2B6*6 mutations in a Tanzanian population/ subjects are common. The impact of these point mutations on the metabolism of anti-malarial drugs, particularly artemisinin-based combinations, and their potential drug-drug interactions (DDIs) needs to be further evaluated. Investigating the determinants of efavirenz pharmacokinetics after long term treatment with and without rifampicin among Tanzanian HIV/TB and HIV patients.

258. **Massawe IM. Reproductive Health Needs among People Living With HIV/AIDs in Coast Region, Tanzania. Master of Public Health Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: Scaling up of antiretroviral therapy (ART) is currently underway in sub-Saharan Africa including, Tanzania, increasing survival of people living with HIV/AIDS (PLWHA) and the majority of this population is of the reproductive age. This may call for programmes to pay attention to PLWHA's reproductive health needs. Information on fertility desire and intention would assist in the integration of sexual and reproductive health in routine care and treatment clinics in both Urban and rural areas. Despite the fact that majority of people living with HIV are of reproductive age, little attention is given to their reproductive health needs. The purpose of this study was to determine the prevalence of fertility desires and intentions among PL WHA. **Methodology:** A cross-sectional study was conducted in rural and urban settings of the Coast/Pwani region districts in May 2014 at selected districts Care and Treatment Clinics (CTCs) namely Tumbi Referral hospital and Mkuranga district hospital. A total of 368 eligible PLWHA (aged 15-54 years) consented and participated. Face-to-face interviews were conducted using a standard questionnaire. The data obtained from this study was processed and analyzed using SPSS version 20.0. **Results:** The prevalence of fertility desire was 107(35%) and the fertility intention was 3 the majority desiring 0-3 as their total number of children to have in their life time. Fertility desire was predicted marital status where by being single (Adjusted Odds Ratio (AOR): 13.86, 95%CI: 4.14-46.38) and those who were married AOR: 2.23, 95%CI: 2.49- 10.13, Urban residence AOR:2.34, 95%:CI 2.28-4.46 Fertility desire was associated with CD4 level >200 AOR:1.08, 95% CI:2.32-3.72, having child with current partner AOR:0.016, 95%CI:0.004-0.006, Partner want children AOR:0.70, 95%CI 0.02-0.27 Fertility intention was predicted by age where by those belonged to age group 25-34 AOR:6.91,95%CI 2.58-30.28 and marital status where by being single AOR:0.74, 95%CI:0.10-0.57, and cohabiting AOR:0.66, 95%CI:0.01-0.65. Fertility intention was associated with education where by those with secondary education level AOR: 0.09, 95% CI: 0.01-0.63, those who perceived their health status as good AOR: 7.38, 95% CI: 2.12-48.53. About 65.9% of participants reported using FP.

Use of FP was associated with being married (AOR, 0.36, 95%CI: 0.03-0.95), ART use AOR: 8.49, 95%CI: 2.36- 52.98, urban residence was associated with FP use but Adjusted Odds Ratios (AOR) was computed statistical significant was not achieved. These findings indicate that a substantial number of PLWHA want to have children. ART is not related to fertility desire and intention but has an influence on use of FP. **Conclusion:** Fertility desire and intention of PL WHA was substantially high though lower than that of the general population in Tanzania. Having a child with the current partner and the importance of partner wanting a child has association with the fertility desire and intentions. A number of pregnancies that were reported after HIV diagnosis of the respondents mean that the PLWHA desire and intend to have children. The current family planning prevalence and the need for fewer children indicate a higher demand for FP. There is therefore a need to promote and integrate reproductive and child health into care and treatment (CT) services especially in rural areas.

259. Masimba PJ, Magadula JJ, Msengwa Z, Tarimo RB, Mbwambo ZH, Heydenreich M, Fadul E. Biological Potentials Of Extracts And Compounds From Mammea Usambarensis Verdc Fruit. *Journal of Advanced Scientific Research*. 2014; 5(3).

In attempt to investigate some biological activities of *Mammea usambarensis* fruit, absolute ethanolic crude extract, 80% DCM/PE fraction, 5% MeOH/DCM fraction and mammea B/AB were subjected to toxicity test in brine shrimps and mice, antimicrobial activity by disc diffusion and broth dilution method and antioxidant activity by DPPH scavenging activity. In the brine shrimps toxicity test, the crude extract, 80% DCM/PE fraction, 5% MeOH/DCM fraction and mammea B/AB were highly toxic with LC50 values of 1.58, 1.14, 3.89 and 5.21 $\mu\text{g/ml}$, respectively. The crude extract was non-toxic to mice even at a dose above 2000 mg/kg body weight. The crude extract, 80% DCM/PE 5% MeOH/DCM fractions and mammea B/AB exhibited low activity with zone of inhibition of 8.3-16 mm for *Salmonella kisarawe*, 8.7-14 mm for *Staphylococcus aureus* and 8.3-10 mm for *Klebsiella oxytoca*. The minimum inhibitory concentrations ranged from 3.75 $\mu\text{g}/\mu\text{l}$ -25 $\mu\text{g}/\mu\text{l}$. All samples tested had no activity against *Candida albicans* and *Cryptococcus neoformans*. In DPPH assay crude extract, 80% DCM/PE fraction, 5%

MeOH/DCM fraction and mammea B/AB had lower scavenging activity of 86, 69, 72 and 77 $\mu\text{g/ml}$: mM, respectively, compared to the standard compound, propagyl gallate, which had a value of 93 $\mu\text{g/mL}$: mM. To conclude, the antioxidant activity exhibited prompt further studies aimed at discovery of antioxidant agents.

260. Mason C, Xiao L, Imayama I, Duggan C, Wang CY, Korde L, McTiernan A. Vitamin D3 supplementation during weight loss: a double-blind randomized controlled trial. *The American journal of clinical nutrition*. 2014; 99(5): 1015-1025.

Background: Vitamin D deficiency is associated with obesity; whether repletion supports weight loss and changes obesity-related biomarkers is unknown. **Objective:** We compared 12 mo of vitamin D3 supplementation with placebo on weight, body composition, insulin, and C-reactive protein (CRP) in postmenopausal women in a weight-loss intervention. **Design:** A total of 218 overweight/obese women (50–75 y of age) with serum 25-hydroxyvitamin D [25(OH)D] ≥ 10 ng/mL but < 32 ng/mL were randomly assigned to weight loss + 2000 IU oral vitamin D3/d or weight loss + daily placebo. The weight-loss intervention included a reduced-calorie diet (10% weight loss goal) and 225 min/wk of moderate-to-vigorous aerobic activity. Mean 12-mo changes in weight, body composition, serum insulin, CRP, and 25(OH) D were compared between groups (intent-to-treat) by using generalized estimating equations. **Results:** A total of 86% of participants completed the 12-mo measurements. The mean (95% CI) change in 25(OH) D was 13.6 (11.6, 15.4) ng/mL in the vitamin D3 arm compared with -1.3 (-2.6 , -0.3) ng/mL in the placebo arm ($P < 0.0001$). Changes in weight [-7.1 (-8.7 , -5.7) compared with -7.4 (-8.1 , -5.4) kg], body mass index (in kg/m^2 : both -2.8), waist circumference [-4.9 (-6.7 , -2.9) compared with -4.5 (-5.6 , -2.6) cm], percentage body fat [-4.1 (-4.9 , -2.9) compared with -3.5 (-4.5 , -2.5)], trunk fat [-4.1 (-4.7 , -3.0) compared with -3.7 (-4.3 , -2.9) kg], insulin [-2.5 (-3.4 , -1.7) compared with -2.4 (-3.3 , -1.4) $\mu\text{U/mL}$], and CRP [-0.9 (-1.2 , -0.6) compared with -0.79 (-0.9 , -0.4) mg/mL] were similar between groups (all $P > 0.05$). Compared with women who achieved 25(OH)D < 32 ng/mL, women randomly assigned to vitamin D who became replete (ie, 25(OH)D ≥ 32 ng/mL) lost more weight [-8.8 (-11.1 , -6.9) compared with -5.6 (-7.2 , -5.0) kg; $P = 0.05$], waist circumference [-6.6 (-9.3 , -4.3) compared with

-2.5 (-4.6, -2.0) cm; $P = 0.02$], and percentage body fat [-4.7 (-6.1, -3.5) compared with -2.6 (-3.9, -2.2); $P = 0.04$]. Among women with complete pill counts (97% adherence), the mean decrease in CRP was 1.18 mg/mL (46%) in the vitamin D arm compared with 0.46 mg/mL (25%) in the placebo arm ($P = 0.03$). **Conclusions:** Vitamin D3 supplementation during weight loss did not increase weight loss or associated factors compared with placebo; however, women who became replete experienced greater improvements.

261. **Matilda JM. Availability And Utilization Of Malaria Rapid Diagnostic Tests In Private Health Facilities, Temeke District, Dar Es Salaam, Tanzania. Master of Public Health Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: The World Health Organization (WHO) recommends the use of parasitological based tests, microscopy /rapid diagnostic tests (mRDTs) for confirmation of malaria infections prior to prescription of ant malarial drugs. Over 40% of patients in Africa seek treatment at private health facilities which have poor diagnostic facilities. In 2013, Clinton Health Access Initiative (CHAI) in collaboration with the Ministry of Health trained health workers at selected formal private health facilities on use of mRDTs in order to reduce over-diagnosis of malaria, over- prescription of ACTs and to improve patients care.**Aim:** To describe current availability and utilization of mRDTs in management of fever cases in private health facilities in Temeke district, Dar es Salaam, Tanzania.**Methodology:** A cross-sectional study was conducted between April and May 2014 at private health facilities in Temeke district. Health facilities were stratified into those whose health workers received training on diagnosis and interpretation of mRDTs and those facilities whose health workers were not trained by CHAI. The random sampling was applied to select health facilities from the strata to be included in the study. Prescribers and laboratory personnel were interviewed using questionnaire with both closed and open-ended questions. Questionnaires inquire information on demography, attitude, services provided and challenges encountered. A check-list was used to inquire information on number of staff and their cadres, store ledger books reviewed to assess consumption of diagnostic tests, record books were reviewed to identify number of

suspected cases of malaria, number of tested patients with mRDTs and treated patients with ant malaria drugs from October to December 2013 after implementation of mRDTs in the facilities. **Results:** A total of 19 health facilities were included in the study. Of these 11 (58%) facilities had received training on mRDTs diagnosis. For all health facilities only 8/18 had mRDTs in stock between Octobers to December 2013. Of the facilities with mRDT in stock 7/10; (70%) had received training and 1(13%) had not received training the number of health facilities which received mRDTs from October and December 2013 were significantly higher than those not received training (p-value 0.025). For all Health facilities 6/18 used Plasmodium falciparum Histidine-Rich Protein 2 type(HRP2), 4/10;(40%) were those facilities which trained and 2/8;(25%) were not trained by CHAI (p-value 0.658).Health facilities, 7/18 (38.9%) used mRDT kits with logo of Tick as recommended by CHAI, 4/10 were facilities that received training and 3/8 were not received training(p-value 1), proportions were comparable. Of trained health facilities 5(50%) had stored mRDTs according to manufacturer's recommendations. The study observed 260/4414; (5.9%) testing rate of mRDTs and 29/260 ;(11.2%) positivity rate among tested patients. **Conclusion:** There was low availability, storage and utilization of mRDTs for the diagnosis of malaria among febrile patients attending private health facilities in Temeke district. Thus an intensive intervention programs is urgently needed to reduce over diagnosis of malaria which result in over prescription of ant malarial drugs

262. Mbawala GB, Fredrick F, Kamugisha E, Konje E, Hokororo A. Factors associated with mortality among premature babies admitted at Bugando medical centre, Mwanza-Tanzania. *East African Journal of Public Health*. 2014; 11(1): 641-645.

Background: Prematurity, birth asphyxia and infections are the leading causes of neonatal mortality globally. This study was conducted to determine the mortality and associated factors among premature neonates at Bugando Medical Centre, Mwanza-Tanzania. **Methods:** One hundred and three premature neonates delivered at Bugando Medical Centre and other health facilities but referred to Bugando Medical Centre (BMC) were recruited for this study between February and May, 2012. Questionnaires were used

to obtain clinical and demographic data from neonates and their mothers. Neonates were followed up for seven days to determine complications and mortality. **Results:** Neonatal mortality within seven days of life was noted to be 39.4% (39/99). At least one episode of hypothermia was noted in 43/99 (43.4%), 37/99 (37.4%) had respiratory distress syndrome and 32/99 (32.3%) had infection. Significantly higher mortality was noted in neonates born to younger mothers ($p=0.02$) and those with primary education level ($p<0.047$). Mortality was significantly lower for twin neonates ($p=0.001$) and those delivered by caesarean section ($p=0.013$). Among the independent predictors of mortality noted in this study were extremely low birth weight (ELBW) [OR 24; 95% CI 4.6-125.8 ($p < 0.01$)] and presence of respiratory distress syndrome (RDS) [OR 31.5; 95% CI 6.5-152.6 ($p < 0.001$)]. **Conclusions:** High mortality was noted among premature neonates in the first week of life. Maternal age, extremely low-birth weight and presence of RDS were noted to be predictors of mortality.

263. Mbugi EV, Katale BZ, Siame KK, Keyyu JD, Kendall SL, Dockrell HM, van Helden PD. Genetic diversity of Mycobacterium tuberculosis isolated from tuberculosis patients in the Serengeti ecosystem in Tanzania. *Tuberculosis*.2014.

This study was part of a larger cross-sectional survey that was evaluating tuberculosis (TB) infection in humans, livestock and wildlife in the Serengeti ecosystem in Tanzania. The study aimed at evaluating the genetic diversity of Mycobacterium tuberculosis isolates from TB patients attending health facilities in the Serengeti ecosystem. DNA was extracted from 214 sputum cultures obtained from consecutively enrolled newly diagnosed untreated TB patients aged ≥ 18 years. Spacer oligonucleotide typing (spoligotyping) and Mycobacterium Interspersed Repetitive Units and Variable Number Tandem Repeat (MIRU-VNTR) were used to genotype M. tuberculosis to establish the circulating lineages. Of the 214 M. tuberculosis isolates genotyped, 55 (25.7%) belonged to the Central Asian (CAS) family, 52 (24.3%) were T family (an ill-defined family), 38 (17.8%) belonged to the Latin American Mediterranean (LAM) family, 25 (11.7%) to the East-African Indian (EAI) family, 25 (11.7%) comprised of different unassigned ('Serengeti') strain families, while 8 (3.7%) belonged to the Beijing family. A minority group that included Haarlem, X, U and S altogether accounted for 11 (5.2%) of all

genotypes. MIRU-VNTR typing produced diverse patterns within and between families indicative of unlinked transmission chains. We conclude that, in the Serengeti ecosystem only a few successful families pre dominate namely CAS, T, LAM and EAI families. Other types found in lower prevalence are Beijing, Haarlem, X, S and MANU. The Haarlem, EAI_Somalia, LAM3 and S/convergent and X2 subfamilies found in this study were not reported in previous studies in Tanzania.

- 264. Mbunda T, Bakari M, Tarimo E, Sandstrom E, Kulane A. Factors that Influence the Willingness of Young Adults to Participate in Early Vaccine Trials and Contraceptive Practices in Dar es Salaam, Tanzania. *AIDS research and human retroviruses*. 2014; 30(S1): A247-A247.**

Background: HIV/AIDS destroys the lives of young people especially in low-income countries. The inclusion of youths in HIV vaccine trials is necessary in obtaining an effective vaccine that is acceptable to them. Participation in HIV vaccine trials however necessitates participants not to become pregnant or impregnate women. Therefore it is important to study factors influencing willingness to participate and dynamics of contraceptive practices among young adults. **Methods:** Four hundred and fifty young adults visited a youth friendly Infectious Diseases Clinic (IDC) from February to September 2012 completed a self-administered questionnaire concerning socio-demographic information, contraceptive practices, knowledge and perception of HIV vaccine studies, and the availability of social support. **Results:** Of our participants, 50.6% expressed willingness to participate. The willingness was positively correlated with having some knowledge about HIV vaccine studies (AOR, 2.2; 95% CI: 1.4-3.4), a positive perception toward such studies (AOR, 2.3; 95% CI: 1.5-3.6) having a relationship with someone who could help them make a decision (AOR, 2.5; 95% CI: 1.3-4.9), and age at the time of sexual debut (AOR, 2.6; 95% CI 1.0-6.7) for 15- to 19-yearolds and (AOR, 2.7; 95% CI 1.0-7.1) for older participants. 73% of those expressing WTP knew contraception was for spacing children, 45% and 49% reported to ever use contraceptives and to use them at time of last sexual intercourse respectively. The reasons for not using contraceptives were not being married; lack of knowledge on contraceptives; and having unplanned sexual intercourse. **Conclusions:** The participants

exhibited a moderate willingness to participate in HIV vaccine trials, less than half reported to use contraceptives. More efforts should be made to inform the youths about specific HIV vaccine trials, to engage significant others in the decision-making process, and to address impediments pertaining to contraceptive use in the Tanzanian context.

265. Mbunda T, Bakari M, Tarimo EA, Sandstrom E, Kulane A. Factors that influence the willingness of young adults in Dar es Salaam, Tanzania, to participate in phase I/II HIV vaccine trials. *Global health action*. 2014; 7.

Background: HIV/AIDS continues to destroy the lives of young people especially in low-income countries. The inclusion of youths in HIV vaccine trials is of utmost importance in obtaining an effective vaccine that is acceptable to them. **Objective:** To characterize the willingness of young adults in Tanzania to participate in an HIV vaccine trial and the factors that influence this willingness. **Design:** Four hundred and fifty young adults who visited a youth-friendly Infectious Diseases Clinic (IDC) from February 2012 to September 2012 completed a self-administered questionnaire concerning sociodemographic information, their knowledge about and perception of HIV vaccine studies, and the availability of social support. **Results:** Of our participants, 50.6% expressed willingness to participate in HIV vaccine trials, and this willingness was positively correlated with having some knowledge about HIV vaccine studies (AOR, 2.2; 95% CI: 1.4–3.4), a positive perception toward such studies (AOR, 2.3; 95% CI: 1.5–3.6), having a relationship with someone who could help them make a decision (AOR, 2.5; 95% CI: 1.3–4.9), and age at the time of sexual debut (AOR, 2.6; 95% CI 1.0–6.7) for 15- to 19-year-olds and (AOR, 2.7; 95% CI 1.0–7.1) for older participants. **Conclusions:** The participants exhibited a moderate willingness to participate in HIV vaccine trials, which was associated with a positive perception of and some knowledge about such trials, having a relationship with someone who might influence their decision as well as age at time of sexual debut. More efforts should be made to inform the youths about specific HIV vaccine trials and related matters, as well as to engage significant others in the decision-making process.

266. **Mbuya FE, Fredrick F, Kundi B. Knowledge of diabetes and hypertension among members of teaching staff of higher learning institutions in Dar es Salaam, Tanzania. *Tanzania Journal of Health Research*.2014; 16(2).**

Diabetes and hypertension are among the most common non-communicable diseases (NCD) that contribute to a large number of adult morbidity and mortality. The objective of this study was to determine knowledge of diabetes and hypertension and the associated risk factors among members of teaching staff of Higher Learning Institutions in Dar es Salaam, Tanzania. A cross sectional community based study was conducted in 10 higher learning institutions including universities. A structured pretested questionnaire was utilized. A total of 139 participants were involved in this study. A total of 139 teaching members of staff from higher learning institutions participated in the study. The majority (74.8%; n=104) of the participants were males. Mean age of the participants was 40.7 ± 12.6 . Over half (56.8%; 79/139) of the respondents correctly identified failure of body to use insulin as one of the causes of diabetes. Of the respondents, 43.2% (60/139) were able to identified heredity as cause of hypertension. Increasing age was correctly identified as one of risk factors for diabetes by 38.1% (53/139) and for hypertension by 36.7% (51/139) respondents. Thus knowledge of the causes, signs and symptoms, risk factors and complications was not as high as expected considering the respondents were among the highly educated and professional population. In conclusion, the majority of teaching staff in the higher learning Institutions in Dar es Salaam were aware of the diabetes and hypertension. However the knowledge of the causes, signs and symptoms, risk factors and complications was not as high as expected. It is important that this group of professionals is appropriately informed as regards to diabetes, hypertension and other non-communicable diseases as they may serve as key advocacy group to the community and policy makers in Tanzania.

267. **McDonald C, Manji K, Kisenge RR, Aboud S, Spiegelman D, Fawzi WW, Duggan C. The effects of multivitamin and zinc supplementation on infectious morbidity in Tanzanian infants (389.5). *The FASEB Journal*. 2014; 28(1): 389-5.**

Objective: To determine whether daily supplementation of Tanzanian infants with multivitamins (MV), zinc (Zn), or both (MV+Zn) lowers the risk of infectious morbidity

compared with placebo. **Methods:** 2400 infants born to HIV-negative mothers were randomly assigned to receive daily oral supplementation of MV (B complex, C and E), Zn, MV+Zn, or placebo from age 6 weeks for 18 months. Morbidity was assessed by study nurses at monthly visits and by physicians every 3 months and/or when the child was acutely ill. **Results:** Rates of diarrhea (RR=0.88; 95% CI=0.81, 0.96; p=0.004) and acute upper respiratory infection (RR=0.88; 95% CI=0.82, 0.95; p=0.0008), as diagnosed by study physicians, were 12% lower among infants who received Zn vs those who did not. The incidence of diarrhea, as reported at monthly visits, was 18% lower in the Zn only vs placebo group (RR=0.82; 95% CI=0.69, 0.98; p=0.03). There was a non-significant increase in mortality among infants who received Zn (HR=1.80; 95% CI=0.98, 3.31; p=0.06). MV did not alter the occurrence of any recorded morbidities. Neither Zn nor MV reduced hospitalizations or unscheduled outpatient visits. **Conclusion:** Daily zinc supplementation from age 6 weeks may lower the burden of diarrhea and upper respiratory infections. Provision of multivitamins may not confer additional benefit.

268. **McMahon SA, George AS, Chebet JJ, Mosha IH, Mpembeni RN, Winch PJ. Experiences of and responses to disrespectful maternity care and abuse during childbirth; a qualitative study with women and men in Morogoro Region, Tanzania. *BMC pregnancy and childbirth*. 2014; 14(1): 268.**

Background: Interventions to reduce maternal mortality have focused on delivery in facilities, yet in many low-resource settings rates of facility-based birth have remained persistently low. In Tanzania, rates of facility delivery have remained static for more than 20 years. With an aim to advance research and inform policy changes, this paper builds on a growing body of work that explores dimensions of and responses to disrespectful maternity care and abuse during childbirth in facilities across Morogoro Region, Tanzania. **Methods:** This research drew on in-depth interviews with 112 respondents including women who delivered in the preceding 14 months, their male partners, public opinion leaders and community health workers to understand experiences with and responses to abuse during childbirth. All interviews were recorded, transcribed, translated and coded using Atlas.ti. Analysis drew on the principles of Grounded Theory. **Results:**

When initially describing birth experiences, women portrayed encounters with providers in a neutral or satisfactory light. Upon probing, women recounted events or circumstances that are described as abusive in maternal health literature: feeling ignored or neglected; monetary demands or discriminatory treatment; verbal abuse; and in rare instances physical abuse. Findings were consistent across respondent groups and districts. As a response to abuse, women described acquiescence or non-confrontational strategies: resigning oneself to abuse, returning home, or bypassing certain facilities or providers. Male respondents described more assertive approaches: requesting better care, paying a bribe, lodging a complaint and in one case assaulting a provider. **Conclusions:** Many Tanzanian women included in this study experienced unfavorable conditions when delivering in facilities. Providers, women and their families must be made aware of women's rights to respectful care. Recommendations for further research include investigations of the prevalence and dimensions of disrespectful care and abuse, on mechanisms for women and their families to effectively report and redress such events and on interventions that could mitigate neglect or isolation among delivering women. Respectful care is a critical component to improve maternal health.

269. **Meda E, Magesa PM, Marlow T, Reid C, Roberts DJ, Makani J. Red blood cell alloimmunization in sickle cell disease patients in Tanzania. *East African Journal of Public Health*. 2014; 11(2): 775-780.**

Objective: Alloimmunization is a recognized complication of red blood cell (RBC) transfusion and causes delayed hemolytic transfusion reactions and provides problems sourcing compatible blood for future transfusions. The objective of this study was to determine the frequency of RBC alloimmunization in SCD patients in Tanzania where pretransfusion screening for alloantibodies is not practiced. **Methods:** In a cross-sectional study, SCD patients at Muhimbili Hospital Sickle Cell Clinic, Dar es Salaam, Tanzania, were investigated. The demographic characteristics and transfusion history were recorded. Blood samples were drawn from consenting, previously transfused patients and RBC alloimmunization was demonstrated using immunohematologic techniques. **Results:** There were 365 patients (median age, 16 years; 55.3% female) and they had received a median of 2 transfusion episodes. Fifteen patients (4.1%) possessed RBC

alloantibodies. A total of 61 alloantibodies was found; 16 (26.2%) and 11 (18.0%), were directed against Kell and Rh blood group antigens, respectively. **Conclusion:** The rate of RBC alloimmunization in Tanzanian SCD patients was 4.1%. The low transfusion load may explain this immunization frequency. Nevertheless, our study confirms the significance of RBC alloimmunization as a complication in Tanzanian SCD patients. Therefore, there is need to improve immunohematologic testing in Tanzania so that RBC alloimmunization and its consequences may be prevented.

270. Mehrbod P, Hair-Bejo M, Ibrahim T, Azmi T, Omar AR, El Zowalaty M, Ideris A. Simvastatin modulates cellular components in influenza A virus-infected cells. *International journal of molecular medicine*. 2014; 34(1): 61-73.

Influenza A virus is one of the most important health risks that lead to significant respiratory infections. Continuous antigenic changes and lack of promising vaccines are the reasons for the unsuccessful treatment of influenza. Statins are pleiotropic drugs that have recently served as anti-influenza agents due to their anti-inflammatory activity. In this study, the effect of simvastatin on influenza A-infected cells was investigated. Based on the MTT cytotoxicity test, hemagglutination (HA) assay and qPCR it was found that simvastatin maintained cell viability and decreased the viral load significantly as compared to virus-inoculated cells. The expression of important pro-inflammatory cytokines (tumor necrosis factor- α , interleukin-6 and interferon- γ), which was quantified using ELISA showed that simvastatin decreased the expression of pro-inflammatory cytokines to an average of 2-fold. Furthermore, the modulation of actin filament polymerization was determined using rhodamine staining. Endocytosis and autophagy processes were examined by detecting Rab and RhoA GTPase protein prenylation and LC3 lipidation using western blotting. The results showed that inhibiting GTPase and LC3 membrane localization using simvastatin inhibits influenza replication. Findings of this study provide evidence that modulation of RhoA, Rabs and LC3 may be the underlying mechanisms for the inhibitory effects of simvastatin as an anti-influenza compound.

271. Mfinanga SG, Warren RM, Kazwala R, Ngadaya E, Kahwa A, Kazimoto T, Cleaveland S. Genetic profile of Mycobacterium tuberculosis and treatment outcomes in human pulmonary tuberculosis in Tanzania. *Tanzania Journal of Health Research*.2014; 16(2).

Information on the different spoligotype families of Mycobacterium tuberculosis in Tanzania is limited, and where available are restricted to small geographical areas. This article describes the genetic profile of M. tuberculosis across Tanzania and suggests how spoligotype families might affect drug resistance and treatment outcomes for smear positive pulmonary tuberculosis patients in Tanzania. In this study conducted from 2006 to 2008, the M. tuberculosis isolates were obtained from samples collected under the routine drug resistance surveillance system. The isolates were from specimens collected from 2001 to 2007, and stored at the Central and Reference Tuberculosis Laboratory in Dar es Salaam. A total of 487 isolates from 23 regions in Tanzania were spoligotyped. However, clinical information for 446 isolates was available. Out of the 487 isolates spoligotyped, 195 (40.0%) belonged to the Central Asian (CAS) family, 84 (17.5%) to the Latin American Mediterranean (LAM) family, 49 (10.1%) to the East-African Indian (EAI) family, and 33 (6.8%) to the Beijing family. Other isolates included 1 (0.2%) for H37Rv, 10 (2.1%) for Haarlem, 4 (0.8%) for S family, 58 (11.9%) for T family and 52 (10.7%) for unclassified. No spoligotype patterns were consistent with M. bovis. As regards to treatment outcomes, the cure rate was 80% with no significant variation between the spoligotype families. The overall level of MDR-TB was 2.5% (3/121), with no significant difference between the spoligotype families. All Beijing strains (11.8%, 30/254) originated from the Eastern and Southern zones of the country, of which 80% were from Dar es Salaam. Isolates from the CAS and T families were reported disproportionately from the Eastern-Southern zone, and EAI and LAM families from the Northern-Lake zones but the difference was not statistically significant. Five isolates were identified as Non-tuberculous Mycobacteria. In conclusion, M. tuberculosis isolates from pulmonary tuberculosis cases in Tanzania were classified mostly within the CAS, LAM, and EAI and T families. Consistently good treatment outcomes were recorded across the spoligotype families. The proportion of drug resistance strains was low. The

findings also suggest variation of spoligotype families with varying geographical localities within the country.

272. Mgelea EM, Kisenge RR, Aboud S. Detecting virological failure in HIV-infected Tanzanian. 2014.

Background: The performance of clinical and immunological criteria to predict virological failure in HIV-infected children receiving antiretroviral therapy (ART) is not well documented. **Objective:** To determine the validity of clinical and immunological monitoring in detecting virological failure in children on ART. **Methods:** A total of 218 children were included in the study. All were from care and treatment clinics in Dar es Salaam, Tanzania. Their mean age was 10.6 years, 122 (56.0%) were males, and the mean time on ART was 40.9 months. The study was conducted from August 2011 to March 2012. Data on sociodemographic and clinical characteristics and immunological and virological failure were based on World Health Organization definitions. Blood samples were collected for CD4+ T-cell count and viral load tests. **Results:** Of 217 children with available viral load results, 124 (57.1%) had virological failure (>400 copies/mL), 25.0% immunological failure and 11.5% clinical failure. The sensitivity, specificity, positive predictive value and negative predictive value of clinical criteria were 12.9%, 90.3%, 64.0% and 43.8%, respectively, those for immunological criteria 22.6%, 73.1%, 53.3% and 41.4%, and those for the combination of clinical and immunological monitoring 25.8%, 69.9%, 53.3% and 41.4%. Children who received nevirapine (NVP)-based regimens were two times more likely (odds ratio 2.0; 95% confidence interval 1.20 - 3.64) to have virological failure than those on efavirenz and protease inhibitor-based regimens. **Conclusions:** The study demonstrated poor performance of currently recommended clinical and immunological criteria for monitoring HIV-infected children on ART. Moreover, children on NVP-based regimens had a higher risk of developing virological failure than those on other regimens.

273. Mhalu FS. Thirty years of HIV and AIDS Research at the Muhimbili University of Health and Allied Sciences: Successes and Challenges with special

reference to the TANSWED HIV Programme. In *The Second Scientific Conference. 2014.*

Background: After report of the first 3 suspect AIDS cases from the Kagera region, in 1983, the Muhimbili Medical Centre (MMC) recorded the first AIDS patient in October 1984. A month later, the microbiology laboratory at the MMC received sera from the Kagera hospital from patients with extensive genital ulceration. The first specific HIV antibody test (ELISA) in Tanzania was done at the Kagera hospital on 5th August 1985 in collaboration between MMC, WHO/CDC, and MoH. Since then MMC and later MUHAS and MNH took up intensive HIV research, in collaboration with other partners in search of results to guide the AIDS prevention and control efforts. **Methods:** A review of findings from the TANSWED HIV Programme at MUHAS which received financial support from the Swedish Government between 1986 and 2009 was done to determine how research contributed to interventions for prevention, care and treatment leading to decline of HIV/AIDS. **Results:** Research findings over the past 30 years contributed to establishing quality laboratory testing for all levels of care; determined risk factors for HIV transmission; established STIs clinics at the MMC in 1984 and in the City of DSM in 1993 followed by STI services in other sites in the country; advised on blood transfusion HIV screening countrywide beginning 1989; demonstrated HIV counseling and testing influenced HIV risk reduction; studied risks and interventions of mother to child HIV transmission leading to the PMTCT programme; introduced HIV care and treatment using antiretroviral therapy (ART) since 2004 at the MNH with research funds; prepared for and conducted HIV vaccine trials. **Conclusion:** HIV and AIDS research at MUHAS over the past 30 years has been exciting, challenging, rewarding and has contributed to the decline in HIV prevalence and incidence as well as a decrease in HIV associated illness and deaths.

274. **Mhalu GS. Effectiveness of an Instructional Video for Diagnostic Sputum Production and Tuberculosis Case Detection in Mwananyamala and Temeke Hospitals in Dar es Salaam Tanzania. Master of Public Health *Dissertation 2014.* Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Introduction: Tuberculosis (TB) is second only to HIV as an infectious cause to adult death. The disease remains to be a major global health problem which in 2012 it is estimated that 8.6 million people developed TB and 1.3 million people died from TB worldwide. Sputum smear microscopy remains to be a cornerstone of diagnostic algorithm for TB diagnosis in low- income settings like Tanzania. For diagnosis, presumptive TB cases with coughing for more than two weeks are asked to produce sputum spontaneously from the lungs. However, some cases are missed or given wrong treatment due to patients often giving only saliva from the mouth, which reduces the sensitivity of sputum smears. **Methods:** An interventional study was conducted in Mwanayamala and Temeke hospitals in Dar es Salaam to assess the effectiveness of the video instruction on sputum production and submission for TB case detection. A total of 200 presumptive TB cases were recruited and divided into intervention and control groups. Intervention group received instructions on how to produce sputum by the use of the video prior to sputum collection and control group was instructed to follow routine standard care for sputum production without the use of the video. **Results:** A significant difference was observed on TB case detection among intervention and control groups. TB detection was more on intervention group by (56%) more than control group which was 23% ($p < 0.05$). Quality of sputum was observed to be significantly difference between the intervention and the control groups (p -value; 0.01). **Conclusion:** Instructional provision for sputum production to TB patients has been seen to yield positive results to production of good quality sputum for detection of TB as well as increasing the rate of acid fast bacilli detection among presumptive TB cases when video tools are incorporated into the instructions

275. **Mhila G, Kessy AT. Use of mobile health: Awareness of pregnancy danger signs among women in Bagamoyo district. In *The Second Scientific Conference. 2014.***

Background: Maternal mortality ratio in Tanzania is estimated at 454 deaths per 100,000 live births. In some sub-Saharan Africa countries, 33% of maternal deaths are due to failure or delay in recognition of danger signs. Women traditionally learn about danger signs through counseling during antenatal visits. Despite over 96% of pregnant women in

Tanzania making at least one antenatal visit, this counseling opportunity is often missed. Consequently, only (53%) are informed of signs of pregnancy complications. For this and other reasons, mobile phones (mHealth) technological innovations have been used in some projects to support health care services. D-Tree International, working with partners developed a phone-based tool on maternal health care to assist staff at reproductive health clinics deliver a set of maternal guidelines. **Study Aim:** The purpose was to assess the influence of mHealth on awareness of pregnancy danger signs and utilization of maternal health services. **Methods:** A cross-sectional comparative study was conducted involving two groups (164 each) of pregnant and postnatal women in Bagamoyo where mHealth has been used and Rufiji as a control. **Results:** All women in the intervention group could mention at least one danger sign compared to 91% from the non-intervention group. The difference in the awareness of pregnancy danger signs between the two groups was statistically significant in the independent-samples t-test ($M=3.74$, $SD=1.612$) and ($M=3.35$, $SD=1.882$) for mHealth and control group; $p=0.045$. Additionally, more women in the intervention group received counseling (97.0%) and utilized health facilities (92%) compared to 82% and 88% respectively in the non-intervention group. **Conclusion:** Findings affirmed usefulness of mHealth to ensure completeness of maternal health services provided by health workers at the point of care.

276. **Mian M, Augustin F, Kocher F, Gunsilius E, Willenbacher W, Zabernigg A, Fiegl M. A success story: how a single targeted-therapy molecule impacted on treatment and outcome of diffuse large B-cell lymphoma. *Anticancer research*. 2014; 34(5): 2559-2564.**

Diffuse large B-cell lymphoma (DLBCL) is a rather aggressive disease and the natural course of this lymphoma is very dismal. However, first the introduction of anthracycline-containing chemotherapy regimens and then the addition of rituximab were important steps forward. Since no complete real-life analyses have yet been published, we analyzed all patients with DLBCL treated with rituximab, cyclophosphamide, doxorubicin, vincristine and prednisone (R-CHOP) in the whole region of Tyrol and compared the results to a historical CHOP (-like)-treated cohort. Two hundred and nineteen consecutive patients underwent R-CHOP and 72% achieved a complete remission (CR); 20% suffered

a relapse and 31% died. 5-Year progression-free survival (PFS) and overall survival (OS) were 56% and 69%, respectively. We identified several parameters influencing PFS and OS significantly in univariate analysis, but only stage III/IV and hemoglobin <13 g/dl were independent prognosticators for PFS and age >60 years for OS. In comparison to the CHOP (-like)-treated group, the CR rate was similar, while the percentage of relapse was nearly twice in the historical cohort, namely 44%. This translated into a dramatically improved PFS and OS for the R-CHOP group. In conclusion, in a real-life setting R-CHOP results in high percentages of response and long-term remission. Moreover we showed that in the rituximab era, factors other than the single parameters of the international prognostic index significantly influence PFS and OS. Finally, we confirm the independent impact of rituximab on the outcome of an unselected population with DLBCL.

277. **Michael Z. Molecular Detection and Characterization of Yersinia Pestis in Mbulu and Karatu Districts, Northeastern Tanzania. Master of Science in (Microbiology and Immunology by Publication) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: Although human plague has been an important public health problem in Tanzania, information on the strain(s) of the bacterium responsible for plague causation in the country is missing. This study employed molecular techniques to detect and characterize *Yersinia pestis* in various potential mammalian reservoirs/hosts and humans in two foci where plague outbreaks occurred recently. **Methodology:** This study was conducted in six villages in Mbulu and Karatu districts northeastern Tanzania. Animals were captured from January to November 2012, during a period of disease quiescence, and were then anaesthetized; identified, sexed, autopsied and liver, spleen, heart and lung tissues were collected. Human bubo specimens aspirated from clinically diagnosed patients in Mbulu in 2011, inoculated in Carry Blair transport media and preserved at 40C in the hospital were also collected. PCR was used to detect the *Y. pestis* plasminogen activator (*pla*) gene and the amplicons were then sequenced by a 3130 Genetic Analyzer and were compared with those available in the GenBank by BLAST search. **Results:** A total of 517 small mammals, of which 493 (95.4%) were from Mbulu

district and 24 (4.6%) from Karatu, were captured; similarly 9 bubo specimens were collected. Two (0.8%) of the 247 female and 1 (0.4%) of the 270 male small mammals (2 *Mastomys natalensis* and 1 *Gerbilliscus* sp.) as well as 2 (22.2%) human bubo specimens were positive for *Y. pestis* *pl* gene. Statistical analysis (χ^2) showed a no significant difference ($p>0.05$) in infection proportions between male and female mammals. There was a statistically significant difference ($p<0.05$) in infection proportions between small mammals tested in Mbulu and Karatu districts; with that in Karatu being higher. All the sequences showed a 99% sequence similarity to *Y. pestis* plasmid pPCP1, detected from ancient DNA. **Conclusion:** Two rodent species namely *Mastomys natalensis* and *Gerbilliscus* sp. that were found to harbour *Y. pestis* during the period of no outbreak are among reservoirs responsible for the maintenance of the bacterium in the investigated foci. This study for the first time confirms *Y. pestis* responsible for the human plague outbreak in the investigated foci in Tanzania in rodents and humans.

278. **Mikael AT. Quality Of Life among Patients on Hemodialysis in Dar Es Salaam, Tanzania. Master of Science (Nephrology) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: Non-communicable diseases have become an important health problem for developing countries. Although the prevalence of Chronic Kidney Disease (CKD) is not known in Tanzania, the risk factors are prevalent. One of the treatment modality for advanced CKD is hemodialysis. Patients on hemodialysis are faced with several challenges that affect quality of life. Quality of life is an important predictor of morbidity and mortality. Prior to the current study, the quality of life of patients on hemodialysis in Tanzania was not determined. **Objective:** The purpose of this study is to determine the quality of life among patients on hemodialysis in Dar es Salaam, Tanzania. **Methodology:** The study had a descriptive and analytical cross-sectional design. The study population included all CKD patients who are undergoing maintenance hemodialysis. Convenient sampling was used for selection of Regency Medical Center and TMJ Hospital because they manage the majority of patients on hemodialysis in Dar es Salaam. Consecutive enrollment was used to recruit participants. Consent was obtained from each patient. The Kiswahili version of RAND-36 was used along with an

instrument developed by the investigator. Data was collected by trained research assistants. RAND scoring instructions were followed in calculating mean scores. **Results:** A total of 80 patients on maintenance hemodialysis participated in the study. Mean age was 48.1 ± 13.0 years. Forty seven (58.8%) were males, 57(71.3%) had secondary/post-secondary education, and 64 (80.0%) were married/living with partner. Seventy (87.5%) had insurance as source of finance. Initial and current vascular accesses were arteriovenous fistulas in 2 (2.5%) and 50 (68.0%) participants, respectively. Frequency of dialysis was 3 times per week in 67 (84.8%). Median duration of dialysis was 8 months. Hypertension was the leading co-morbidity (88.8%) followed by diabetes mellitus (30.0%). Mean scores of RAND-36 were: PF = $48.16 + 28.46$, RP = $85.21 + 26.42$, BP = $42.88 + 31.75$, GH = $47.75 + 16.99$, VT = $45.62 + 17.49$, RE = $88.75 + 25.96$, MH = $53.92 + 13.38$, PCS = $53.92 + 13.38$, MCS = $55.46 + 10.46$, and TS = $56.71 + 11.23$. On multivariate ordinal logistic regression hemodialysis less than 3 times per week was found to be an independent risk factor for poor quality of life (VT) (AOR = -1.85, 95% CI = -3.20 – -0.09). **Conclusions:** The study determined that patients on hemodialysis have poor quality of life. Hemodialysis less than 3 times per week is an independent risk factor for poor quality of life.

279. Minakshi P, Ranjan K, Brar B, Ambawat S, Shafiq M, Alisha A, Dhama K. New approaches for diagnosis of viral diseases in animals. *Advances in Animal and Veterinary Sciences*. 2014; 2(4S): 55-63.

Identification and control of viruses that causes diseases in human, domestic and wild animals represent continuous challenges to medical and veterinary sciences. From centuries many diagnostic techniques have been tried to identify individual infectious agents by their clinical signs and symptoms produced in the susceptible host. But it is not always possible to identify or differentiate the disease on the basis of its signs and symptoms and thus requires other advanced diagnostic procedures to clearly identify and confirm the pathogens. Rapid detection of infectious agents in animals as well as in environment is essential for effective control of infectious diseases. There are various approaches for detection of viral diseases which includes conventional as well as modern approaches. Several conventional techniques such as isolation in cell culture, serology

and histological identification are traditionally used to identify viral pathogens. However, the latest molecular diagnostic technologies are more advantageous as they offer more sensitive, less time consuming, high throughput results. Other novel technologies such as polymerase chain reaction (PCR), Reverse Transcriptase PCR (RT-PCR), Real Time-PCR, DNA probe, nucleic acid sequencing etc. provide a thorough understanding of accurate diagnosis and discrimination of present and emerging diseases. The aim of these new tools is to detect the presence of pathogen before the onset of disease. Here we have discussed the advancement of diagnostic tools and their applications for important animal viruses of domestic and wild animals.

280. **Mingzhu L, Seyf-Laye ASM, Ibrahim T, Gbandi DB, Honghan C. Tracking sources of groundwater nitrate contamination using nitrogen and oxygen stable isotopes at Beijing area, China. *Environmental Earth Sciences*. 2014; 72(3): 707-715.**

The identification of sources and behavior of contaminants is important to control and manage groundwater quality of aquifer systems in urban areas. In this study, hydrogeochemistry of major constituents and stable isotope ratios of nitrate in groundwater were determined to identify contamination sources and transformation processes occurring in soils and deeper groundwater of Beijing with intense human activities. The nitrogen and oxygen isotopic compositions of nitrate in pore water extracts from groundwater samples indicate at least three potential sources of nitrate in groundwaters at Beijing. Stable isotope analyses from this study site, which has atmospheric, chemical fertilizer and human waste nitrate sources, provide a tool to distinguish nitrate sources in a confined aquifer where concentrations alone do not. These data indicate that the most common sources of high nitrate concentrations in groundwater at Beijing are wastewater and denitrification process occurred specially in the Central area. $\text{NO}_3\text{-N}$ and cation and anion concentrations (Ca^{2+} , Mg^{2+} , Cl^- and SO_4^{2-}) showed strong correlations indicating that they originated from the same sources. This study demonstrates that a thorough evaluation of hydrodynamic and hydrochemical parameters with dual isotopes of NO_3^- – constitutes an effective approach for identifying sources and transformation processes of NO_3^- – in deeper groundwater systems.

281. Minzi O, Maige S, Sasi P, Ngasala B. Adherence to artemether-lumefantrine drug combination: a rural community experience six years after change of malaria treatment policy in Tanzania. *Malar J.* 2014; 13(267): 10-1186.

Background: Adherence to multidosing is challenging worldwide. This study assessed the extent of adherence to multidosing artemether-lumefantrine (ALu) in a rural community in Tanzania, six years after switching from single dose policy of sulphadoxine-pyrimethamine. **Methods:** This study was a prospective observational, open label, non-randomized study involving 151 patients with uncomplicated malaria recruited at Fukayosi dispensary in Bagamoyo district in Tanzania. Patients treated with ALu were visited at home on day 3 for interview on drug intake, capillary blood sample collection for microscopy and ALu tablets count. Venous blood samples (2 ml) for determination of blood lumefantrine concentrations and blood slides for microscopy were collected on day-7. Kappa's coefficient was used to assess agreement between pill counts and self-report. Adherence was categorized depending on the tablets remaining and what the patient reported. Only those with empty blister pack available but no tablet remaining and reported taking all six doses of ALu at a correct dose and correct time were regarded as definite adherent. The rest were either probable adherent or probable non-adherent. **Results:** Only 14.9% of the patients were definite adherent the rest took the drug at incorrect time or did not finish the tablets. Out of 90 patients with analysed plasma samples for lumefantrine blood concentrations, 13/90 (14.4.0%) had lumefantrine concentrations <175 ng/ml. There was no difference in mean lumefantrine concentration in the patients who stated to have taken all doses as required (561.61 ng/ml 95% CI = 419.81-703.41) compared to those who stated to have not adhered well to drug intake (490.95 ng/ml, 95% CI = 404.18-577.7074 (p = 0.643). None of the patients had detectable parasites by microscopy on day-3 and day-7 regardless of adherence status and the level of day-7 blood lumefantrine. There was strong agreement between the self-reported responses on drug intake and pill-counts (kappa coefficient = 0.955). Age, sex, education and place where first dose was taken were associated with adherence. **Conclusions:** The overall adherence six years after the change of malaria treatment policy was low. It is, therefore, important to continuously monitor the level of

adherence to treatment in order to get the current situation and institute corrective measures on time.

282. **Miraji AM. Prevalence Of Hydatidosis In Slaughtered Animals, Practices Facilitating Transmission And Perceived Risk Of Human Infection In Dodoma Municipality, Tanzania. Master of Science (Tropical Diseases Control) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: In Tanzania, Cystic Echinococcosis (CE) has been found to exist in both humans and animals, specifically in the northern part- Ngorongoro and Arusha, affecting a number of pastoralists with their livestock. However, scanty or no information is available in the Dodoma municipality. Community practices and knowledge of CE transmission risk factors, and the perceived risk of human infection are important determinants of occurrence of CE. **Objectives:** This study examined the prevalence of Cystic Echinococcosis in slaughtered animals; practices facilitating transmission and perceived risk of human infection in Dodoma municipality. **Material and Methods:** A quantitative cross-sectional study was conducted between May and June 2014. Prevalence of CE was determined by physical examination of different organs from slaughtered animals. Cysts from infected organs were fixed and preserved in formalin, then transported to MUHAS Parasitological laboratory for establishment of fertility. A structured questionnaire with closed ended questions was used to collect household data on knowledge of CE transmission factors, perceived risk to human infection and practices that potentially predispose dogs and humans to *E. granulosus* infection. **Results:** A total of 1485 animals were inspected for CE in different organs, of these, 700 were cattle, 430 goats and 355 were sheep. The overall prevalence of CE was 4.7%; and 7.6%, 2.1% and 2.3% for cattle, goats and sheep, respectively. Of the 53 cysts examined in cattle, 27 (50.9%) were fertile and 26(49.1%) sterile; in goats, of the 9 examined cysts 3 (33.3%) were fertile and 6 (66.7%) were sterile while in sheep, 4 (50%) were fertile and 4 (50%) sterile. A total of 361 respondents participated in the household survey. Their mean (SD) age was 43.6 (14.5) with the range of 65 (20-85) years. Of these, 191(52.9%) were male. Most respondents, 64.8% completed primary education and peasantry (mixed of farm and livestock keeping) were the main occupation activities constituting 307 (85.0%). The

majority (81.7%) were not aware of CE, whilst 91.7% had low knowledge, 8.3% moderate knowledge and none of them was found to have high knowledge on CE. Backyard slaughter, free-range dog management, livestock keeping and feeding of offal to dogs were identified as the practices that keep the community at risk of acquiring CE. Thus a high percentage of respondents (56.8 – 75.9%) held the perception that practices that facilitate transmission of CE put them at a high risk of CE infection. **Conclusion:** The findings show that CE exists in ruminant food animals in Dodoma. In the majority of the community, there is a limited awareness and knowledge of CE on modes of transmission, practices and associated risk factors. The presence of CE in ruminant food animals and the close proximity to dogs clearly shows the potential risk for human infection. Further studies are required to establish infection among dogs and humans.

283. **Mirnezami R, Mehta AM, Chandrakumaran K, Cecil T, Moran BJ, Carr N, Mirnezami AH. Cytoreductive surgery in combination with hyperthermic intraperitoneal chemotherapy improves survival in patients with colorectal peritoneal metastases compared with systemic chemotherapy alone. *British journal of cancer*.2014.**

Background: Colorectal cancer peritoneal metastasis (CPM) confers an exceptionally poor prognosis, and traditional treatment involving systemic chemotherapy (SC) is largely ineffective. Cytoreductive surgery (CRS) combined with hyperthermic intraperitoneal chemotherapy (HIPEC) is increasingly advocated for selected patients with CPM; however, opinions are divided because of the perceived lack of evidence, high morbidity, mortality, and associated costs for this approach. As there is no clear consensus, the aim of this study was to compare outcomes following CRS+HIPEC vs SC alone for CPM using meta-analytical methodology, focusing on survival outcomes. Secondary outcomes assessed included morbidity, mortality, quality of life (QOL), and health economics (HE). **Methods:** An electronic literature search was conducted to identify studies comparing survival following CRS+HIPEC vs SC for CPM. The odds ratio (OR) was calculated using the Mantel–Haenszel method with corresponding 95% confidence intervals (CI) and P-values. Heterogeneity was examined using the Q-statistic and quantified with I². The fixed-effect model (FEM) was used in the absence of

significant heterogeneity. For included studies, 2- and 5-year survival was compared for CRS+HIPEC vs SC alone. **Results:** Four studies (three case-control, one RCT) provided comparative survival data for patients undergoing CRS+HIPEC (n=187) vs SC (n=155) for CPM. Pooled analysis demonstrated superior 2-year (OR 2.78; 95% CI 1.72–4.51; P=0.001) and 5-year (OR 4.07; 95% CI 2.17–7.64; P=0.001) survival with CRS+HIPEC compared with SC. Mortality ranged from 0 to 8%. No data were available for the assessment of QOL or HE. **Conclusions:** Although limited by between-study heterogeneity, the data support the assertion that in carefully selected patients, multimodal treatment of CPM with CRS+HIPEC has a highly positive prognostic impact on medium- and long-term survival compared with SC alone. There is a paucity of comparative data available on morbidity, QOL, and HE.

284. Mjungu DM. Assessment of Factors Influencing Prescribers Adherence to Mrdt Results In the Management of Malaria. Masters of Public Health Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.

Background: Early diagnosis and treatment of Malaria with effective anti-malarial is one of the strategies used in combating Malaria. However despite good training and supportive supervision some drug prescribers have not been adhering to mRDT negative results as per WHO recommendations. This study is aiming at assessing factors influencing prescriber's adherence to mRDT results in the management of malaria. **Methodology:** This was a cross sectional study, conducted in Arusha and Coast regions using both quantitative and qualitative methods. Study population was drug prescribers and Council Health Management Team (CHMT) members in Arusha and Coast regions. Study regions were conveniently chosen while study districts, health facilities and prescribers were randomly selected. Data were collected by interviewing the respondent using a structured questionnaire and Focused Group Discussion. Quantitative data were entered in the computer for analysis of the proportion of non-adherent patients and factors influencing adherence. Statistical Package for the Social Sciences (SPSS) version 16 was used for variable cross tabulation and logistic regression analysis. Copy and paste method was used in the analysis of qualitative data. **Results:** More than 71% of 382 prescribers did not adhere to mRDT negative results and 45.5% of 933 prescriptions

reviewed were prescribed with anti-malarial drugs despite showing that they belonged to patients negative with mRDT. Logistic regression analysis showed that previous IMCI training (OR=0.10, 95% CI: 0.05-0.30), type of health facility affiliation (OR=7.26, 95% CI: 3.92-13.43) and level of prescriber's professional training (OR=3.83, 95% CI: 2.07-7.07) were significantly associated with adherence at $p < 0.001$. Sex was not significantly associated with adherence. Findings from qualitative study suggests that pressure from patients/care takers and prescribers fear of losing income and credibility influences prescriber's adherence to mRDT negative results. **Conclusion:** Findings from this study implies that the knowledge gained during basic professional training and short courses has an influence on prescriber's adherence and therefore a need to capitalize on professional trainings and on job trainings. Likewise the study findings implies lack of proper information's to community members on their roles and responsibility during treatment and therefore provisions of educative information's is suggested.

285. **Mlaki RL. Perceptions on factors influencing uptake of mass drug administration in the lymphatic filariasis control program in Mtwara municipality. Masters of Public Health Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: This descriptive cross sectional study was carried out in Mtwara Municipality, Mtwara Region during the period of April to June 2014. **Objective of the study:** The main objective of this study was to identify perceived factors influencing uptake of mass drug administration in the lymphatic filariasis control program among community members in Mtwara Municipality. The information generated will help to improve health intervention programs in Mtwara Municipality. **Methodology:** A cross-sectional study using qualitative approach was employed. Semi structured interviews with open ended questions was used to collect information through In-depth Interviews (IDIs) and Focus Group Discussions (FGDs). Data from this study was analysed qualitatively by using content analysis. **Findings:** The study found that there is low up take of MDA for lymphatic filariasis control in Mtwara Municipality. The MDA coverage estimated to be 53% for the year 2011/2012 (42%, 2011) and 64%, 2012). Inadequate community involvement in the study paralleled to inadequate health education

was the main factors influencing this low uptake of anti-filarial drugs. The other attributed factors includes fear of the drug side effects, absenteeism during MDA campaign, negative perception towards MDA, poor motivation for community drug distributors, absence of LF committee in community level, inadequate budget and exclusion of influential people from campaign. **Conclusion:** The study shows that strong community participation and involvement in health programs specifically in LF is highly needed. Health education is essential in raising community knowledge and awareness on the disease, cause/transmission, manifestation, disfigurements and dangers as well as prevention. **Recommendations:** The study recommends the program to put more efforts in ensuring community involvement and participation, health education, involvement of influential people in the campaign, and formation of the LF committee in wards and mitaa /village level.

286. Mkoka DA, Goicolea I, Kiwara A, Mwangi M, Hurtig AK. Availability of drugs and medical supplies for emergency obstetric care: experience of health facility managers in a rural District of Tanzania. *BMC pregnancy and childbirth*. 2014; 14(1): 108.

Background: Provision of quality emergency obstetric care relies upon the presence of skilled health attendants working in an environment where drugs and medical supplies are available when needed and in adequate quantity and of assured quality. This study aimed to describe the experience of rural health facility managers in ensuring the timely availability of drugs and medical supplies for emergency obstetric care (EmOC).

Methods: In-depth interviews were conducted with a total of 17 health facility managers: 14 from dispensaries and three from health centers. Two members of the Council Health Management Team and one member of the Council Health Service Board were also interviewed. A survey of health facilities was conducted to supplement the data. All the materials were analysed using a qualitative thematic analysis approach. **Results:** Participants reported on the unreliability of obtaining drugs and medical supplies for EmOC; this was supported by the absence of essential items observed during the facility survey. The unreliability of obtaining drugs and medical supplies was reported to result in

the provision of untimely and suboptimal EmOC services. An insufficient budget for drugs from central government, lack of accountability within the supply system and a bureaucratic process of accessing the locally mobilized drug fund were reported to contribute to the current situation. **Conclusion:** The unreliability of obtaining drugs and medical supplies compromises the timely provision of quality EmOC. Multiple approaches should be used to address challenges within the health system that prevent access to essential drugs and supplies for maternal health. There should be a special focus on improving the governance of the drug delivery system so that it promotes the accountability of key players, transparency in the handling of information and drug funds, and the participation of key stakeholders in decision making over the allocation of locally collected drug funds.

287. **Mkoka DA, Kiwara A, Goicolea I, Hurtig AK. Governing the implementation of Emergency Obstetric Care: experiences of Rural District Health Managers, Tanzania. *BMC health services research*. 2014; 14(1): 333.**

Background: Many health policies developed internationally often become adopted at the national level and are implemented locally at the district level. A decentralized district health system led by a district health management team becomes responsible for implementing such policies. This study aimed at exploring the experiences of a district health management team in implementing Emergency Obstetric Care (EmOC) related policies and identifying emerging governance aspects. **Methods:** The study used a qualitative approach in which data was obtained from thirteen individual interviews and one focus group discussion (FGD). Interviews were conducted with members of the district health management team, district health service boards and NGO representatives. The FGD included key informants who were directly involved in the work of implementing EmOC services in the district. Documentary reviews and observation were done to supplement the data. All the materials were analysed using a qualitative content analysis approach. **Results:** Implementation of EmOC was considered to be a process accompanied by achievements and challenges. Achievements included increased institutional delivery, increased number of ambulances, training service providers in emergency obstetric care and building a new rural health centre that provides

comprehensive emergency obstetric care. These achievements were associated with good leadership skills of the team together with partnerships that existed between different actors such as the Non-Governmental Organization (NGO), development partners, local politicians and Traditional Birth Attendants (TBAs). Most challenges faced during the implementation of EmOC were related to governance issues at different levels and included delays in disbursement of funds from the central government, shortages of health workers, unclear mechanisms for accountability, lack of incentives to motivate overburdened staffs and lack of guidelines for partnership development. **Conclusion:** The study revealed that implementing EmOC is a process accompanied by challenges that require an approach with multiple partners to address them and that, for effective partnership, the roles and responsibilities of each partner should be well stipulated in a clear working framework within the district health system. Partnerships strengthen health system governance and therefore ensure effective implementation of health policies at a local level.

288. **Mnyika KS, Makwaya CK, Lyamuya EF, Nyamuryekung'e K, Ndyetabura FE, Dahoma MUJ, Mzee S. Prevalence of HIV-1 infection in Zanzibar: Results from a national HIV-1 serosurvey 2002. *East African Journal of Public Health*. 2014; 9(3): 122-126.**

Objective: To determine the prevalence of HIV-1 infection in Pemba and Zanzibar islands
Methods: We used an interviewer-administered questionnaire that consisted of pre-coded and open-ended questions consisting of 29 items. The questionnaire was developed in English and translated into Swahili language before use. The questionnaire was pilot tested and modified before use. A total of 30 Shehias were randomly selected for the survey out of a total of 248 Shehias. A Shehia is the smallest government administrative unit in Pemba and Zanzibar that consists of two to three villages. The study sample was obtained through cluster random sampling of 76 households from each Shehia. Informed consent was sought from the Head of household and from each potential eligible participant. Eligibility criteria included all persons aged 12 years and above who slept overnight in the selected household at the time of the study. Exclusion criteria included non-residents of Zanzibar and Pemba such as tourists. Informed consent

from persons below the age of 18 years were witnessed and ratified by their parents, guardians, caretakers or neighbours. All consenting participants were included in the study sample. Blood sports were collected using filters and tested for HIV-1 using ELISA test at the Zanzibar Reference Laboratory. Samples found positive for ELISA were subjected to a 2nd ELISA test. **Results:** The total number of persons who participated in the survey was 5852 out of 5868 eligible persons giving the overall response rate of 99.7%. Of the 5852 persons who participated in the survey, 41% (N= 2414) were males and 59% (N=3455) were females. The overall mean age of the study population was 30.4 years with age ranging from 12-65 years? The overall prevalence of HIV-1 infection was 0.6% with more women being significantly affected than men (0.9% versus 0.2%; adjusted OR = 2.88, 95% CI = 1.16-7.12). Of the 5852 persons who participated in the survey, 5.7% admitted having had casual partner in the past 6 months and of these 19.6% reported having used a condom during the most recent casual sex. **Conclusion:** We conclude that HIV-1 infection in Zanzibar is still low and women are more affected than men.

289. Mnyika KS, Masatu MC, Klepp KI. Perceptions of AIDS risk and condom use among out-of-school adolescents in Moshi rural district, northern Tanzania. *East African journal of public health.* 2014; 9(2): 53-57.

Objective: To determine the magnitude of perceived AIDS risk among out-of-school adolescents in Moshi rural district of Kilimanjaro region, northern Tanzania. **Methods:** A cross-sectional study involving face-to-face interviews with out-of-school adolescents in eleven rural villages in Moshi district, northern Tanzania. **Results:** We found that of the 668 adolescents (10-19 years of age) surveyed, 45.4% were sexually active and significantly more men than women reported being sexually active (55.85 versus 23.0%, OR = 0.24, 95% CI = 0.16 to 0.34). Adolescents who had travelled to Moshi town or out of Tanzania were significantly more likely to be sexually active compared with those who have never travelled. Despite perception of AIDS risk, a large majority (70.5%) of sexually active adolescents reported having multiple sexual partners. Adolescents who perceived being at AIDS risk were less likely to report having multiple sexual partners and were more likely to report having used a condom at the last sexual

intercourse.**Conclusion:** These findings indicate that adolescents in this rural population are still practising high risk sexual behaviours suggesting the need for youth-targeted intervention programmes in rural Tanzania.

290. **Mnyika KS, Masatu MC, Klepp K. Prevalence of and predictors of substance use among adolescents in rural villages of Moshi district, Tanzania. *East African journal of public health.* 2014; 8(1): 1-5.**

Purpose: To determine the prevalence of substance use among primary school pupils and out-of-school adolescents in Moshi rural district, northern Tanzania.**Methods:** A school-based cross-sectional study focusing on primary school adolescents in standards 6 and 7 in Kahe rural community. We also conducted a population-based cross-sectional study among out-of-school adolescents in the same rural villages. A selfadministered questionnaire was used to collect data from the school-based survey while for the out-of-school survey the questionnaire was administered in the households using trained interviewers.**Results:** A total of 545 in-school and 668 out-of-school adolescents participated in the study. Of the 545 school adolescents, 45.4% were males and 56.6% females while for the out-of-school adolescents, 68.1% were males and 31.9% females. Of the school adolescents, more males than females reported being alcohol drinkers (16.7% versus 9.2%; odds ratio (OR) = 1.9, 95%CI, 1.17 - 3.29). The prevalence proportions of cigarette smoking were 26.2% for men and 15.5% for women while prevalence proportions of marijuana smoking were 4.1% for men and 3.0% for women. As for the out-of-school adolescents, the prevalence proportions of alcohol use were 26.2% for men and 15.5% for women. The prevalence proportions of cigarette smoking were 14.3% for men and 1.9% for women while the prevalence proportions of marijuana smoking were 1.5% for men and 1.4% for women.**Conclusions:** Substance use among adolescents is very high suggesting the need for interventions in this rural population of Tanzania.

291. **Moen K, Aggleton P, Leshabari MT, Middelthon AL. Gays, guys, and mchicha mwiba: same-sex relations and subjectivities in Dar es Salaam. *Journal of homosexuality.* 2014; 61(4), 511-539.**

Drawing on 15 months of fieldwork, this article explores ways in which same-sex relations are perceived and performed in Dar es Salaam, Tanzania. While several different constructions of same-sex sexuality coexist in Dar es Salaam, it is common to conceive of same-sex practicing men as falling into two main categories. Men belonging to each of these differ with respect to the corporeal, gendered, and social positions that are open to them, and typically form dyads across the conceptual boundary of difference that runs between them. The article speaks to the importance of examining sexuality and gender in particular sociocultural settings.

292. Moen K, Aggleton P, Leshabari MT, Middelthon AL. Same-sex practicing men in Tanzania from 1860 to 2010. Archives of sexual behavior. 2014; 43(6): 1065-1082.

This article offers a review of published texts describing sexual relations between men in Tanzania in the period 1860–2010. It explores ways in which men who have sex with men have been named and understood; describes the sexual and social roles associated with differing same-sex identities and subjectivities; tracks politics, policies, and sociocultural expressions relating to sex between men; and explores the ways in which men’s same-sex sexual practices have been responded to in the context of health and HIV. Among the impressions emerging from the historical record is that sex between men is not (and has not been) uncommon in Tanzania; that a significant conceptual distinction exists between men who are anally receptive and men who penetrate anally; and that there has been a range of views on, and opinions about, same-sex relations within the wider society. There is evidence that same-sex practicing men in Tanzania have been affected by HIV at least since 1982, with one seroprevalence study indicating that the burden of HIV among men who have sex with men was quite disproportionate as far back as 2007. However, while men who have sex with men have been defined as a “vulnerable population” with respect to HIV in national frameworks since 2003, this had not led to any significant amount of targeted HIV prevention work being reported by either local or international actors by 2010.

- 293. Mohamed F, Ismail R, Badr N, Tolba MF. Efficient optimized query mesh for data streams. In *Computer Engineering & Systems (ICCES), 2014 9th International Conference on.*2014; 157-163.**

Most of query optimizers choose a single query plan for processing all the data based on the average data statistics. But this plan is usually not efficient with the uncertain stream datasets of modern applications as network monitoring, sensor networks and financial applications; where these data have continuous variations over time. In this paper we propose an optimized query mesh for data stream (OQMDS) frameworks. In which, process data streams over multiple query plans, each of them is optimal for the sub-set of data with the same statistics. The OQMDS solution depends on preparing multiple query plans and continuously chooses the best execution plan for each sub-set of incoming data streams based on their statistics. We also propose two optimization algorithms called Optimized Iterative Improvement Query Mesh (OII-QM) and Non-Search based Query Mesh (NS-QM) algorithms, to efficiently generate the multiple plans (the optimized QM solution) which are used to process the online data streams. Our experimental results show that, the proposed solution OQMDS improves the overall performance of data stream processing.

- 294. Mohamed H, El Lenjawi B, Salma MA, Abdi S. Honey based therapy for the management of a recalcitrant diabetic foot ulcer. *Journal of tissue viability.* 2014; 23(1): 29-33.**

Objective: Diabetic foot ulcers are usually treated at hospital podiatry clinics and not at primary care level. We report an alternative approach using honey based therapy in the successful management of diabetic foot ulcer at primary health care level. **Methods:** The case is discussed in relation to various modalities targeting diabetic foot ulceration in the literature. **Result:** A 65 years old female-Egyptian diabetic patient presented with a neuropathic plantar ulcer of 10 × 5 cm post-thermal burn following the use of a hot water bottle. The patient was treated with strict offloading using a pair of crutches, debridement of necrotic tissue using a sharp scalpel and commercial honey applied daily and covered with a glycerin based dressing. The honey dressing was changed daily along with strict

offloading and by week 16 the ulcer completely healed. **Conclusion:** Treatment of diabetic foot ulcer is possible at primary care level.

295. Mohamed H, Mabrouk MS, Sharawy A. Computer aided detection system for micro calcifications in digital mammograms. *Computer methods and programs in biomedicine*. 2014; 116(3): 226-235.

Breast cancer continues to be a significant public health problem in the world. Early detection is the key for improving breast cancer prognosis. Mammogram breast X-ray is considered the most reliable method in early detection of breast cancer. However, it is difficult for radiologists to provide both accurate and uniform evaluation for the enormous mammograms generated in widespread screening. Micro calcification clusters (MCCs) and masses are the two most important signs for the breast cancer, and their automated detection is very valuable for early breast cancer diagnosis. The main objective is to discuss the computer-aided detection system that has been proposed to assist the radiologists in detecting the specific abnormalities and improving the diagnostic accuracy in making the diagnostic decisions by applying techniques splits into three-steps procedure beginning with enhancement by using Histogram equalization (HE) and Morphological Enhancement, followed by segmentation based on Otsu's threshold the region of interest for the identification of micro calcifications and mass lesions, and at last classification stage, which classify between normal and micro calcifications 'patterns and then classify between benign and malignant micro calcifications. In classification stage; three methods were used, the voting K-Nearest Neighbor classifier (K-NN) with prediction accuracy of 73%, Support Vector Machine classifier (SVM) with prediction accuracy of 83%, and Artificial Neural Network classifier (ANN) with prediction accuracy of 77%.

296. Mohamed H, Marchand-Maillet S. Distributed media indexing based on MPI and MapReduce. *Multimedia Tools and Applications*. 2014; 69(2): 513-537.

Web-scale digital assets comprise millions or billions of documents. Due to such increase, sequential algorithms cannot cope with this data, and parallel and distributed computing becomes the solution of choice. MapReduce is a programming model

proposed by Google for scalable data processing. MapReduce is mainly applicable for data intensive algorithms. In contrast, the message passing interface (MPI) is suitable for high performance algorithms. This paper proposes an adapted structure of the MapReduce programming model using MPI for multimedia indexing. Experimental results are done on various multimedia applications to validate our model. The experiments indicate that our proposed model achieves good speedup compared to the original sequential versions, Hadoop and the earlier versions of MapReduce using MPI.

297. Mohamed H, Osipyany H, Marchand-Maillet S. Fast large-scale multimedia indexing and searching. In Content-Based Multimedia Indexing (CBMI) 2014 12th International Workshop on.1-6.

Searching for digital images in large-scale multimedia database is a hard problem due to the rapid increase of the digital assets. Metric Permutation Table is an efficient data structure for large-scale multimedia indexing. This data structure is based on the Permutation-based indexing, that aims to predict the proximity between elements encoding their location with respect to their surrounding. The main constraint of the Metric Permutation Table is the indexing time. With the exponential increase of multimedia data, parallel computation is needed. Opening the GPUs to general purpose computation allows performing parallel computation on a powerful platform. In this paper, we propose efficient indexing and searching algorithms for the Metric Permutation Table using GPU and multi-core CPU. We study the performance and efficiency of our algorithms on large-scale datasets of millions of images. Experimental results show a decrease of the indexing time while preserving the quality of the results.

298. Mohammed AB. To Determine The Role Of Local Infiltration Anesthesia In Postoperative Pain Management In Total Knee And Hip Arthroplasty Patients Attending Muhimbili Orthopedic Institute. Masters of Medicine (Orthopedics and Traumatology) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.

Background: The degree of postoperative pain is usually moderate to severe following arthroplasty. Relief of acute pain after hip and knee replacement represents a major

therapeutic challenge. Comfort and lack of pain are important after arthroplasty, as postoperative pain hinders early mobilization and rehabilitation with subsequent consequences on mobility, duration of hospitalization and overall recovery. Improved perioperative anesthetic regimes reportedly reduce length of stay, reduce postoperative opioid requirements, and improve ambulatory distance in the early rehabilitation period. Infiltration of local anesthetics (LAs) into the surgical wound is a simple, safe, and low-cost technique for postoperative analgesia. We investigated the efficacy of local administration of anesthetics into the operating area intraoperatively thus alleviating many of the postoperative problems associated with total knee and total hip arthroplasty, such as pain control, early mobilization, nausea and vomiting, deep vein thrombosis, and increased length of hospital stay. **Broad objective:** To determine the role of local infiltration anesthesia in postoperative pain management in total knee and hip arthroplasty patients attending Muhimbili orthopedic institute. **Methods:** This is a hospital based nonrandomized controlled study whereby a convenient sample of 40 patients admitted at Muhimbili Orthopedic Institute for total knee and hip arthroplasty were obtained. Patients were nonrandom selected into intervention and control group. Each patient in intervention and control group were evaluated in terms of pain scores, adverse events, time to first walk and length of stay at hospital. The collected data was analyzed using SPSS Software. Continuous data was analyzed by mean (standard deviation) and categorical data by number (percentage). **Results:** Total number of patients recruited in this study was 40. Among them 20 were in intervention group and other 20 were in control group. 15 (37.5%) patients were male and 25 (62.5%) were female patients. The age ranged from 18-82 with most of the patients from 4th, 5th and 6th decade of life. 85% Patient in intervention group had lower VAS pain score at 0 hours and 4 hours post surgically (p value $0 < 0.0001$, p value $4 = 0.00013$) compared to control Group where as at 8 hours post surgically there was no significant difference between the two groups. 13(65%) patients started first walk in < 24 hours compared to none of the patients in control group (p value < 0.0001). There was no significant difference in length of stay at hospital between the two groups. No adverse event was noted directly related to LIA post surgically. **Conclusion:** Intraoperative LIA is safe and effective technique for post surgical analgesia. The results of this study validate the idea

that intra articular application of LIA may provide better analgesia at rest and during mobilization, improve patient satisfaction and hasten postoperative ambulation compared to controls. But this study shows no evidence of LIA reducing the length of hospital stay in intervention group compared to control group.

299. **Mohamed Z. Factors Affecting Enrollment In Social Health Insurance Benefit: A Case Of Employees' Perspective In Dar Es Salaam Master of Public Health Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background; In 2001 the government of Tanzania initiated health care financing reforms, one of it was the Social Health Insurance schemes targeting to improve access to health care services, quality of health services and protect people against financial catastrophic expenditures. Since SHIB inception there were scanty specific studies that explored why the enrolment to the scheme has not been substantially rising. **Objectives:** The aim of this study was therefore to explore factors affecting enrollment in the Social Health Insurance Benefit among National Social Security Fund members in Dar es Salaam through assessment of their risk profile, risks perceptions regarding enrolment, awareness level of health insurance and the quality of health care services. **Methodology:** This study was conducted in Dar-es-Salaam region involving employees from both public and private organizations who are NSSF members. The study employed random and multistage sampling technique to obtain a required sample. Primary data for the study were collected by using closed and open ended semi-structured self-administered questionnaire to elicit information corresponding to study specific. Data were analysed using Statistical Package for Social Science -SPSS Version 21. **Findings:** A total of 327 NSSF members participated in the study, 241 (73.70%) were males and 86 were females (26.30%). Non SHIB members were 225 (68.8%) and SHIB members were 102 (31.2%). The level of awareness on SHIB decreases with the decrease level of education among non SHIB members. Furthermore 27 (79.4%) of males and 7(20.6%) of females participants strongly disagree that the accredited health care facilities provide adequate supply of medicines. The results shows high percentages of participants 31.85% those who heard about health insurance and 41.11 % those not heard about health insurance

feared that their contributions will be deducted to cover SHIB medical bills. Other reasons were, no enough time to accomplish registration procedures, difficult procedures of enrollment, associated registration cost during registration were almost having average of (20%) amongst participants. **Conclusion:** Since NSSF registration and SHIB enrollment are separately done and SHIB enrollment is voluntary, a careful review of SHIB code is required to address the enrollment gap. However, well designed SHIH demand creation of community campaigns, sanitations and educations initiatives are worth investing to promote SHIH enrollment which largely contributes not only to promote health of the NSSF members but also reducing income povety. **Recommendations:** The study recommends to the NSSF governing body to review its SHIB code, so that enrollment procedures are not separated with the NSSF registration. Extensive community sensitization should done focusing to inform the mass that their monthly contribution will not be deducted in case they become SHIB members. Work place registration is a good strategy to increase enrollment because most employees have no enough time to go for the SHIB registration.

300. **Mopei NM. Assessment of Adherence to Antiretroviral Treatment in Orphaned Children in Dar es Salaam Tanzania Master of Science (Clinical Pharmacology) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background The study was conducted at pediatric HIV clinics of Dar es Salaam Municipal Hospitals between June, 2013 and September, 2013 to determine ART adherence levels and factors influencing adherence to ART among HIV-infected orphan children. A total of 216 HIV-infected orphan child aged between 2 and 14 years receiving ART and their caretakers were recruited. Data were collected using questionnaire and review of patient record forms (CTC2). On the other hand blood samples were collected for determination of nevirapine plasma levels by High Performance Liquid Chromatography (HPLC). Data analysis was performed using SPSS version 20 software. The ART adherent proportions established were 79.6% by caretaker self report, 82.9% by clinic attendance consistency and 72.2% by nevirapine plasma levels determination. It was observed that 72% of HIV-infected patients on ART had increased CD4 counts

whereas 28% of patients had blunted CD4 count responses. It was revealed that 25.5% of interviewed research subjects are not familiar with major means of HIV transmission. Forgetfulness was cited by 90.7% of respondents to be one of challenges facing caretakers in taking orphan child for drug refill. An estimated 75.5% of study population reported to spend more than two hours from arriving at clinic to getting ART. It was concluded that significant proportions of HIV-infected orphans on ART attending CTCs in Dar es Salaam have inadequate adherence and inappropriate CD4 response. Inadequate HIV/AIDS knowledge, unnecessary long waiting time and forgetfulness were identified to impair ART adherence of orphans. The study recommended more attention should be paid on ART adherence in HIV-infected orphan children including initiation of interventions to promote adherence in this pediatric category.

301. **Moses S. Water Pipe Tobacco Smoking Among Youth: A Study of Social Determinants, Attitudes and Perceptions of Smokers in Kinondoni Municipality, Dar es Salaam Region. Master of Public Health Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: The prevalence of water pipe tobacco smoking in developing nations like Tanzania and worldwide is increasing. Globalization and migration which have been acting like powerful engines in the spread and the rise of water pipe smoking have eventually brought the dangerous habit in Tanzania which is popularly known as Shisha. Since Water pipe smoking is emerging as serious problem of public health importance globally, there is dire need to study critically its positive predictors, patterns of smoking and health effects and disseminate the findings to guide formulation of interventions to address this emerging global public health issue. **Objective:** The objective of this study was to gain an in depth understand of the factors related to water pipe tobacco among the youth of Kinondoni municipality. That is, to study how social determinants, local beliefs, attitudes, perceptions and the attached social, cultural and Functional meanings of that type of smoking are influencing the initiation (the uptake), maintenance and even the cessation (quitting) of the water pipe tobacco smoking. **Methodology:** The type of study is Phenomenology and data from study participants was collected through semi structured interviews. The participants (interviewees) were picked by using one of the types of

Purposive Sampling which is known as Maximum Variation Sampling. The collected data was analyzed using constant comparative analysis which is a process whereby data collection and analysis are done on ongoing basis. **Findings:** A total of 44 (32 males and 12 females) study participants were interviewed. A majority, 69% percent of participants were below 25 years .Almost a third of these participants were students, very few participants have permanent employment and majority are either Unemployed or self employed with small business activities. Again, the majority have secondary school education and low income individuals. The dominant themes which emerged from the interviews were peer pressure, availability, affordability, fashionable trend, relaxation, addiction, lack of knowledge, health problems, cultural and social context, and the water pipe tobacco smoking in relation to Cigarettes and Marijuana smoking. The local beliefs related to water pipe tobacco among young smokers are centered on addiction, contents, harmfulness and the danger of the water pipe tobacco vis-a-vis Cigarette and Marijuana smoking. In turn beliefs, perceptions and misconceptions are responsible in informing the positive and favorable attitudes of young smokers towards water pipe tobacco. Social determinants in terms of education level, monthly income, employment status, occupation and social relations seem to have a direct influence in smoking behavior. The water pipe tobacco smoking behavior is attached to various social, cultural and functional meanings. **Conclusion and Recommendations:** The smoking of water pipe tobacco or Shisha is increasingly becoming popular among young men and young women in most cities and major towns of the country. The reasons for the growing popularity of this type of tobacco smoking are many but prominent among them are misguided beliefs, attitudes, perceptions, poor knowledge of the contents and health effects of Shisha smoking, the rising availability and economic accessibility of the water pipe tobacco, a lenient tobacco control policy and lack of health information. Before water pipe tobacco smoking can become a serious problem of public health importance in the country, evidence-based public health and policy strategies are required to equip the youth and the whole public to make informed decisions about water pipe tobacco smoking. The recommended measures are formulation of comprehensive tobacco control policy, high taxation on Shisha products, graphic health warnings on water pipes and water pipe tobacco and implementing FCTC policies and strategies. To address the issues of knowledge, beliefs,

attitudes and perceptions, educational interventions are required. And lastly, more studies are required on water pipe tobacco smoking especially epidemiological studies on the health problems experienced by the water pipe tobacco smokers and country wide quantitative studies to establish the estimated number of smokers and the gravity of the situation.

302. **Mrema A. Assessment Of Reproductive And Family History Risk Factors In Patients With Primary Breast Cancer Attending Orci Histologically Diagnosed From 2008 - 2014. Medicine (Clinical Oncology) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: Breast cancer is the 2nd commonest malignancy after cancer of the cervix among Tanzanian women. A lot of risk factors are associated with breast cancer and most have been researched in the western world: This research aim at assessment of reproductive and family history risk factors of primary breast cancer among female patients attending ocean road cancer institute. Most of the reproductive risk factors are hypothesized to be caused by oestrogen hormone. It has been postulated that cumulative ovarian activities causes increased risk of breast cancer by causing cumulative effect of oestrogen on mammary glands. Oestrogen causes increased risk of neoplasia through two hypothesis; 1);by increasing mitotic activity in breast tissue hence increasing probability of errors in cell division eg DNA copying errors, chromosomal translocation etc).2);by altering normal embryological development of primitive germ cells. Oestrogen cause developmental arrest of fetal germ cells which then remain dormant until puberty. At puberty gonadotropins from the pituitary stimulate both normal and dormant oestrogen arrested cells, stimulation of dormant oestrogen arrested cells can produce a germ cell neoplasia. In this case oestrogen serves as a initiator and gonadotropins as a 2nd stage promoters. Family history of primary breast cancer among family members has shown to increase the risk of breast cancer in the same family members or members of the next generation. This due to a genetic mutation of tumour suppressor genes BRAC1 and BRAC 2 mutation and p53 genes. **Broad Objective:** To assess reproductive and family history as risk factors among female patients with primary breast cancer histological diagnosed from 2008-2014 attending ORC! **Methodology:** This study was hospital based

case control study one to one age matched where by cases were female patients with primary breast cancer histologically diagnosed from 2008 to 2014 with age of 20-85yrs who gave consent. Were relatives / escortee of female patients who were diagnosed with primary cancer of the Cervix? Patients who didn't give consent or were too weak to be interviewed were excluded. There were 92 cases and 92 controls to sum up to a total of 184 people. The study was conducted at ORCI a specialized cancer centre in Tanzania. Cases and controls were recruited in the hospital as they were attending/escorting patients to the clinics and were interviewed through a structured questionnaire age. Socio demographic characteristics, pathological subtypes and cancer risk factors were clearly reported. Logistic regression, crude and adjusted odds ratio with their 95% CI were used for analysis and control of confounders **Results:** This study had a total of 184 people, 92 patients were cases with primary breast cancer while 92 were controls. Among the cases the larger age group constituted of patients who were between 36-45 years (33.7%), with the least number of patients being more than 65 years (4.3%). The mean age was 48.5+/- 10.7yrs, with larger percent (23.9) from the city of Dar es salaam. Among risk factors which were assessed, the risk which showed statistical significant was having less than three full term pregnancies, risk was three times more than for those having more than three parities with OR 3.3(CI 1.5-7.3), P value 0.003. A family history of breast cancer showed to be a risk factor for breast cancer with a p value of 0.004 but didn't show increased risk whether the relative affected was 1 st, 2nd or 3rd degree relative.

303. **Msilama NL. Influence Of Women's Perceived Quality Of Services On The Utilization Of Antenatal Care Services In Kisara We District, Pw Ani -Tanzania Master of Public Health Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: Low antenatal care (ANC) utilization is the public health problem especially in sub Saharan African countries. In Tanzania, antenatal care is experienced with irregular visits and studies show that one of the reasons for dropouts is the poor quality of services provided. Despite the initiatives taken by the government, antenatal care adherence has still been a challenge especially in the rural areas with national data of 39% compared to urban areas 55%. According to DRCHco report of 2012, only 37% of

women in Kisarawe district were attending ANC as recommended by focused antenatal care model of the World Health Organization that has been adapted in Tanzania since 2002. **Objectives:** This study aimed at assessing the influence of women's perceived quality of services on the utilization of ANC services in Kisarawe district. **Materials and Methods:** Cross-sectional study design with quantitative methods was employed using structured questionnaires. Household survey was conducted among 540 women with children of less than one year prior to survey in May 2014 in Kisarawe District. Perceived quality was analyzed to ascertain the frequency of women who perceived ANC services as good and those who perceived as bad, cross tabulation was done to obtain the association between perceived quality and utilization of ANC services. Satisfaction index was analyzed by adding up the scores for the satisfaction questions asked. Satisfaction score was done for each level of satisfaction. Point rating scale was from very unsatisfied (1) to very satisfied (4). The questions focused on five areas of antenatal care service provision, the scores ranged from 5-20. Averages for each area of satisfaction were done, followed by cross tabulation to obtain the association between satisfaction and utilization of ANC services. Data was analyzed using SPSS version 16. **Results:** A total of 540 women were recruited into the study, with ages ranging from 15-47 years. Most of the women (93.1%) had attended antenatal care (ANC) four or more times during the last index pregnancy. Highest (93.7 %) attendance was among those in the age group above 25 years. Majority of them were married (77.4), Muslims (63.0%) and (8.9%) were not able to read and write. None of the socio demographic characteristics have significant difference on utilization of antenatal care, $p>0.05$. ANC utilization was generally high, (93.1). Higher proportion (95.5%) of those who utilized ANC services agreed that healthcare providers at the health facility are cooperative and generous, comparing to (89.4%) who did not, ($r =7.336$, $p=0.008$). Similarly a higher proportion (95.4%) among those who expressed satisfaction to ANC services provided, utilized services compared to (89.6%) who did not, ($r =6.536$, $p=0.011$). Also higher proportion (95.9%) of those who expressed satisfaction with the communication between healthcare providers and pregnant women utilized ANC services compared to 90.0% who did not, ($r =7.395$, $p=0.007$). Similarly higher proportion (96.3) among those who were satisfied with waiting time at the ANC utilized services compared to those who were not

satisfied(89.4%), ($r = 9.936$, $p = 0.002$). Satisfaction to ANC services in the area of waiting time at ANC clinics was generally low (44.1 %). **Conclusion and recommendations:** This study reveals that antenatal services were well utilized, but the perception on quality of services was low. Low satisfaction level in the area of waiting time at the antenatal care service delivery points has been observed, this might have impact to future ANC services utilization. Due effort should be made to address quality of care, especially on waiting time.

304. **Msuya VW. Human immunodeficiency virus preventive knowledge, attitude and perceived risk / among taxi drivers: a case study of temeke municipal, Dar es Salaam. Masters of Public Health Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: Mobile population in Tanzania and elsewhere in the world have been identified to be more at risk for contracting HIV than their counterparts. Taxi drivers constitute a group of population with a tendency of being sleeping away from home for several times. Working in the big city of Dar es Salaam with not only high rate of economic and social interactions but also high HIV prevalence, it indicates that both taxi drivers and the rest of population are at high risk of infections. This is supported with fact that because of their extensive woven network of sexual relations, taxi drivers are likely to spread the HIV to other people. It is this situation which leads to the initiation of this study which the main objective was to determine the perceived risk of HIV infections among the taxi drivers. **Methodology:** This was descriptive cross sectional study design. The simple random sampling was applied to recruit 424 respondents among the taxi drivers in Temeke Municipality. The structured questionnaire was self-administered among the taxi drivers for data collection process. The SPSS version 20 was used for the analysis of both descriptive and multivariate regression technique, whereby p-value of less than 0.05 was regarded as statistically significant. **Result:** The result about the general knowledge of HIV/AIDS shows that half of the respondents (62.3%) did not understand anything about HIV/AIDS. With regards to the attitude towards people living with HIV, the study revealed the existence of negative attitude among the taxi drivers. Only 42.5% of the respondents strongly agreed that they would feel comfortable if they

found that the food vendor who served them meals is HIV positive. The extensive network of sexual relationship among the taxi drivers was also highlighted in the study. Where by 36.1% of the respondents admitted to have more than one sexual partners. Despite such reported risky sexual behaviour, nearly half of the respondents (53.6%) perceived themselves to be at risk for contracting HIV. The perceived risk was determined by the knowledge about HIV/AIDS. Knowing the difference between HIV and AIDS was found to be more powerful for predicting the respondents' risk perception.

Conclusion and Recommendations: The study revealed high prevalence of risky sexual behaviour among the taxi drivers in Temeke Municipality. However, when they were given chance to assess their own risk for contracting HIV, about half of respondents failed to acknowledge that they were at risk of acquiring the HIV. Given the mobility nature of the taxi drivers in an environment with high social and economic interactions, the study indicated that the risky sexual behaviour among the taxi drivers will persist unless they are helped to understand the level of the risk that their behaviour involves. There is an urgent need for HIV intervention programme that will address the specific needs of the taxi drivers as far as the nature of their occupation is concerned.

305. **Mokua GN. Laboratory and semi-field evaluation of some Vitex species for larvicidal activity against Anopheles gambiae larvae. Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: Over two billion people in tropical countries are at risk from mosquito borne diseases such as dengue fever, hemorrhagic fever, malaria and filariasis. It is estimated that US\$ 2 billion is spent annually on malaria control and treatment programmed in sub-Saharan Africa alone, where 90% of all malaria-related deaths occur. The problem has become increasingly difficult to manage because of the emergence of drug-resistant parasites to the currently available anti-malarial drugs. Personal protection from mosquito bites with synthetic insecticides is currently the dominant measure to control the bites from mosquitoes. However, vector resistance to insecticides is a recurring problem and a threat to malaria control programmes. To address these problems, attention to insecticides of natural origin, particularly botanical products, has been the subject of current research. **Objectives:** The study set out to

investigate the larvicidal and insect growth regulatory (IGR) potential of *Vitex schiliebenii*, *V. payos*, and *V. trifolia* against *Anopheles gambiae* larvae under laboratory and simulated semi-field conditions. Phytochemical tests of the extracts were carried out to compare their constituents and the larvicidal results. Toxicity test for the active extracts was evaluated on Brine shrimp larvae and compounds isolated from the extracts were also evaluated for their activity. **Materials and methods:** The present study was designed to determine the mosquito Larvicidal / Insect Growth Regulatory (IGR)/adult inhibition activities of acetone, methanol and aqueous extracts from three *Vitex* species belonging to the family Verbenaceae viz, *V. payos*, *V. schiliebenii* and *V. trifolia*. Plant materials were collected from the Coastal region of Kenya and tested on 3rd and early 4th instars larvae of a malaria vector *Anopheles gambiae* s.s. in a dose-dependent manner. Different parts of the plants (root bark, stem bark, leaves and seeds) were air-dried, ground, extracted and concentrated to dryness using a rotary evaporator at 40°C and the combined extract stored at 4°C. This procedure was repeated with methanol in the same proportion and for the same periods while the aqueous extracts were obtained using Soxhlet extraction. The extracts were filtered and then freeze dried to obtain the dry powder which was then stored at 4°C for further chemical and biological analysis. The crude solvent extracts were tested for their biological activity under laboratory and simulated semi-field conditions. The extracts were then subjected to column chromatography and the fractions and pure compounds thereof obtained were also tested for their biological activity. Lethal concentrations of each test sample were calculated using probit analysis. The structural elucidation of the isolated compounds was done using physical properties, (melting point) and spectroscopic methods [infra red (IR), nuclear magnetic resonance (NMR) and mass spectroscopy (MS)]. **Results:** Bioassay of the extracts gave different levels of mortality of the larvae. Methanol extract of *V. trifolia* leaves, acetone extracts of stem bark and leaves of *V. schiliebenii* and acetone extract of root bark of *V. payos* caused 100% mortality at 100 ppm in 72 hours, with those of *V. schiliebenii* and *V. payos* having shorter mortality time (LT₅₀=8 h) than that of *V. trifolia* (LT₅₀=14 h). At < 50 ppm, most of the larvae failed to transform to normal pupae but gave larval-pupal intermediates between 4-14 days of exposure. Some pupated normally but the adults that emerged appeared to be weak and died within 48 hours. Larvae

exposed to extracts of the stem bark of *V. payos* were relatively hyperactive compared to those in control treatments. They later became stretched, inactive, died and floated in clusters on the surface. These observations suggest some interesting growth-disrupting constituents in the plants, with possible application in the practical control of mosquito larvae in aquatic ecosystems. The results of the simulated semi-field conditions revealed that *An. gambiae* larvae were susceptible to the *Vitex* extracts with the percentage inhibition of emergence of adult mosquitoes falling below the threshold value of 80% at concentrations ≥ 25 ppm. Phytochemical screening revealed the presence of flavonoids, terpenoids, steroids, alkaloids, saponins and tannins in the extracts. The isolation and purification of bioactive compounds resulted into four compounds two from *V. payos*: 20-hydroxyecdysone-20, 22-monoacetone (166) and 20-hydroxyecdysone (80); and three from *V. schiliebenii*: 20-hydroxyecdysone (80), stigma sterol (168) and γ -sit sterol (167). The isolated phytosteroids showed good larvicidal activity against *An. gambiae* s.s. larvae when evaluated individually. When tested in blends, three variants were noted. First, production of a less active blend from active constituents; secondly, enhancement of the activity of an active compound by an inactive constituent and thirdly, synergism between moderately active compounds to give a mixture that is more active than the individual activities of the constituents. The first variant was illustrated by the high lethal activity of compounds 20-hydroxyecdysone-20, 22-monoacetone (166) and 20-hydroxyecdysone (80) with LD50 value of less than 1 ppm. The second variant was illustrated by the enhancement of the activity of compound 168 in blends with 20-hydroxyecdysone-20, 22-monoacetone (166) and 20-hydroxyecdysone (80) and compound 167 in blends with 20-hydroxyecdysone-20, 22-monoacetone (166) and 20-hydroxyecdysone (80) (LD50 < 1 ppm). The third variant was illustrated by the combination of compounds stigma sterol (168) and γ -sit sterol (167) (LD50 = 1 ppm). These findings have important practical implication in the strategy adopted in the search for and use of plants and their phytochemical for mosquito larvae control. **Conclusion:** In summation, results of this study show interesting larvicidal and/or growth-disrupting effects of *Vitex* extracts and the isolated compounds. Enriched extracts of the plants may have potential for controlling malaria vectors in breeding sites around human dwellings.

This will also go along with a reduction in the annual entomological inoculation rate and consequently lead to a reduction in malaria incidences.

306. **Mori AT, Kaale EA, Ngalesoni F, Norheim OF, Robberstad B. The role of evidence in the decision-making process of selecting essential medicines in developing countries: the case of Tanzania. *PloS one*. 2014; 9(1): e84824.**

Background: Insufficient access to essential medicines is a major health challenge in developing countries. Despite the importance of Standard Treatment Guidelines and National Essential Medicine Lists in facilitating access to medicines, little is known about how they are updated. This study aims to describe the process of updating the Standard Treatment Guidelines and National Essential Medicine List in Tanzania and further examines the criteria and the underlying evidence used in decision-making. **Methods:** This is a qualitative study in which data were collected by in-depth interviews and document reviews. Interviews were conducted with 18 key informants who were involved in updating the Standard Treatment Guidelines and National Essential Medicine List. We used a thematic content approach to analyse the data. **Findings:** The Standard Treatment Guidelines and National Essential Medicine List were updated by committees of experts who were recruited mostly from referral hospitals and the Ministry of Health and Social Welfare. Efficacy, safety, availability and affordability were the most frequently utilised criteria in decision-making, although these were largely based on experience rather than evidence. In addition, recommendations from international guidelines and medicine promotions also influenced decision-making. Cost-effectiveness, despite being an important criterion for formulary decisions, was not utilised. **Conclusions:** Recent decisions about the selection of essential medicines in Tanzania were made by committees of experts who largely used experience and discretionary judgement, leaving evidence with only a limited role in decision-making process. There may be several reasons for the current limited use of evidence in decision-making, but one hypothesis that remains to be explored is whether training experts in evidence-based decision-making would lead to a better and more explicit use of evidence.

307. Moshi MJ, Nondo RS, Haule EE, Mahunnah RL, Kidukuli AW. **Antimicrobial activity, acute toxicity and cytoprotective effect of *Crassocephalum vitellinum* (Benth.) S. Moore extract in a rat ethanol-HCl gastric ulcer model.** *BMC research notes*. 2014; 7(1): 91.

Background: A decoction of *Crassocephalum vitellinum* (Benth.) S. Moore (Asteraceae) is used in Kagera Region to treat peptic ulcers. This study seeks to evaluate an aqueous ethanol extract of aerial parts of the plant for safety and efficacy. **Methods:** An 80% ethanolic extract of *C. vitellinum* at doses of 100, 200, 400 and 800 mg/kg body wt was evaluated for ability to protect Sprague Dawley rats from acidified ethanol gastric ulceration in comparison with 40 mg/kg body wt pantoprazole. The extract and its dichloromethane, ethyl acetate, and aqueous fractions were also evaluated for acute toxicity in mice, brine shrimp toxicity, and antibacterial activity against four Gram negative bacteria; *Escherichia coli* (ATCC 25922), *Salmonella typhi* (NCTC 8385), *Vibrio cholera* (clinical isolate), and *Streptococcus faecalis* (clinical isolate). The groups of phytochemicals present in the extract were also determined. **Results:** The ethanolic extract of *C. vitellinum* dose-dependently protected rat gastric mucosa against ethanol/HCl insult to a maximum of 88.3% at 800 mg/kg body wt, affording the same level of protection as by 40 mg/kg body wt pantoprazole. The extract also exhibited weak antibacterial activity against *S. typhi* and *E. coli*, while its ethyl acetate, dichloromethane and aqueous fractions showed weak activity against *K. pneumonia*, *S. typhi*, *E. coli* and *V. cholera*. The extract was non-toxic to mice up to 5000 mg/kg body wt, and the total extract (LC50 = 37.49 µg/ml) and the aqueous (LC50 = 87.92 µg/ml), ethyl acetate (LC50 = 119.45 µg/ml) and dichloromethane fractions (88.79 µg/ml) showed low toxicity against brine shrimps. Phytochemical screening showed that the extract contains tannins, saponins, flavonoids, and terpenoids. **Conclusion:** The results support the claims by traditional healers that a decoction of *C. vitellinum* has antiulcer activity. The mechanism of cytoprotection is yet to be determined but the phenolic compounds present in the extract may contribute to its protective actions. However, the dose conferring gastroprotection in the rat is too big to be translated to clinical application; thus bioassay guided fractionation to identify active compound/s or fractions is needed, and use of more peptic ulcer models to determine the mechanism for the protective action.

- 308. Mourad M, Mahmoud K, Mohamed F, Nouh A. Influence of biodiesel fuel on performance characteristics of hybrid electric vehicle according to urban driving cycle. In *Renewable Energy Congress (IREC), 2014 5th International*.2014; 1-6.**

Recently, there was a demand to find unconventional solutions for energy. Therefore, the investigations concerned to discover alternative fuel such as compressed natural gas, methanol, biodiesel, etc. In this study, a new alternative fuel in vehicle engines is evaluated and, the reduction of the emitted pollution as a result of using this fuel. In addition, the effect of biodiesel fuel (cottonseed oil) on the engine performance mounted in hybrid electric vehicle during variant road conditions is investigated. A simulation model that describes hybrid electric vehicle components with mathematical forms is built to determine the performance of the electric vehicle according to a driving cycle inner city. The results illustrate that using biodiesel as a fuel in hybrid electric vehicle contributes to reduce the environmental impact, hence enhance the fuel economy.

- 309. Moyo SJ, Aboud S, Blomberg B, Mkopi N, Kasubi M, Manji K, Langeland N. High nasal carriage of methicillin-resistant *Staphylococcus aureus* among healthy Tanzanian under-5 children. *Microbial Drug Resistance*. 2014; 20(1): 82-88.**

This study aimed to determine the prevalence of *Staphylococcus aureus* and methicillin-resistant *S. aureus* (MRSA) carriage, risk factors of colonization and antimicrobial susceptibility patterns of *S. aureus* strains. The study was conducted at the Muhimbili National Hospital in Dar es Salaam, Tanzania. Nasal swabs were obtained from children and *S. aureus* was isolated and identified using conventional culture methods. MRSA was screened and confirmed using the cefoxitin disk and multiplex real-time polymerase chain reaction, respectively. Antibiotic susceptibility was performed using the Kirby-Bauer disk diffusion method. MRSA isolates were further characterized by pulsed field gel electrophoresis (PFGE) profiling. Of 285 children included in the study, *S. aureus* was detected in 114 (40%). Of the 114 isolates, 12 (10.5%) were MRSA. PFGE results showed that these MRSA isolates are epidemiologically unrelated. Resistance of all *S. aureus* to trimethoprim – sulfamethoxazole, tetracycline, gentamicin, and ciprofloxacin was 65.8%, 23.7%, 27.2%, and 4.4%, respectively. No resistance to vancomycin was

found. The prevalence of inducible clindamycin resistance, constitutive clindamycin resistance, MS phenotype (resistance to erythromycin alone), and multidrug resistance was 16.7%, 1.8%, 14.0%, and 16.8%, respectively. None of the risk factors examined was found to be significant. This is the first report of *S. aureus* and nasal carriage of MRSA and a high rate of *S. aureus* carriage was found in Tanzanian under-5 children. The study findings support the need for proper health education and effective infection control measures for healthcare workers.

310. Moyo SJ, Aboud S, Blomberg B, Mkopi N, Kasubi M, Manji K, Langeland N. High nasal carriage of methicillin-resistant *Staphylococcus aureus* among healthy Tanzanian under-5 children. *Microbial Drug Resistance*. 2014; 20(1): 82-88.

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311. **Mpembeni RN, Muhihi AJ, Maghembe MJ, Ngarashi D, Lujani B, Chillo O, Njelekela MA. Overweight, obesity and perceptions about body weight among primary schoolchildren in Dar es Salaam, Tanzania. *Tanzania Journal of Health Research.* 2014; 16(4).**

The increasing prevalence of overweight and obesity among children has become a public health concern both in developing and developed countries. Previous research studies have shown that favourable perception of one's body weight is an important factor in weight control. This study determined prevalence of overweight and obesity and assessed perception about body weight among primary schoolchildren in Dar es Salaam, Tanzania. In this cross sectional study, nine schools were selected randomly from a list of all primary schools in Dar es Salaam. A structured questionnaire was used to collect data on socio-demographic characteristics and lifestyle information including perception about body weight. Height and weight were measured following standard procedures. Chi-square tests and multiple logistic regressions were used to determine factors which influence perceptions about body weight. A total of 446 children were included into the study. The mean body mass index (BMI) was $16.6 \pm 4.0 \text{ kg/m}^2$ (16.1 ± 4.0 for males and 17.0 ± 4.0 for females). Prevalence of overweight and obesity was 9.8% and 5.2%, respectively. The prevalence of overweight and obesity was significantly higher among girls, 13.1% and 6.3% compared to boys with 6.3% and 3.8% overweight and obese respectively ($P=0.0314$). Overall, the prevalence of overweight and obesity was 15.0% (10.1% among boys and 19.4% among girls). One-third (33.3%) of the children perceived their body weight as overweight or obese. Among overweight and obese children, 35.4% had unfavourable perception of their body weights. There was a statistically significant difference between perceived body weight and actual body weight as indicated by BMI for both boys and girls ($P<0.05$). Age of the child (AOR=0.55 95%CI 0.36-0.85) and area of residence (COR=0.64 95% CI 0.44-0.95) were found to be significant predictors of favourable perception of one's body weight. In conclusion, the prevalence of overweight and obesity is not very high in this population. However over a third of overweight and obese children, had unfavourable perception of their body weights. We recommend targeted educational programmes about overweight and obesity

and the associated health effects in order to instill a behavior of self consciousness on overweight and obesity among children in Tanzania.

312. **Mpembeni RN, Massawe SN, Leshabari MT, Kakoko DV, Duysburgh E, Wangwe P, Loukanova S. Satisfaction with health facility delivery care services and associated factors: The case of Lindi and Mtwara rural districts, southern Tanzania. *East African Journal of Public Health*. 2014; 11(1), 738-746.**

Objective: To assess women's satisfaction with health facility delivery care services and to determine the factors associated with satisfaction. **Methods:** A cross sectional study was conducted in 12 primary health facilities in Lindi and Mtwara rural districts. All women who gave birth in the facilities during the time of the study were interviewed using a pretested structured questionnaire. The questionnaire contained 29 items on likert scale including different aspects of delivery care service. Women were considered to be satisfied if they reported satisfaction to at least half of the items assessed. **Results:** Total of 504 women were interviewed. Overall a large proportion (80%) reported to be satisfied with the delivery care services. Proportion satisfied varied in different aspects of care ranging from 30% reporting to be satisfied with management of labour pains to 96% reporting to be satisfied with care of the newborn. Only age of the mother showed significant association with satisfaction. Women with formal education and those delivering for the first time were satisfied compared to their counterparts although the difference was not statistically significant. **Conclusion and recommendations:** Majority of women reported satisfaction with delivery services but there were significant variations across different care items. High levels of dissatisfaction were on aspects of provider client communication, labour pain management and drugs availability issues. Training of health providers on communication skills and ensuring availability of drugs should be prioritized. Allowing a companion during labour may be considered since it has been proven to make women comfortable and satisfied with the process of delivery elsewhere.

313. **Mtatiro SN, Singh T, Rooks H, Mgya J, Mariki H, Soka D, Barrett JC. Genome Wide Association Study of Fetal Hemoglobin in Sickle Cell Anemia in Tanzania. *PloS one*. 2014; 9(11): e111464.**

Background: Fetal hemoglobin (HbF) is an important modulator of sickle cell disease (SCD). HbF has previously been shown to be affected by variants at three loci on chromosomes 2, 6 and 11, but it is likely that additional loci remain to be discovered. **Methods and Findings:** We conducted a genome-wide association study (GWAS) in 1,213 SCA (HbSS/HbS β 0) patients in Tanzania. Genotyping was done with Illumina Omni2.5 array and imputation using 1000 Genomes Phase I release data. Association with HbF was analysed using a linear mixed model to control for complex population structure within our study. We successfully replicated known associations for HbF near BCL11A and the HBS1L-MYB intergenic polymorphisms (HMIP), including multiple independent effects near BCL11A, consistent with previous reports. We observed eight additional associations with $P < 10^{-6}$. These associations could not be replicated in a SCA population in the UK. **Conclusions:** This is the largest GWAS study in SCA in Africa. We have confirmed known associations and identified new genetic associations with HbF that require further replication in SCA populations in Africa.

314. **Mugala LS. Assessment of Psychosocial Experiences of Street Children in Mzuzu City, the Northern Region of Malawi Master of Nursing (Mental health) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background information: The increasing numbers of children living in and on the streets globally has elicited emotive public concern and has become a matter of priority for national and international child welfare organizations. Street children have their lives exposed to a lot of vulnerabilities ranging from physical, psychological, social and emotional because they are in a place that does not offer them any protection against such experiences as violence, infections and maladaptive behavioural practices such as sexual exploitation and substance abuse just to mention a few. It is apparent from the above experiences that street children require intensive psychosocial interventions at an earliest period and that the problem of street children need to be averted altogether if children's

mental health status is to be stable. **Objectives:** This study sought to explore the psychosocial experiences of street children in Malawi. Specifically, it sought to: Describe the reasons behind the children's existence on the streets; explore children's psychosocial experiences in relation to street life and solicit views from street children, parents/guardians and social welfare officers regarding what would keep these children off the streets. **Methodology:** The study used a descriptive exploratory qualitative research method. The method involved a formal process of inquiry through in-depth interviews and non-participatory observations in the city of Mzuzu using a self developed semi-structured interview guide. The study population were street children below 18 years, Umoza staff, guardians/parents and the Social Welfare Officers. The sample size was 19. Data was analyzed using Qualitative Content Analysis. Ethical clearances to conduct the study were obtained from MUHAS Directorate of Research and Publication Ethical Review Board and National Health Scientific Research Council of Malawi. **Results:** A total of 19 people in the age bracket of 11 to 69 years participated in the study. 11 of them were street children between the ages of 11 and 17, 3 of them girls. 5 were guardians, 2 Umoza staff and 1 was a social welfare officer. Data was collected in 36 days from 16th March to 20th April, 2014. Poverty at family level was the major reason for the presence of children on the street in addition to illiteracy of parents, child abuse and neglect. While on the streets, the children experienced child labour and exploitation, were exposed to risky and illegal activities for survival, were exposed to violence, sexual, physical and emotional abuse, suffered from poor physical health (diarrhoea, coughs and rashes), practiced poor personal hygiene and sanitation, had low educational qualifications, endured stigma and discrimination and were portraying various antisocial behaviours as a result of exposure to street life. Suggested solutions to the problem of street children include economic empowerment of families with low income levels; establishment of more reformatory boarding facilities by government, creating mechanisms that would see those in rehabilitation program attain higher educational qualifications for independent living and empowering families with positive parenting skills through trainings among others. **Conclusion:** A lot of psychosocial experiences that street children get exposed to at this childhood period when on the streets have negative impacts on their psychosocial development and hamper their

chances of experiencing a normal development physically, socially, mentally and psychologically. This then calls for concerted efforts in alleviating the problem of children on the street if societies are to have children that would grow into healthy and productive citizens. **Recommendations:** The researcher recommends that government, through the Ministry responsible for children's welfare, should take a leading role in identifying the disadvantaged families and empowering them economically in order to decrease child vulnerability at house hold level if the problem of street children is to be averted. Further recommendations include training of more social workers at higher level, priori tali sing child welfare programs by government through proper allocation of resources, community leader's involvement in the identification and referral of vulnerable families and developing guidelines for psychosocial interventions towards children in difficult situations. A similar research but focussing on the burden of street children in Malawi may help inform government and other stakeholders in developing effective supportive and preventive strategies towards the problem of street children

315. **Mushengezi B. Association Between Body Fat Composition And Blood Pressure Level Among Secondary School Adolescents In Dar Es Salaam Master of Medicine(Internal Medicine) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: Excess body fat and high blood pressure are important risk factors for increased cardiovascular morbidity and mortality, and both may have their roots of occurrence in childhood and during .adolescence. However, less is known about the association between body fat composition and blood pressure levels among Tanzanian adolescents. **Aim:** To study the association between body fat composition and blood pressure levels among secondary school adolescents in Dar es Salaam. **Methods:** A total of 582 (52.1% males and 47.9% females) adolescents from 5 secondary schools within Dar es Salaam region were selected using systematic random sampling method. A• structured questionnaire was used to collect information on demographic characteristics as well as other cardiovascular risk factors. Blood press~~, height, weight, waist circumference and hip circumference were measured following standard methods. Body fat composition was assessed using skin fold thickness method and individuals were

categorized as under fat, healthy, over fat or obese according to World Health Organization cut off points for adolescents. Systolic and diastolic hypertension was defined as 2:90111 percentiles for age, height and gender of the adolescent. Data management and analysis was performed using SPSS software, version 20. A p- value of <0.05 was considered to indicate a significant statistical difference. **Results:** The mean \pm SD age of the total population was 16.5 \pm 1.8 years, with boys being slightly but significantly older than girls (16.9 \pm 1.7 versus 16.2 \pm 1.9 years, p<0.001). The proportion of adolescents with overweight or obesity by body mass index (BMI) categorization was found to be 17.4% while overfat or obesity by fat percentage categorization was present in total population studied. Girls had significantly higher proportion of overweight and obesity by both categories when compared to boys being 10.5% versus 6.9% for BMI and 15.6% and 6.5% for fat percentage respectively, all p< 0.001. The mean \pm SD systolic and diastolic blood pressure of the total population was 120 \pm 11 and 69 \pm 8 mmHg respectively. The proportions of adolescents with systolic, diastolic and combined hypertension in the total population were 17.5%,5.5%, and 4.0% respectively. In the total population both mean systolic and diastolic blood pressure positively and significantly correlated with BMI (r = 0.24 for SBP and 0.24 for DBP) and with waist circumference (r = 0.18 for SBP and 0.22 for DBP), all p<0.05. Furthermore, in the total population the mean diastolic blood pressure also had a positive and significant correlation with mean body fat percentage (r = 0.25, p<0.001), while this was not the case for mean systolic blood pressure (r = -0.02, P = 0.56). Analyses done separately for boys and girls showed that boys had same findings as those obtained in the total population, while girls had in addition a significant positive correlation between mean systolic blood pressure and mean body fat percentage (r = 0.18, P < 0.05). **Conclusion and recommendations:** A high proportion of adolescents with elevated BP was seen among those with elevated BMI values (overweight and obesity) compared to those with normal BMI, girls being significantly more hypertensive and obese than boys. BMI predicted blood pressure level better in this population compared to body fat percentage method. We recommend further studies to assess efficacy of skin fold thickness method in other populations in predicting blood pressure level. Also educational programs on modifiable risk

316. **Muganyizi PS, Ishengoma J, Kanama J, Kikumbih N, Mwanga F, Killian R, McGinn E. An analysis of pre-service family planning teaching in clinical and nursing education in Tanzania. *BMC medical education*.2014; 14(1): 142.**

Background: Promoting family planning (FP) is a key strategy for health, economic and population growth. Sub-Saharan Africa, with one of the lowest contraceptive prevalence and highest fertility rates globally, contributes half of the global maternal deaths. Improving the quality of FP services, including enhancing pre-service FP teaching, has the potential to improve contraceptive prevalence. In efforts to improve the quality of FP services in Tanzania, including provider skills, this study sought to identify gaps in pre-service FP teaching and suggest opportunities for strengthening the training. **Methods:** Data were collected from all medical schools and a representative sample of pre-service nursing, Assistant Medical Officer (AMO), Clinical Officer (CO) and assistant CO schools in mainland Tanzania. Teachers responsible for FP teaching at the schools were interviewed using a semi-structured questionnaire. Observations on availability of teaching resources and other evidence of FP teaching and evaluation were documented. Relevant approved teaching documents were assessed for their suitability as competency-based FP teaching tools against predefined criteria. Quantitative data were analyzed using EPI Info 6 and qualitative data were manually analyzed using content analysis. **Results:** A total of 35 pre-service schools were evaluated for FP teaching including 30 technical education and five degree offering schools. Of the assessed 11 pre-service curricula, only one met the criteria for suitability of FP teaching. FP teaching was typically theoretical with only 22.9% of all the schools having systems in place to produce graduates who could skillfully provide FP methods. Across schools, the target skills were the same level of competence and skewed toward short acting methods of contraception. Only 23.3% (n = 7) of schools had skills laboratories, 76% (n = 22) were either physically connected or linked to FP clinics. None of the degree providing schools practiced FP at its own teaching hospital. Teachers were concerned with poor practical exposure and lack of teaching material. **Conclusions:** Pre-service FP teaching in Tanzania is theoretical, poorly guided, and skewed toward short acting methods; a majority of the schools are

unable to produce competent FP service providers. Pre-service FP training should be strengthened with more focus on practical skills.

317. **Mujinja PG, Mackintosh M, Justin-Temu M, Wuyts M. Local Production Of Pharmaceuticals In Africa And Access To Essential Medicines:“Urban Bias” In Access To Imported Medicines In Tanzania And Its Policy Implications. *Globalization and health*. 2014; 10(12), 1-12.**

Background: International policy towards access to essential medicines in Africa has focused until recently on international procurement of large volumes of medicines, mainly from Indian manufacturers, and their import and distribution. This emphasis is now being challenged by renewed policy interest in the potential benefits of local pharmaceutical production and supply. However, there is a shortage of evidence on the role of locally produced medicines in African markets, and on potential benefits of local production for access to medicines. This article contributes to filling that gap. **Methods:** This article uses WHO/HAI data from Tanzania for 2006 and 2009 on prices and sources of a set of tracer essential medicines. It employs innovative graphical methods of analysis alongside conventional statistical testing. **Results:** Medicines produced in Tanzania were equally likely to be found in rural and in urban areas. Imported medicines, especially those imported from countries other than Kenya (mainly from India) displayed ‘urban bias’: that is, they were significantly more likely to be available in urban than in rural areas. This finding holds across the range of sample medicines studied, and cannot be explained by price differences alone. While different private distribution networks for essential medicines may provide part of the explanation, this cannot explain why the urban bias in availability of imported medicines is also found in the public sector. **Conclusions:** The findings suggest that enhanced local production may improve rural access to medicines. The potential benefits of local production and scope for their improvement are an important field for further research, and indicate a key policy area in which economic development and health care objectives may reinforce each other.

318. **Munda CME. Magnitude and Predictors for Male Partner Involvement in Prevention of Mother to Child Transmission of HIV Infection in Mwanza Region,**

Tanzania, 2013. Master of Science (AppliedEpidemiology) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.

Background: HIV and AIDS continue to be a major public health problem. Globally, there are 3.3 million children under fifteen years living with HIV infection. About 95% of HIV infected children acquired the infection through Mother to Child Transmission (MTCT) of HIV. Although new pediatric HIV infection in Tanzania has declined by 48% and PMTCT coverage of HAART raised to 77%, the MTCT rate remain to be high (15%). Poor involvements into PMTCT services by male partner is one of the factors contributing to less effectiveness of the PMTCT programme in reducing significantly the rate of MTCT and hence failure to achieve the virtual elimination of maternal to child transmission of HIV. This study aimed at determining the magnitude and predictors of male involvement into PMTCT services in Mwanza urban, Tanzania 2013. **Methods:** A cross sectional study was used to acquire information from pregnant mothers who were HIV positive attending ANC in selected health facilities of Mwanza urban for a period from mid October 2013 to early January 2014. A semi structured questionnaire was used to interview participants; Data were analyzed for bivariate association and controlled for confounding effect on regression model. Epi info program was used for both analysis and statistical significance testing. **Results:** A total of 300 participants attending ANC were interviewed and the mean age was 27.5years (STD Dev 5.57). Male involvement into PMTCT was 24.7% and 37% had shared their serostatus to their male partner. Multivariate analysis indicated that mothers who are proactive had their male partner more likely involved into PMTCT than those who are not, (AOR 28.6, $P < 0.001$). Mothers who never wanted being escorted by their male partners had 93% less likely their partners to be involved into PMTCT (AOR 0.07, $P 0.022$) while busy partners are 54% less likely to be involved into PMTCT. Partners knowledge (AOR 24.6, $P < 0.001$), TV/Radio enouncements (AOR 4.6, $P 0.007$) and Mother being married (AOR 3.7, $P 0.005$) increased the odds of male partner involvement. Male partner involvement was associated with a seven times increased likelihood of adherence to ART (OR 7.6 $P < 0.001$) and 96% reduced odds of Gender Based Violence (OR 0.038 $P < 0.001$). **Conclusion and recommendations:** Male partner involvement into PMTCT is still low (24%) in Mwanza urban. Proactive mothers, partner's knowledge on PMTCT

and enouncements from TV/Radio were the major facilitating factors for male involvement in PMTCT unlike mothers who never want escort from their partners. To improve male partner involvement into PMTCT services, not only PMTCT educative programs on TV/radio but also women awareness program on their role in educating their male partners is highly encouraged.

319. **Munseri P, Bakari M, Pallangyo K, Ngatoluwa M, Chum S, Abdullah A, Lyamuya E. “Snow-ball” was the best method for recruiting volunteers to a third HIV phase 2 vaccine trial in Dar es Salaam, Tanzania. In *The Second Scientific Conference*. 2014.**

Background: In previous HIVIS-03 trial intradermal priming with DNA and boosting with MVA resulted in strong and broad immune responses. However, recruitment was a challenge, resulting into a protracted recruitment period. In TaMoVac-II trial we are exploring if electroporation further enhances the immune responses following priming with 600mg of DNA. We describe recruitment experiences in this phase II trial at the Dar es Salaam site.**Methods:** This double blind multi-site, trial recruited 82 of the intended 198 among a total of 198 HIV-uninfected volunteers aged 18-40 years from Dar es Salaam. The rest were recruited at Mbeya and Maputo sites. Volunteers in Dar es Salaam were from the Police and Prison forces, youths’ clinic and the general population. Recruitment was initially through pre-screening workshops, as was done in previous trials, followed by “snowballing” whereby volunteers from previous and current trials brought in other volunteers. Descriptive analysis on recruitment was performed.**Results:** We screened 199 volunteers; 20, 13, 28 and 138 from the Police, Prisons, youth and the general population respectively. Enrollees were 82, being 5, 4, 14, and 59 from the Police, Prisons and general population respectively. Their median (range) age was 22.5 (18-30) years. Thirty-nine (47%) of the enrolled were females. Of the 266 individuals who attended pre-screening workshops 244 agreed to be screened and 42 were eventually screened. Only 10/42 were recruited. The “snowball” method recruited 71 (87%) of the 82 participants, whereas only 9 were recruited from the Police and Prison forces. Recruitment was complete in 6 months, compared to 1.25 years in HIVIS-03.**Conclusion:** In TaMoVac-II trial the most effective recruitment method was “snow-

balling” with participants from the general population and youths. Conduct of pre-screening workshops among Police and Prison force officers was not as efficient as it was in the previous trials.

320. Mushengezi B, Chillo P. Association between body fat composition and blood pressure level among secondary school adolescents in Dar es Salaam, Tanzania. *Pan African Medical Journal*. 2014; 19(327).

Introduction: excess body fat and high blood pressure (BP) are important risk factors for increased cardiovascular morbidity and mortality, and both may have their roots of occurrence in childhood and adolescence. The present study aimed at determining the association between body fat composition and BP level among adolescents in Tanzania. **Methods:** a cross-sectional study involving 5 randomly selected secondary schools within Dar es Salaam was conducted between June and November 2013. Structured questionnaires were used to collect information on demographic characteristics and other cardiovascular risk factors. BP, height, weight and waist circumference were measured following standard methods. Body fat was assessed by skinfold thickness and categorized as underfat, healthy, overfat or obese according to World Health Organization definitions. Hypertension was defined as BP \geq 90th percentile for age, height and gender of the adolescent. **Results:** the study included 582 adolescents (mean age 16.5 ± 1.8 years, 52.1% boys). The proportion of adolescents with overfat or obesity was 22.2%. Systolic, diastolic and combined hypertension was present in 17.5%, 5.5%, and 4.0% respectively. In the total population mean body fat percent correlated positively with diastolic BP and mean arterial pressure (MAP) but not with systolic BP. In multivariate analysis body mass index ($\beta=0.21$, $p=0.008$) and waist circumference ($\beta=0.12$, $p=0.049$), but not body fat percentage ($\beta=-0.09$, $p=0.399$) independently predicted higher MAP. **Conclusion:** body mass index predicts BP level better than body fat composition and should be used as a measure of increased risk for hypertension among adolescents.

321. Mushi DP. Impact of cost sharing on utilization of primary health care Services: providers versus household perspectives. *Malawi Medical Journal*. 2014; 26(3): 83-89.

This study is set to match and compare results of the analysis of impacts of cost sharing on households with those on health-care providers in two selected districts in Tanzania. The setting is intended to establish and compare concurrently the impact of cost sharing on health-care utilization as viewed from both the providers and beneficiary households. The findings of the study indicate that quality of primary health care has improved as a result of the introduction of cost sharing. Attendance and hence utilization in health facilities has also increased. Mortality rate, at least for one district has not worsened. By implication then, cost sharing appears to have a positive impact on the provision of primary health care, except for a few cases that fail to consult because of the fees. An appropriately managed exemption facility is likely to eliminate the negative impact.

322. Mushi DP. International Journal of Current Research in Biosciences and Plant Biology. *Int. J. Curr. Res. Biosci. Plant Biol.* 2014; 1(5): 1-15.

This paper examines the effect of incomplete information and user fees on household health-care seeking behaviour. A simple theoretical model of individual welfare is developed and used to analyze the effect of user fees and asymmetric information on demand for medical care. Conclusions from theoretical analysis assert that knowledge about the functioning and effectiveness of the health care system increases demand for allopathic health care and reduce consumer's price sensitivity. Data from two regions of Tanzania are then used to carry out empirical verification of the issues raised from the theoretical underpinning. First, as hypothesized, inadequate information was found about the benefits of modern health care reduces the household's probability of consulting modern health-care providers. Relatively low knowledge about the benefits of the allopathic health care increases price sensitivity was also found. Consequently, introduction of user fees reduce consumption of the services by reinforcing the effect of incomplete information. The study finds that the conclusion that user fees are a potential source for financing quality enhancement in health care in income poor countries seems to have neglected two important constraints. The first is in regard to health care as a merit good in emerging economies: an individual perceives less benefit than those around him and those enjoyed by the society. While these benefits remain the same across individuals from the social planner's point of view, they are not necessarily of uniform value from

individual own perception. And, the second is that once there are people who are unable to fully perceive the benefits they enjoy from consumption of health care, there will be a relatively higher subjective opportunity cost of access to the services once user fees are imposed on public health services. As a result, cost-sharing fails to achieve both universal access and quality improvement simultaneously.

323. **Mwaitele H Sonographic Biophysical Profiles among Patients with Pregnancy Induced Hypertension Attending Muhimbili National Hospital Master of Medicine (Radiology) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: Pregnancy Induced Hypertension (PIH) is among the leading causes of maternal and neonatal morbidity and mortality. Developing countries carry a heavier burden. Therefore, more efforts are necessary to study this area in order to improve maternal and fetal wellbeing. A biophysical profile among patients with PIH is the screening method employed. **Objective:** To determine sonographic biophysical profiles among patients with PIH attending MNH. **Materials and Methods:** Cross sectional hospital based study was conducted from July 2013 to March 2014 involving 152 patients with PIH, at MNH. Consented candidates with PIH from 28 weeks of gestation to term were included. Structured, closed ended questionnaires and sonography were used. The data were processed and analysed using SPSS version 20. **Results:** The candidates were aged between 18 and 41 years, with the mean age of 28 years, median 28 years and mode of 25 years. Among them 63.8% were married and 49.3% had formal employment Uncontrolled BP was related with reduced fetal breathing movements in 8.3% candidates. Cohabiting candidates showed worse BPP (34.8%) compared with the married group (10.3%), P-value 0.01. **Conclusion:** BPP is a useful tool for surveillance of fetal wellbeing among patients with PIH. **Recommendations:** Community based study using bigger sample size is recommended to study the relationship between~ PIH and BPP. Random sampling is recommended so as to ascertain relationship between BPP and PIH.

324. **Mwapule L. Prevalence and Types of Cutaneous Manifestations in Patients Attending the Diabetic Clinic at Muhimbili National Hospital Dar es Salaam.**

Master of Medicine (Internal Medicine) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.

Background; Diabetes patients with poor glycemetic control for a long time can develop serious complications, including skin problems. It is reported that, as many as a third of people with diabetes will have a skin condition related to their disease at some time in their lives. Fortunately, most skin conditions can be prevented and successfully treated if diagnosed early. However if there are delays in diagnosis and subsequent treatment, a minor skin condition in a person with diabetes can turn into a serious problem with potentially severe consequences skin diseases in diabetic patients. **Objective:** To determine the prevalence and types of cutaneous manifestations occurring in diabetic patients attending diabetic clinic at Muhimbili National Hospital. **Methodology:** A descriptive hospital based cross sectional study was conducted among type 1 and type 2, aged more or equal to 18years diabetic patients seen at the diabetic clinic at Muhimbili National Hospital, from July 2012 to December 2012. All eligible diabetic patients who gave consent were consecutively recruited into the study during the study period. A structured questionnaire was used. All subjects underwent a thoroughly dermatological examination by the author regardless of whether they reported a dermatological disorder. Pictures of the lesions were taken; an arrangement was made for those with skin lesions to be seen by a dermatologist for diagnosis. Dermatological diagnosis was made based on observed clinical features. In 79 patients glycated hemoglobin was done. All information was recorded using structured questionnaires and analysis was done using SPSS version 16.0 **Results:** Two hundred and seventy five patients were recruited in this study, of which 64.7% were female. The median age was 49years with 25th and 75th percentile being 39 and 52 years respectively. The prevalence of cutaneous manifestations was found to be 41.45%, out of them female were more prevalent (69%). To those who were married sixty five percent (65%) were affected. Sixty nine percent of those with cutaneous manifestations were type two diabetes mellitus. When all forms of dermatological diagnosis were considered infections was the leading diagnosis (45.6), followed by Xerosis (7.9%), eczema (7.9%), excoriations (7%), diabetic dermopathy (5.3%) and diabetic bulla (4.4%). The common seen infections were Intertriginous infections (21 %), Boils (21 %), Paronychia (17%), Interdigital infections (11 %), Tinea

capitis (8%) and Pityriasis versicolor (8%). Poor glyceemic control seems to be a risk factor for cutaneous manifestations (Poor glyceemic control was expressed in HbA1c, fasting and random blood glucose) with Odds ratio 1.96 (1.25-3.08) and p value=0.004 in univariate analysis and p= 0.01 in multivariate analysis. **Conclusions and recommendations:** Coetaneous manifestations in patients attending diabetic clinic at MNH are very common Poor glyceemic control has strongly found to be associated with the presence of cutaneous manifestations. Good glyceemic control will prevent some of these cutaneous manifestations. People with diabetes mellitus should have proper skin care and be examined for cutaneous manifestations as one of the complications of diabetes mellitus. When patients present with cutaneous manifestations they should be screened for diabetes mellitus.

325. **Mwincete SH. Drug Prescription Pattern In The Treatment Of Heart Failure Patients Admitted At Muhimbili National Hospital. Master of Medicine (Internal Medicine) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: Heart Failure is one of the common causes of hospitalization in Tanzania and Africa at large. In a study by Kisenge et al. on Pattern of cardiovascular diseases among elderly patients admitted at Muhimbili National Hospital, it was found that 37% of elderly patients admitted were due Congestive Heart Failure. Specific treatment for Heart Failure is crucial for determining outcome in terms of Morbidity and Mortality; however in Tanzania there are no existing evidence-based treatment guidelines to guide clinicians on the management of Heart Failure. Clinicians have adopted guidelines such as the National Institute for health and Clinical Excellence (NICE), American Heart Association (AHA) and European Society of Cardiology (ESC) in the management of patients with Congestive Heart Failure from which the cost and availability of drugs recommended may influence the prescription habits of prescribers. Additionally there is no data on the drug prescription pattern in the treatment of Congestive Heart Failure. Availability of such information may help in the development of practical guidelines in Heart failure management in our setting. **Broad Objective:** To describe the Drug Prescription pattern in the treatment of Heart Failure at Muhimbili National Hospital

Study design and **Methodology:** This was a Hospital based descriptive study of consecutive patients admitted in the cardiac unit with a diagnosis of Heart Failure in Mwaisela medical wards at Muhimbili National Hospital between May and October 2013. Patients aged 12 years and above with a diagnosis of Congestive Heart Failure were included in the study. A structured questionnaire was used to obtain information from Patients' files as recorded at admission and discharge. The information collected included socio-demographic characteristics and labeled cause/s of Heart Failure. Other information collected was named prescribed drugs inclusive of dose, and frequency of administration of drugs as used in the treatment of Heart Failure. **Results:** A total of 150 patients admitted in the cardiac unit at Mwaisela wards with a clinical diagnosis of Heart failure were included in the study. Of these, 54.7% were males and 42% were aged 2:60 years. Dilated Cardiomyopathy, Rheumatic heart disease and Hypertension constituted 75.6% of all the causes for Heart failure in this study. Only 22% of the study patients were re admitted with the same diagnosis of CHF. About 93% of the studied patients presented in severe form of Heart failure (Newyork Heart Association Class III/IV). This study reveals use of eight different pharmacological classes in the treatment of Heart failure at Muhimbili National Hospital. The classes includes Angiotensin converting enzyme inhibitors / Angiotensin receptor blockers (ACE-I/ARB), Beta Blockers(BB), Diuretics(DIUR), Digitalis(DIG), Miner corticoid receptor antagonists(MRA), Phosphodiesterase type 5 inhibitors(pDE-5) and Vasodilators. Amongst the classes used Diuretics were mostly prescribed being used in 96% of all patients both at admission and discharge. Combination therapy was used in 96% and 98% at admission and at discharge respectively with a two to six combination regimen being in use. At least 3 to 5 drugs were mostly prescribed with 3-4 drugs mainly used at admission increasing to 4-5 drugs at discharge. Patients with severe Heart failure received a large number of drugs. Most combinations contained Enalapril, Aldactone and Isosorbide Mononitrate both at admission and at discharge. Cardiologists and specialist physicians appeared to have similar prescription of Heart failure drugs as recommended by various standard Heart failure treatment guidelines. **Conclusions:** 1.Majority of patients are admitted with severe Heart failure 2. Readmission rate is relatively low 3. Three to five drug therapies is mostly used by clinicians 4. Prescriptions containing key HF drugs(ACEI/

ARB, BB and MRA) is low 5. Prescriptions containing Isosorbide dinitrate/hydrochlorothiazide combination was low **Recommendations:** 1. Establishment of a hospital based HF treatment guideline 2. It is high time to establish a heart failure auditing system at MNH 3. There is a need for senior physicians to review prescriptions at discharge so as to avoid single drug use in severely ill patients

326. Mwambete KD, Justin-Temu M. The role of pharmacists in diabetes management in Zanzibar and Dar es Salaam regions, Tanzania. 2014.

A cross sectional descriptive study was conducted in public diabetes clinics, hospital and community pharmacies in vicinity of diabetes clinics in Dar es Salaam and Zanzibar to investigate the role of pharmacists in management of diabetes and diabetic patients' care. Face to face interviews were conducted with patients, health workers and pharmacists. A total of 191 subjects were interviewed. Of those, 115 were patients, 18 health workers at the diabetes clinics and 58 pharmacists. Out of 18 health workers, none was pharmacist, and of those 13 (72.2%) were also involved in dispensing medicines. Majority (71%) of the interviewed patients were able to describe their medications, knew about the appropriate storage conditions and how to use them. Seventy-six percent (n=87) of the patients were aware of risks associated with non-adherence to medication regimen and symptoms of their disease conditions. Diabetes-associated complications and mitigation of the same were familiar to 64% and 72% of the patients, respectively. Pharmacists were not directly involved in diabetes patient care in clinics. Diabetic patients were managed by doctors and nurses. Procurement and storage of anti-diabetics were the main roles of hospital pharmacists. On the contrary, of 58 pharmacists, 51 (88%) community pharmacists were involved in counseling patients on storage and use of medicines. Based on these results, patients could not appreciate the roles of pharmacist in diabetes care. Therefore, pharmacists need to update their knowledge on diabetes through seminars and continuing education and professional development and thus be able to actively participate in the diabetes management and diabetes patient care.

327. Mwambete KD, Peter A. Microbiological Quality of Juice Beverages Available in Dar es Salaam and Resistance Profiles of Microbial Contaminants. 2014.

Eight most widely available juice beverages each constituted by four extemporaneous and four industrially made juices were bought from different localities in Dar es Salaam. Extemporaneous juices were randomly collected using sterile containers. Each sample was microbiologically analyzed using conventional methods. The identified microbes were subjected to antimicrobial resistance assays against 15 commonly used antibiotics using the Kirby-Bauer disk diffusion method. Reference strains of *Escherichia coli* (ATCC25922), *Candida albicans* (ATCC90028) and *Staphylococcus aureus* (ATCC25923) served as control microorganisms. Four microbial contaminants were isolated, namely *Streptococcus* spp, *Escherichia coli*, *Staphylococcus aureus*, and *Klebsiella* spp. High content of contamination (4.1×10^5 cfu/ml of bacteria and 6.4×10^6 cfu/ml of fungi) were found in all extemporaneous juices. About 5.4×10^4 cfu/ml of bacteria and 6.8×10^4 cfu/ml of fungi were isolated from industrially produced juices. Microbial contaminants in juices exceeded acceptable limits by 100-fold. The *Streptococcus* spp and *Escherichia coli* isolates were resistant to ampicillin, amoxicillin, ceftriaxone and doxycycline.

328. Mwambete KD, Shemsika T. Prevalence of Life Style Drugs Usage and Perceived Effects among University Students in Dar es Salaam. *American Journal of Biomedical Research*. 2014; 2(2): 29-35.

This was a cross-sectional study involving randomly selected university students from University of Dar es Salaam (UDSM) and Muhimbili University of Health and Allied Sciences (MUHAS). Each respondent filled in a consent form prior to an interview. Awareness and prevalence of LSD usage, perceived effects and personal opinions on LSD usefulness were investigated. A total of 310 students (222 males and 88 females) aged between 21 and 35 years were interviewed. About 56.5% (n=175) were non-medical students from UDSM while 135 (43.5%) were medical students from MUHAS. Majority (92%) of the students was aware of LSDs, though only 29.3% of them had used one of 10 tracer LSDs, while 18 (5.8 %) students were uncertain whether they had ever used LSDs

or not. Over 81% of LSD users had used alcohols and 43% of those admitted to have been propelled by peer pressure? Euphoria and “good sleep” were the mentioned by 27% of LSDs users as motive for consuming them, while 32.5% said LSDs usage added an extra-financial burden. This is the first study on the prevalence of LDS usage in universities.

329. Mwambete KD, Simon A. Microbiological quality and preservative capacity of commonly available cosmetics in Dar es Salaam, Tanzania. *East and Central African Journal of Pharmaceutical Sciences*. 2014; 13(1).

Ten brands of cosmetics were randomly purchased from shops in Dar es Salaam, and were subjected to microbiological assessment for microbial quality, preservative capacity and identification of microbial contaminants. Aliquots of each cosmetic were uniformly spread-plated on agar plates to quantify, isolate and identify microbial contaminants using conventional microbiological methods. The cup-plate technique complemented by the dilution test was used for evaluation of cosmetic preservative capacity. Microbial contaminants were present in 70% of the cosmetics. The most frequently isolated and identified microbial contaminants were attributable to *Proteus mirabilis*, *Staphylococcus aureus*, and *Bacillus* and *Trichophyton* species. The cosmetics displayed inadequate preservative capacity evidenced by inability to lower the inherent bio-burdens to acceptable levels and to inhibit growth of the tested microorganisms. Such products can have detrimental effects on health status of consumers as consequence of their altered stability profiles and secondary microbial infections. Therefore, microbiological quality control of cosmetics available in the Tanzanian market should be re-enforced.

330. Mwambete KD. Antibacterial quality of some antibiotics available in five administrative areas along the national borders of Tanzania. *Integrated Pharmacy Research & Practice*. 2014; 3.

In developing countries like Tanzania, bacterial infections are becoming increasingly difficult to treat with available antibiotics. Poor quality antibiotics jeopardize the management of bacterial infections and contribute to the development of antibiotic resistance. Poor storage and harsh tropical climatic conditions accelerate deterioration of

antibiotics. Hence, this study investigated the antibacterial effect of antibiotics available in five administrative regions along the national borders of Tanzania. Materials and methods: A cross-sectional study involved the purchase of antibiotics from the Mwanza, Arusha, Kilimanjaro, Mbeya, and Kagera administrative regions. The Kirby–Bauer disk diffusion method was employed to assess antibacterial effects of the antibiotics against *Salmonella typhi*, *Klebsiella* spp., *Staphylococcus aureus*, *Pseudomonas aeruginosa*, and *Escherichia coli*. Inhibition zones (IZ) were determined as previously described. Analysis of variance was used to examine the IZ measured using test antibiotics to their respective control antibiotics; differences were considered significant at $P,0.05$. Results: Seventy-six antibiotic samples from 22 manufacturers were tested. Six antibiotic samples were from anonymous manufacturers and 29 antibiotic samples had no manufacturing or expiration dates. Different samples of the same antibiotics produced variable results. IZ measured using different samples of ampicillin (AMP) and ciprofloxacin and their control antibiotics revealed significant differences when tested against *S. typhi* ($P,0.05$). Samples of tetracycline and chloramphenicol resulted in IZ comparable to their controls against *S. typhi*. All samples of AMP yielded comparable IZ on *Klebsiella* spp., whereas samples of chloramphenicol and tetracycline exerted IZ against *P. aeruginosa* that were not statistically different from their respective control antibiotics ($P.0.05$). Ambiguous antibacterial profiles were exhibited by samples of AMP, chloramphenicol, cotrimoxazole, and amoxicillin as compared to their respective control antibiotics. Conclusion: Differences in antibacterial effects were found among samples of the same type of antibiotic. Results suggest the existence of counterfeit and/or substandard drugs in Tanzania.

331. **Mwambete KD, Nyaulingo B. Antibiotic resistance profiles of bacterial pathogens from private hospitals in Dar es Salaam, Tanzania. Sta. 2014; 1(9): 1.**

Objective: This study aimed to determine the prevalence rates of antibiotic resistance among pathogenic bacteria to widely used antibiotics. **Methods:** Bacterial pathogens isolated from clinical specimens were identified by microbiological conventional methods (biochemical and colony growth morphologies) then subjected to antimicrobial sensitivity testing against the antibiotics using Kirby-Bauer disk-diffusion method against

9 widely used antibiotics viz. Chloramphenicol(C30), Amoxicillin (AX25), Gentamicin (CN10), Cefuroxime (CXM30), Ciprofloxacin (CIP5), Amoxycylav (AMC30), Doxycycline (DOC30), Ceftriaxone (CRO30) and Ampicillin (AM10). **Results:** A total of 304 bacterial isolates of were tested, of those 204(67.1%) were from mid-stream urine. The most frequently isolated bacteria were Escherichia coli (57.2%; n=174), trailed by Staphylococcus aureus (15.4%; n=47) and only 9(3.0%) Proteus spp. Overall, 45.5% bacterial isolates were resistant to at least two of the antibiotics. About 60.0 % (n=182) of pathogenic bacteria were susceptible to CIP5 and only 15.5 % (n=47) isolates were sensitive to AM10, 16.4% (n=50) to DOC30 and 17.8% (n=54) to AX25. **Conclusion:** The clinical isolates exhibited high prevalence rates of antibiotic resistance ranging from 60-70% to AM10, AX25 and AMC30 in this order. The observed high prevalence rate of antibiotic resistance emphasizes the need for routine antibiotic susceptibility testing and surveillance to avoid treatment failure and spread of antibiotic resistance.

332. **Mwanaidi A. Dermatological Conditions among Children Living In Orphanage Centres in Dar Es Salaam, Tanzania. Master of Medicine (Pediatrics and Child Health) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: Skin diseases constitute an important part of paediatric consultation accounting for 6% to 24% of all consultations. In 2005, the World Health Organization reported prevalence rates of 21-87% for skin diseases worldwide. Children living in orphanage centres are prone to skin disease however data from Tanzania are limited. This study was carried out to determine the prevalence, pattern and contributing factors to dermatological manifestations among children living in orphanage centres in Dar es Salaam, Tanzania.**Methodology:** A community based cross sectional study was conducted whereby 420 children aged less than 18 years from 12 orphanage centres in Dar es Salaam were recruited. Guided interviews using structured questionnaires were carried out to obtain socio-demographic and clinical data from study participants. Clinical examination was performed for each participant to determine the presence and description of dermatological conditions among participants. Skin scrapings and skin biopsies were done where necessary. Data entry and analysis was performed using SPSS

version 20. Chi square and Fisher's exact tests were used to determine the association between categorical variables. Univariate and multivariate logistic regression was performed where odds ratio was used as a measure of association. A p value of less than 0.05 was considered statistically significant. **Results:** The overall prevalence of children with dermatological manifestations living in orphanage centres in Dar es Salaam was found to be 57.4%. It was 62.6% and 46.5% among males and females respectively, p-value = 0.002. Infectious dermatoses accounted for the majority (64%) of the conditions. Tinea capitis was the commonest superficial fungal infection. A significant association between male gender and dermatological manifestations was demonstrated. **Conclusion:** The prevalence of children living in orphanage centres in Dar es Salaam having dermatological conditions was high. Infectious dermatological conditions were more common than non infectious dermatological conditions. **Recommendations:** Regular screening and proper treatment of dermatological conditions, especially of infectious nature should be emphasized. Health education emphasizing on personal hygiene is recommended.

333. Mwangengwa LM, John J, Elfuraha B, Werema CJ, Mushi J, Mohamed AH, Mpanduji DG. Profile of plasma lipids and degree of derangements among the elderly of Morogoro region, Tanzania. *Tanzania Journal of Health Research*. 2014; 16(4).

Changes in lifestyles and ageing have been associated with growing rates of modifiable cardiovascular risk factors (CRF). Dyslipidemia is one of the CRF associated with numbers of cardiovascular diseases. This descriptive cross-sectional study was conducted to determine the profile and degree of derangements of plasma lipids among 300 (176 females and 124 males) elderly individuals aged ≥ 60 years in Morogoro, Tanzania. The calorimetric enzymatic methods and the Friedewal's equation were used for determination of cholesterols and triglycerides (TG). Social and demographic characteristics were gathered by structured questionnaires. The logistic regression models were used to identify the determinants of abnormal serum lipids level. Mean Total Cholesterols (TC) and Low Density Lipoprotein Cholesterols (LDL-C) in females exceeded significantly that of males. Mean TC, LDL-C as well as TG (mg/dL) declined

significantly with age while mean High Density Lipoprotein Cholesterols (HDL-C) also declined but only slightly. Elderly females were two times more likely to have elevated TC (OR=2.11; 95% CI: 1.04-4.28; P=0.05) and LDL-C (OR=2.15; 95% CI: 1.17-3.97; P=0.019) and three times to have lowered HDL-C (OR=3; 95% CI: 1.97-5.30; P<0.001) than males. Urban residents were about two times more likely to have elevated LDL-C (OR=1.84; 95% CI: 1.04-3.25; P=0.047) than their rural counterparts. Body Mass Index of ≥ 30 kg/m² was also associated with elevated LDL-C (OR=1.89; 95% CI: 1.05-3.42; P=0.045) and lowered HDL-C (OR=2.18; 95% CI: 1.3-3.65; P=0.004), respectively. The present study has established the profile and level of derangements of serum lipids among the elderly of Morogoro region in Tanzania. It appears that, female sex and BMI of ≥ 30 kg/m² are significant factors for elevated TC, LDL-C and lowered HDL-C while urban life is a significant factor for elevated LDL-C.

334. Mwanri AW, Kinabo J, Ramaiya K, Feskens EJ. Prevalence of gestational diabetes mellitus in urban and rural Tanzania. *Diabetes research and clinical practice*. 2014; 103(1): 71-78.

Aim: To estimate prevalence of gestational diabetes mellitus (GDM) and associated determinants in urban and rural Tanzania. **Methods:** A cross-sectional study was conducted from 2011 through 2012 in selected urban and rural communities. Pregnant women (609 urban, 301 rural), who were not previously known to have diabetes, participated during usual ante-natal clinic visits. Capillary blood samples were collected at fasting and 2 h after 75 g glucose load and were measured using HemoCue. Diagnosis of GDM was made using 1999 World Health Organization (WHO) criteria. **Results:** Women in rural areas were younger (26.6 years) than in urban areas (27.5 years). Mean gestational age, height, and mid-upper arm circumference (MUAC) were similar for the two areas. Overall prevalence of GDM averaged 5.9%, with 8.4% in urban area and 1.0% in rural area. Prevalence of GDM was higher for women who had a previous stillbirth (OR 2.8, 95% CI 1.5–5.4), family history of type 2 diabetes (OR 2.1, 95% CI 1.1–4.2), and MUAC above 28 cm (OR 1.9, 95% CI 1.1–3.3), and lower for women with normal hemoglobin compared with anemia (OR 0.45, 95% CI 0.22–0.93). **Conclusions:** Prevalence of GDM is higher than expected in urban areas in Tanzania, indicating an

increasing population who are at risk for delivery complications and type 2 diabetes in Sub-Saharan Africa.

- 335. Mwiru RS, Spiegelman D, Duggan C, Seage GR, Semu H, Chalamilla G, Fawzi WW. Growth among HIV-infected Children Receiving Antiretroviral Therapy in Dar es Salaam, Tanzania. *Journal of tropical pediatrics*.2014; 60(3): 179-188.**

We assembled a prospective cohort of 3144 human immunodeficiency virus (HIV) infected children aged <15 years initiating antiretroviral therapy (ART) in Dar es Salaam, Tanzania. The prospective relationships of baseline covariates with growth were examined using linear regression models. ART led to improvement in mean weight-for-age (WAZ), height/length-for-age (HAZ) and weight-for-length or body mass index (WLZ/BMIZ) scores. However, normal HAZ values were not attained over an average follow-up of 17.2 months. After 6 months of ART, underweight ($P < 0.001$), low CD4 count or percent ($P < 0.001$), stavudine containing regimens ($P = 0.05$) and advanced WHO disease stage ($P < 0.001$) at ART initiation were associated with better WAZ scores. Age >5 years on the other hand was associated with less increase in WAZ score after 6 months of ART ($P < 0.001$). These findings suggest that although ART improved the growth of the HIV-infected children in Tanzania, adjunct nutritional interventions may be needed to ensure that the growth of these children is optimized to the greatest extent possible.

- 336. Mwita J, Mugusi F, Pallangyo K. Pneumocystis pneumonia and pulmonary tuberculosis among HIV-infected patients at Muhimbili National Hospital, Tanzania. *East African journal of public health*. 2014; 9(1): 10-12.**

Background: Respiratory infections such as pulmonary tuberculosis (PTB) and pneumonia are significant causes of morbidity and mortality in HIV infection. Recent studies have shown an increase in *Pneumocystis jirovecii* pneumonia (PCP) in Sub-Saharan Africa. This study determines the prevalence of PCP and other pulmonary infections among HIV patients at HIV clinics in Tanzania. **Methods:** HIV infected patients with cough were enrolled between May and November 2006. Sputum induction

was done and examined for PCP using Toluidine blue stain and Polymerase chain reaction. Ziehl–Neelsen stain was also done for PTB. **Results:** Nine of the 125 (7.2%) had smear positive PTB. PCP was diagnosed in 10.4% (13/125) by Toluidine blue, while PCR was positive in 3.6 % (3/88). Low CD4+ cell counts were associated with increased risk to both PCP and PTB. **Conclusion:** PCP is still low in Tanzania. PTB remains the major respiratory problem in HIV patients with cough. Toluidine blue staining is not reliable for PCP diagnosis.

337. Mwita JC, Mugusi F, Lwakatare J, Chiwanga F. Hypertension control and other cardiovascular risk factors among diabetic patients at Muhimbili National Hospital, Tanzania. *East African journal of public health*.2014; 9(2): 70-73.

Background: Hypertension among diabetics is a well recognized cardiovascular risk factor. This study aimed at determining the prevalence of hypertension, its control and the prevalence of other cardiovascular risk factors among diabetic patients. **Methods:** We consecutively enrolled 150 adult diabetics. Their age, sex weight, height, blood pressure, fasting capillary blood glucose, lipid and renal profiles, hypertension and diabetes therapy were ascertained. **Results:** Hypertension prevalence was 54.7%. Treatment and control rates of hypertension were 81.7% and 34% respectively. Hypertensive patients were older, more overweight/obese, had a longer duration of diabetes and elevated serum creatinine. The prevalence of Dyslipidemia, overweight and obesity were 88%, 48.7% and 18.7% respectively. Poor diabetes control was observed in 76.7% of patients. Cigarette smoking was uncommon. **Conclusion:** Hypertension, hyperglycemia, dyslipidemia and obesity are prevalent among our diabetic patients. Both hypertension and glycemia were poorly controlled. Addressing individuals' global cardiovascular risk profiles is vital in diabetics.

338. Nagappan AS, Varghese J, Pranesh GT, Jeyaseelan V, Jacob M. Indomethacin inhibits activation of endothelial nitric oxide synthase in the rat kidney: Possible role of this effect in the pathogenesis of indomethacin-induced renal damage. *Chemico-biological interactions*. 2014; 221: 77-87.

The clinical use of non-steroidal anti-inflammatory drugs (NSAIDs) is often associated with adverse effects in the kidney. Indomethacin, an NSAID that has been shown to induce oxidative stress in the kidney, was used to study the pathogenesis of renal damage induced by the drug in a rat model. Experimental animals were given indomethacin (20 mg/kg) by oral gavage, sacrificed 1, 12 or 24 h (h) later and the kidneys studied. Evidence of glomerular and tubular damage in the kidney was found in response to the drug. Renal tissue nitrite levels, a surrogate marker of nitric oxide (NO) synthesis, were significantly decreased at 12 and 24 h. Indomethacin did not affect protein and mRNA levels of endothelial nitric oxide synthase (eNOS) or inducible NOS (iNOS). However, it significantly reduced the ratio of dimeric (active) to monomeric (inactive) eNOS in the kidney, 12 and 24 h after drug administration. This was associated with reductions in heme content, both in renal tissue and in NOS. Heme oxygenase 1 (HO-1) mRNA (at 1 and 12 h), protein (at 12 and 24 h) and activity (at 1, 12 and 24 h) were elevated in response to indomethacin. Nuclear translocation of Nrf2 (at 12 h) and p38 MAPK signaling (at 12 h and 24 h), both of which are known to induce HO-1, also occurred in response to the drug. In summary, our results show that indomethacin reduced levels of activated eNOS in the kidney. This effect is possibly mediated by heme depletion, secondary to HO-1 induction that occurred downstream of Nrf2 and p38 MAPK signaling. We postulate that reduced renal eNOS activity may result in decreased NO levels, and hence reduced renal perfusion, leading to glomerular and tubular injury with subsequent renal damage.

339. Nagu TJ, Spiegelman D, Hertzmar kE, Aboud S, Makani J, Matee MI, Mugusi F. Anemia at the initiation of tuberculosis therapy is associated with delayed sputum conversion among pulmonary tuberculosis patients in Dar-es-Salaam, Tanzania. *PloS one*. 2014; 9(3): e91229.

Background: Pulmonary tuberculosis and anemia are both prevalent in Tanzania. There is limited and inconsistent literature on the association between anemia and sputum conversion following tuberculosis treatment. **Methods:** Newly diagnosed sputum smear positive pulmonary tuberculosis patients aged ≥ 15 years initiating on standard anti tuberculosis therapy were recruited from 14 of 54 tuberculosis clinics in Dar es Salaam.

Patients were receiving medication according to the recommended short course Directly Observed Therapy (DOT) strategy and were followed up prospectively until completion of treatment (six months). Patients were evaluated before initiation of TB treatment by performing the following; clinical histories, physical examination, complete blood counts, serum biochemistry and sputum microscopy. Sputum smears were re-examined at two months of anti-tuberculosis therapy for presence of acid fast bacilli. Anemia was defined as hemoglobin <13 g/dl (males) or <12 g/dl (females). Log-binomial regression was used to assess the association between anemia and sputum conversion at two months. **Results:** Of the 1245 patients included in the study, 86% were anemic and 7% were sputum smear positive at two months of anti-tuberculosis therapy. Anemic patients were three times more likely to have sputum positive smear as compared to non-anemic patients at two months (RR = 3.05; 95% CI 1.11–8.40) p = 0.03. The risk for sputum positive smear results increased with severity of anemia (P for trend <0.01). **Conclusion:** Baseline anemia is associated with increased risk for persistent positive sputum smears at two months of tuberculosis treatment. Future studies should evaluate the mechanisms for TB-associated anemia as well as the role of intervention for anemia among TB patients.

- 340. Naranbhai V, Moodley D, Chipato T, Stranix-Chibanda L, Nakabaiito C, Kamateeka M, HPTN 046 Protocol Team. Brief Report: The Association between the Ratio of Monocytes: Lymphocytes and Risk of Tuberculosis among HIV-Infected Postpartum Women. *JAIDS Journal of Acquired Immune Deficiency Syndromes*. 2014; 67(5): 573-575.**

Recent human studies support historical animal studies that suggested an association between peripheral blood monocyte: lymphocyte (ML) ratio and tuberculosis (TB) disease. To evaluate generalizability of this finding, we modeled the association between peripartum ML ratio and incident TB disease within 18 months postpartum among 1202 HIV-infected women in South Africa, Tanzania, Uganda, and Zimbabwe. The ML ratio was associated with increased risk of TB disease independently to combination antiretroviral therapy, World Health Organization stage, or CD4 count (adjusted hazard ratio = 1.22, 95% confidence interval: 1.07 to 1.4, P = 0.003 per 0.1 unit increase in ML ratio).

341. **Nazrina SH. Patients with Radiculopathy Attending MRI Units at Agakhan and Muhimbili National Hospitals. Master of Medicine (Radiology) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: Non Degenerative spine disease is a broad term that includes several entities including spine trauma, spinal infections, neoplasms, inflammatory spine diseases, vascular diseases and congenital malformations of the spine. Non Degenerative spine diseases have a similar clinical presentation to those of Degenerative spine diseases e.g. focal or diffuse back pain and radiculopathy. As Degenerative spine diseases are much more common in comparison to Non Degenerative spine diseases, Non Degenerative processes may be overlooked thus missing cases in early stages of the disease leading to development of complications. MRI is the modality of choice and has proven to have high sensitivity and specificity in early diagnosis of Non degenerative spine diseases compared to other modalities.**Objective:** To evaluate the Spectrum of Non Degenerative Spine Diseases among patients with radiculopathy attending MRI Units at Aghakhan and Muhimbili National Hospitals.**Methodology:**This was a hospital based cross sectional descriptive study conducted from July 2013 to December 2013, among patients with radiculopathy attending MRI units at MNH and AKH. Consented patients of all age groups were included and were consecutively selected; those with MRI findings of normal spine were excluded. Patient's MR request forms and MRI Findings Record forms were used. The MR images were reported by the researcher and discussed with radiologist until a consensus was reached. Statistical analysis was done using Chi-square and Fisher's exact test and P value of <0.05 was considered statistically significant. Statistical Package for Social Sciences (SPSS) version 20 was used in data analysis.**Results:**Among a total of 161 patients, only 51 (31.7%) patients had Non degenerative spine diseases which were most prevalent in the age group of 21-39yrs and among male patients. Spine trauma (13%) was the most prevalent non degenerative spine disease. Among 51 patients with Non-degenerative spine diseases, cervical spine was commonly affected by spine trauma (81.3%) whereas thoracic spine was most affected by TB spine (40%). Lumbar (44.5%) and sacral spine (100%) was most frequently involved with secondary spine tumours. Concerning MRI imaging findings in patients with Non

degenerative spine diseases, single vertebral body involvement was commonly seen in patients with spine trauma (60%), two consecutive vertebral body involvement was most prevalent in TB spine (39.1%), whereas skip lesions were seen in all patients with secondary spine tumours (100%). Majority of patients with kyphotic angulation (75%) had TB Spine whereas only 25% comprised of spine trauma. Majority of cases with intervertebral disc destruction (68.7%), epidural collection (90%) and all patients with paraspinal collection had TB Spine. **Conclusion:** Among patients who presented with radiculopathy for MRI Spine imaging; only 31.7% of patients had Non degenerative spine diseases, which were commonly seen in young patients (21-39yrs) with male preponderance and spine trauma being most prevalent (13%) type.

342. **Ndagabwene AV. Prevalence of depression and associated factors among prisoners in segerea prison in Ilala municipality, Dar es salaam, Tanzania. Master of Science (Clinical Psychology) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: Prisoners is a population which is at high risk to develop depression and other mental illness but few studies have been done to date either because of negligence or by being a difficult population to access as far as the ethical and legal issues are concerned. In Tanzania, there are approximately 33,338 prisoners, of which 15,584 are sentenced and 17,554 are remands yet there is no data on depression as a mental illness in Tanzania prisons. It is hard even to plan effectively mental health services in prisons. Worldwide it is estimated that over 10 million people reside in prison system. Studies carried out in different countries have estimated that serious mental disorders including major depression are 5–10 times more prevalent among prisoners compared to the general population. **Objective:** The main objective of the study was to determine the prevalence of depression and associated factors among prisoners in Segerea Prison in Ilala Municipality-Dar-ES-Salaam, Tanzania. **Methods:** The study was conducted in Segerea Prison in Ilala Municipality by interviewing 444 prisoners above 18 years of age using structured researcher administered questionnaire and PHQ-9. The study design was a descriptive cross-sectional study. Segerea Prison was chosen because it has both male and female prisoners and has both sentenced and remands prisoners. The participants were obtained by using stratified sampling within sub-groups; systematic

random sampling for both sentenced and remands prisoners. The data was collected by the principal researcher with the help from research assistants and analyzed by the principal researcher using the SPSS version 20. The collection of data was carried out between November 2013 through January 2014. **Results:** A total of 444 participants were included in the study, 360 (81.1%) males and 84 (18.9%) females. 202 (45.5%) participants were aged between 25-34 years, 104 (23.4%) were sentenced prisoners and 340 (76.6%) were remand prisoners. Male prisoners and prisoners who reported that there was poor sanitation within the prison were more likely to develop depression but the difference was not statistically significant. From the study, 28.8% of the study participants had severe depression. In adjusted odds ratio, report on overcrowding and perception of poor food increased significantly the likelihood of depression. The odds ratio was 2.3{(95% confidence interval, 1.0-5.2), p-value = 0.048} and 2.2 {(95% confidence interval, 1.1-4.46), p-value = 0.027} for overcrowding and poor food respectively. No significant association was shown between depression and other factors (age, marital status, number of children, level of education, occupation, type of prisoner, type of crime/offence, frequency of visitors and duration of stay in the prison). None of those found to have depression was receiving treatment for depression. **Conclusions:** The study indicates that depression is common amongst prisoners imprisoned at Segerea Prison as it is in other prisons all over the world. Overcrowding and poor food qualities are strongly associated with depression in Segerea Prison.

343. **Ndelwa LA. Prevalence Of Symptoms Of Posttraumatic Stress Disorder Among Primary School Children Exposed To Bomb Explosions In Dar es Salaam. Master of Science (Clinical Psychology) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: Awareness of post traumatic stress disorder (PTSD) symptoms is of utmost importance, for communities that experienced a life threatening event in order to prevent the undesirable effects of these symptoms on person's quality of life including work or school. **Objective:** The study was designed to determine the prevalence of posttraumatic stress disorder symptoms among primary school children aged 10-16 in areas where the accidental military bomb explosions took place (Mbagala and Gongo la Mboto) in Dar es

Salaam, Tanzania. **Methods:** This was a descriptive cross sectional study using quantitative data. Data collection was conducted between the ends of November 2012 through December 2012. A total of 1004 children participants from Mbagala and Gongo la Mboti primary schools aged 10-16 years were interviewed. The PTSD symptoms were identified by -UCLA-Child Posttraumatic Stress Disorder Methods. **Results:** The overall prevalence of PTSD symptoms were 32.37%; with higher rates for female children than male children with an odds ratio of 0.58 and a P value 0.001. The association was statistically significant. **Conclusion and Recommendations:** There is a strong association between being exposed to the trauma of military bomb explosions and the development of PTSD. Other factors that might be contributing to the problems were not identified by this study. The situation is alarming, an intensive program assessment and intervention for children in Mbagala and Gongo la Mboti is needed urgently. Moreover, future pre organized plans on provision of trauma counseling in areas where the traumatic events might occur is essential.

344. **Ndibalema Y. Short Term Treatment Outcome Of Inoperable Non Melanoma Skin Cancers Treated At Ocean Road Cancer Institute Master of Medicine (Clinical-Oncology) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

The incidence of non melanoma skin cancer has been rising with time worldwide. The major cause of non melanoma skin cancer is Ultra Violet-B radiations from the sun. Due to the ozone layer depletion and increase in outdoor works, the incidence of non melanoma skin cancer is progressively raising worldwide, including African countries. The treatment of non melanoma skin cancer can be surgery or radiotherapy depending on size, location in the body and respectability of the skin lesion. The type of surgery performed in non melanoma skin cancer is referred to as the Mohs's Microscopic Surgery, where the surgeon excises the tissue and, while the patient is waiting on the operating table, the tissue sample is reported by the pathologist, and informs the surgeon whether to continue with excision if still there are cancerous cells seen microscopically or if the excision is complete. Due to the inability to perform MMS and late presentation of patients to health care facilities in most African countries, majority of non melanoma skin

cancer patients present with inoperable lesions. Therefore, majority of these patients receive radiotherapy as the treatment of choice. Studies on the response and outcome to radiotherapy are available in developed countries but this information is very minimal in African settings. Ocean Road Cancer Institute is the only specialized institute for treatment of cancer 111 Tanzania established in the year 1996. Currently, ORCI attends up to 100 new patients. Almost all patients with non melanoma receive radiotherapy. However, no systematic information is available on how these patients present and how they respond to radiation therapy. The aim of this study is to determine the outcome of radiotherapy among patients with non melanoma skin cancer attending at ORC! A retrospective hospital based was conducted at ORC!. Patients with non melanoma skin cancer and received radiotherapy from year 2008 to 2011 were included. A structured questionnaire was used to document socio-demographic characteristics, disease profile and disease outcome. Data were cleaned, entered and analyzed using Statistical Package for Social Sciences version 21.0. Continuous data were presented as numbers (Standard Deviation) while categorical data were presented as frequency (percentages). Association between variables was done by Chi- square test. Multivariate regression analysis was performed to detect the association between dependent and independent variables which were the disease outcome and socio-demographic as well as disease profile characteristics, respectively. Data from 185 files of patients was collected. This is 97.4% of the calculated sample size. The number of males and females was approximately the same, 50.8% and 49.2% respectively. The mean (SD) age of studied patients was 47.2 years (17.75 years). No patient had T1 lesion and most patients (60.5%) had T3 lesions. 90% of patients were given radiation alone. 87.5% of them received 50Gy for curative intent while 12.5% received 30Gy for palliative intent. 70% of patients had disease remission at 12 weeks after completion of treatment. The T status of the lesion the patient presented with before treatment has been found to significantly affect the outcome of treatment at 12 weeks after radiotherapy. This study therefore concludes that radiotherapy gives a good short term disease remission and the smaller the skin lesion at presentation the better the outcome after radiotherapy. T2 lesions have better outcome than T3 and T4. The study recommends public education to encourage patients to seek for medical attention as early as they see changes on their skin so that they get good

treatment outcome as their lesions will be picked when they are small. Also further studies should be undertaken to evaluate the 1011g term treatment outcome of radiotherapy on Non melanoma skin cancer at ORC!

345. **Ndile S Hiv-Serostatus Disclosure and Prevalence Of intimate Partner Violence Among HIV-Infected Women Attending Care and Treatment Centers In Dar es Salaam, Tanzania Master of Medicine (Community Health) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: Intimate partner violence (IPV) against women is a serious public health problem worldwide indicating it is a pressing health and human rights concern. Systematic reviews indicate that there is wide variation in magnitude and distribution of IPV. Sub-Saharan Africa, however, appears to have a double burden of HN-infection and IPV. The association between HIV- serostatus disclosure with IPV is not well understood in our setting. **Objectives:** The objectives of this study were: first, to determine the prevalence of IPV among women who attended care and treatment centers in Ilala Municipality, Dar es Salaam. Second, to determine whether there was an association between HIV-serostatus disclosure with IPV. **Materials and Methods:** We conducted a cross-sectional study in Ilala Municipal, Dar es Salaam from March to April 2014.. Using interviewer- administered questionnaires we assessed the prevalence and risk factors for IPV among 384 HIV-infected women attending care and treatment facilities, aged 15 years or more, and in intimate relationship. Data were recorded on questionnaires, and the information was entered to a computer and analyzed using Statistical Package for social Sciences (SPSS) software version 15. Results: The main finding was that the prevalence of IPV among HIV-infected women was 39.6% (152/384) (95% Confidence Interval [CI] = 33.4-45.8). Three quarters (75.4%) of the women reported that they had disclosed their HIV -serostatus to their partners. Compared to women who did not disclose their HN -serostatus, those who disclosed were significantly more likely to experience IPV (Adjusted Odds Ratio (AOR) = 2.34, 95% CI = 1.20-4.56); (P = 0.01). Other factors found to be associated with IPV included whether the partner reported

346. Nyaki DF. Assessment Of Electrolyte Abnormalities Among Patients With Liver Cirrhosis And Ascites Receiving Spironolactone Alone And Spironolactone In Combination With Frusemide At Muhimbili National Hospital In Dar Es Salaam, Tanzania. Master of Pharmacy (Hospital and Clinical Pharmacy). Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.

Background: Ascites is a common complication of liver cirrhosis and is associated with poor prognosis of the disease by increasing the risk of infection, renal failure and impaired quality of life. Diuretics (spironolactone and frusemide) are recommended in managing ascitic cirrhotic patients to control and prevent recurrence of ascites. Complications include hyponatremia, hypokalemia and hyperkalemia which have been reported to result from the use of diuretics. **Objective:** This study assessed the electrolyte abnormalities among patients with liver cirrhosis and ascites receiving spironolactone alone and spironolactone combined with frusemide. **Methodology:** This was a prospective observational study conducted in patients aged ~ 18years who had liver cirrhosis and ascites. The study was conducted at Muhimbili National Hospital (MNH) from February to April 2014. Two treatment modalities which are routinely applied at MNH in treating these patients were observed. Therapy 1 included spironolactone alone and therapy 2 was a combination of spironolactone and frusemide. Patients were enrolled consecutively during the study period based on the patient history, clinical examination, and laboratory test. Furthermore, an ultrasound of the abdomen was used as the confirmatory technique for clinical diagnosis of liver cirrhosis and ascites. The patient's blood was drawn and assessed for serum electrolytes at baseline, week 2 and week 6. **Results:** A total of 66 patients with the mean age of 40 ± 13.2 years were recruited to participate in this study and all of them were assessed for serum electrolytes at baseline and at week 2. Only 58 patients were assessed at week 6. The results indicate that there was no significant difference in the mean serum sodium and calcium levels for the patients who were on therapy 1 and therapy 2 throughout the study period ($p > 0.05$). On the other hand, a significant difference in the mean serum potassium levels was observed in the patients who were on therapy 1 and 2 at week 2 (0.7 vs. -0.1 , $p = 0.006$) and week 6 (1.4 vs. -0.3 , $p = 0.001$). There was a decrease in mean serum sodium level (mmol/L) in patients who were on therapy 1 and therapy 2 from 134.6 ± 4.7 to 128.0 ± 4.4 and 134.9 ± 4.1

to 126 ± 5.6 , respectively. On the contrary, a significant increase in the mean serum potassium level (mmol/L) from 3.7 ± 0.6 to 5.1 ± 1.0 in patients on therapy 1 and a non-significant decrease from 3.9 ± 0.7 to 3.6 ± 0.7 in patients on therapy 2 was observed. A significant increase in the proportion of ascitic- cirrhotic patients with hyperkalemia from 0% to 34.8% for those on therapy 1 and hypokalemia from 28.8% to 45.7% for those on therapy 2 was observed during the course of treatment ($p=0.001$). Thirteen percent (13%) and 17.1% respectively of patients on therapy 1 and therapy 2 developed hepatic encephalopathy although there was no significant association between the two ($p=1.00$). Electrocardiographic analysis showed the appearance of prominent U wave's in 75% of the patients with hypokalemia on therapy 2 and normal ECGs on the patients with hyperkalemia on therapy 1 **Conclusion:** The results of this study indicate that a significant proportion of the patients treated with spironolactone alone exhibited hyperkalemia as opposed to those treated with a combination of spironolactone and frusemide who significantly experienced hypokalemia. However, there was no significant difference between the two treatments with regard to serum sodium level. In addition a rapid decrease was observed in the mean serum sodium levels in patients on combined diuretics as compared to those on spironolactone alone. Routine monitoring of the serum sodium and potassium levels in the liver cirrhosis and ascites patients receiving diuretics is important.

347. **Nyamsha TM. Factors Associated With Morbidity and Mortality in Children with Burn Injury at Muhimbili National Hospital Master of Medicine (General Surgery) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Introduction: Burn injury consists of destruction of the skin and the underlying tissues, due to thermal, electrical and chemical causes. The majority of burns are thermal followed by chemicals, electrical and radioactivity. Burn injuries continue to be a significant public health problem worldwide and it is associated with high morbidity and mortality in developing countries including Tanzania. This study aimed at determining the factors associated with morbidity and mortality in children with burn injury at our institution. **Methodology:** A descriptive, prospective, hospital-based study was

conducted to document factors associated with the morbidity and mortality in children with bum injury at MNH in 2012-2013, involving observation of patients from admission to discharge or death. TBSA was calculated by the rule of nine for children above 10 years and for those below 10 the Lund and Browder chart was applied, swab for culture and sensitivity was taken from the wounds with clinical evidence of sepsis. **Results:** A total of 150 children with bum injury were studied, with mean age of 3.25 years. Scalds were responsible for bums in 127 patients (84.7 %) while flame caused 20 bums (13.3%). Unsupervised play in cooking environment was the leading risk factor for bum. Most patients arrived to the unit late with an interval of 2, hours to 54 days, mean 33.6 hours; this had no effect on mortality, p-value 0.965. Most of the patients had complications, 77.3% (116) with anemia being the most common isolated complication developed by 45 patients (38%). The mortality in this series was 23 children 15.3% with electrolyte imbalance and septicemia being the leading killers. Other factors associated with mortality were TBSA, p-value <0.001. Seventy eight out of one hundred and six (72.6%) of the specimens had bacteria yield with *S aureus* being the commonest organism isolated, 32.1 % (25), followed by *Pseudomonas* spp and *Klebsiella* and *E coli*. All the isolated *S aureus* were sensitive to penicillin. **Conclusion:** Bum is still a big health problem in our society especially in children below two years, as it is associated with high mortality, 15.33%. The factors associated with morbidity and mortality include; TBSA and source of bum. As most of the children get bum injury while playing at home especially around the cooking places, this can be preventable. Diarrhoea which leads to electrolyte imbalance causing death is due to overcrowding and lack of restriction rules into the bum unit at MNH. **Recommendation:** Community programmes to ensure adequate child supervision and general child wellbeing, particularly for those under fives, as well as parental education about bums are recommended to reduce childhood bums in Tanzania. Rules restricting unnecessary entry to the bum unit should be advocated. More wards are needed to the unit to prevent the overcrowding.

348. **Ndewa K. Performance Characteristics of Malaria Rapid Diagnostic Test and Its Utilization in Management of Febrile Patients In Korogwe District, Tanga.**

**Master of Science (Parasitological and Medical Entomology) Dissertation 2014.
Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: Malaria is a public health problem caused by a protozoa parasite of the genus Plasmodium and illness occurs following bite of an infected female anopheline mosquito. Malaria diagnosis continues to be foremost among the challenges in malaria control strategies in Sub-Saharan countries including Tanzania. The World Health Organization changed malaria treatment Guidelines in 2010 to restrict the use of ant malarial drugs to parasitologically confirmed malaria cases in response to overuse of ant malarial drugs. Malaria rapid diagnostic tests (mRDTs) have been presented as a means to realize the new guidelines for malaria parasitologically confirmed cases prior to initiating ant malarial drug therapy for mRDT positive patients. **Objective:** This study assessed performance characteristics of malaria rapid diagnostic test and its utilization in management of febrile patients **Methodology:** A hospital-based cross-sectional study among patients with fever and malaria-like symptoms was done between May and June, 2014 in Korogwe district hospital. A convenient sampling method was used to enroll patients, blood samples were collected for mRDT and smear microscopy. A structured questionnaire was used to collect demographic information, present complaints and clinical findings and exit interview. Data were entered, cleaned and analysed in Epi-Info version 3.5.4 computer software, chi-square test was used to compare proportion between independent and dependent variables with P-value set at 0.05. **Results:** Results revealed that sensitivity, specificity, positive predictive value and negative predictive value of mRDT at 95% CI was 97.6%, 97.4%, 91.0% and 99.3% respectively. All patients with positive mRDT were treated with ant malarial drugs, while patients with negative mRDT results were treated with either ant malarial (P-value = 0.001) or antibiotics (P-value = 0.005) at 95% CI. Patients with negative mRDT results were less likely to be offered further investigation at 95% CI (P-value = 1.000). The overall hospital malaria prevalence at 95% CI was 23.1% and 21.65% by mRDT and microscopy respectively. **Conclusion:** In the rainy season, hospital-base malaria prevalence is still high and under five children are the most affected age group. The mRDT had good sensitivity and specificity as compared with blood slide microscopy. Clinicians adhered to malaria management guidelines for patients with positive mRDT result; however, they did not adhere to

malaria diagnosis and management guidelines in the case of negative mRDT result. **Recommendation:** Clinicians should adhere to the 2010 World Health Organization guidelines adopted by the National Malaria Control Programme on malaria diagnosis and treatment following mRDT results. We recommend universal parasitological diagnosis of malaria by mRDT as its sensitivity and specificity is as good as that of blood slide microscopy.

349. Ngaimisi E, Minzi O, Mugusi S, Sasi P, Riedel KD, Suda A, Diczfalusy U. Pharmacokinetic and pharmacogenomic modelling of the CYP3A activity marker 4 β -hydroxycholesterol during efavirenz treatment and efavirenz/rifampicin co-treatment. *Journal of Antimicrobial Chemotherapy*. 2014; 69(12): 3311-3319.

Objectives: To assess the effect of the major efavirenz metabolizing enzyme (CYP2B6) genotype and the effects of rifampicin co-treatment on induction of CYP3A by efavirenz.

Patients and methods: Two study arms (arm 1, n=41 and arm 2, n=21) were recruited into this study. In arm 1, cholesterol and 4 β -hydroxycholesterol were measured in HIV treatment-naïve patients at baseline and then at 4 and 16 weeks after initiation of efavirenz-based antiretroviral therapy. In arm 2, cholesterol and 4 β -hydroxycholesterol were measured among patients taking efavirenz during rifampicin-based tuberculosis (TB) treatment (efavirenz/rifampicin) just before completion of TB treatment and then serially following completion of TB treatment (efavirenz alone). Non-linear mixed-effect modelling was performed. **Results:** A one-compartment, enzyme turnover model described 4 β -hydroxycholesterol kinetics adequately. Efavirenz treatment in arm 1 resulted in 1.74 (relative standard error=15%), 3.3 (relative standard error=33.1%) and 4.0 (relative standard error=37.1%) average fold induction of CYP3A for extensive (CYP2B6*1/*1), intermediate (CYP2B6*1/*6) and slow (CYP2B6*6/*6) efavirenz metabolizers, respectively. The rate constant of 4 β -hydroxycholesterol formation [mean (95% CI)] just before completion of TB treatment [efavirenz/rifampicin co-treatment, $7.40 \times 10^{-7} \text{ h}^{-1}$ (5.5×10^{-7} – 1.0×10^{-6})] was significantly higher than that calculated 8 weeks after completion [efavirenz alone, $4.50 \times 10^{-7} \text{ h}^{-1}$ (4.40×10^{-7} – 4.52×10^{-7})]. The CYP3A induction dropped to 62% of its maximum by week 8 of completion. **Conclusions:** Our results indicate that efavirenz induction of CYP3A is influenced by

CYP2B6 genetic polymorphisms and that efavirenz/rifampicin co-treatment results in higher induction than efavirenz alone.

350. Ngaimisi E, Mugusi S, Minzi O, Sasi P, Janabi M, Mugusi F, Bertilsson L, Aklillu E, Burhenne J.2014.

Background: The extent of pharmacokinetic interaction between rifampicin and efavirenz is still uncertain. Aim: We investigated the determinants of efavirenz pharmacokinetics after long term antiretroviral therapy (ART) with and without rifampicin co-treatment. **Patients and methods:** We recruited patients on efavirenz based ART alone (arm1, n=20) and patients on efavirenz/rifampicin based HIV/Tuberculosis co-treatment (arm2, n=34). Intensive blood sampling (at around 0, 1, 3, 6, 12, 16 and 24 hours after taking efavirenz) was performed 16 weeks after initiation of ART and repeated in arm2 patients (n=31) 8 weeks after completion of Tuberculosis treatment. Data were analyzed by nonlinear mixed effects modelling. Treatment arms, sampling occasions, demography, clinical, laboratory and single nucleotide polymorphisms data were tested as potential covariates for the model parameters. **Results:** The patients had median age and weight of 42 years (IQR, 36-50) and 48 Kilograms (IQR, 43-60) respectively. The proportion of CYP2B6*1/*1 and CYP2B6*6/*6 genotypes were 38.2% and 23% respectively. Efavirenz pharmacokinetics was described by 1 compartment model. The estimated population values for absorption rate constant (Ka) and apparent volume of distribution (V/F) were 1.5h⁻¹ (95%CI, 0.9-2.1) and 696L/70Kg (95%CI, 551-841) respectively. CYP2B6 genetic polymorphism was the only determinant of efavirenz oral clearance (CL/F) being highest in patients with CYP2B6*1/*1 genotype (22.8 L/h/70kg; 95%CI, 16.4-29.2) and 58% (95%CI, 41-75) lower in patients with CYP2B6*6/*6 genotypes. Regardless of genotype, the ratio of efavirenz clearance, arm1 to arm2, during and after co-treatment were 1.2 (95%CI, 0.80 - 1.60) and 1.1(95%CI, 0.76-1.46) respectively. **Conclusion:** Our results support the hypothesis that after long term efavirenz treatment the magnitude of its auto induction of metabolism and cellular transport is comparable to that due efavirenz/rifampicin co-treatment. The CYP2B6 genetic polymorphism but not rifampicin co-treatment should be

taken into account when adjusting for efavirenz dosage during both ART and HIV/TB co treatment.

351. Ngarina M, Tarimo EA, Naburi H, Kilewo C, Mwanyika-Sando M, Chalamilla G, Ekstrom AM. **Women's Preferences Regarding Infant or Maternal Antiretroviral Prophylaxis for Prevention of Mother-To-Child Transmission of HIV during Breastfeeding and Their Views on Option B+ in Dar es Salaam, Tanzania.** *PloS one.* 2014; 9(1): e85310.

Background: The WHO 2010 guidelines for prevention of mother-to-child transmission (PMTCT) of HIV recommended prophylactic antiretroviral treatment (ART) either for infants (Option A) or mothers (Option B) during breastfeeding for pregnant women with a CD4 count of >350 cell/ μ L in low-income countries. In 2012, WHO proposed that all HIV-infected pregnant women should receive triple ART for life (B+) irrespective of CD4 count. Tanzania has recently switched from Option A to B+, with a few centers practicing B. However, more information on the real-life feasibility of these options is needed. This qualitative study explored women's preferences for Option A vs B and their views on Option B+ in Dar es Salaam, Tanzania. **Methods:** We conducted four focus group discussions with a total of 27 pregnant women with unknown HIV status, attending reproductive and child health clinics, and 31 in-depth interviews among HIV-infected pregnant and post-delivery women, 17 of whom were also asked about B+. **Results:** Most participants were in favor of Option B compared to A. The main reasons for choosing Option B were: HIV-associated stigma, fear of drug side-effects on infants and difficult logistics for postnatal drug adherence. Some of the women asked about B+ favored it as they agreed that they would eventually need ART for their own survival. Some were against B+ anticipating loss of motivation after protecting the child, fearing drug side-effects and not feeling ready to embark on lifelong medication. Some were undecided. **Conclusion:** Option B was preferred. Since Tanzania has recently adopted Option B+, women with CD4 counts of >350 cell/ μ L should be counseled about the possibility to “opt-out” from ART after cessation of breastfeeding. Drug safety and benefits, economic concerns and available resources for laboratory monitoring and

evaluation should be addressed during B+ implementation to enhance long-term feasibility and effectiveness.

352. Nguyen Van TD, Sufian S, Mansor N, Yahya N. Characterization of Carbon Nanofibers Treated with Thermal Nitrogen as a Catalyst Support Using Point-of-Zero Charge Analysis. *Journal of Nanomaterials*. 2014.

The chemical and physical purification of carbon nanofiber exposes more anchoring sites between meal precursors and carbon surface but thermal N₂ gas flow maintains the crystal's structure as well as its defect and edge sites, referred to as active sites or anchoring sites. After calcination in nitrogen at 450°C, samples were characterized by Raman spectra X-ray diffraction, as well as thermogravimetric and nitrogen physisorption analyses. Results showed a relatively lower fraction of amorphous carbon to graphite, indicating a greater removal of amorphous carbon. Moreover, the disorder intensity of carbon nanofibers that were treated in N₂ flow rate of 1 L/min and 3 hours, called 1Gcom-3h sample, achieved far more defect sites compared with unmodified carbon nanofiber. In addition, the surface areas of mesoporous carbon nanofibers decreased over prolonged residence time. The carbon nanofiber support-metal cation interaction therefore improved the deposition of iron when the point-of-zero charge reading was greater than four.

353. Nguyen Van TD, Sufian S, Mansor N, Yahya N. Effect of Modification Techniques on Surface of Carbon Nanofiber as Catalyst Support. In *Applied Mechanics and Materials*. 2014; 625: 345-348.

The intrinsic surface of carbon nanofiber (CNF) is important for supported catalyst preparation. The surface changes due to various techniques applied such as N₂ thermal and HNO₃ oxidation methods. The combination of different analyses is to observe the internal structure through Raman spectroscopy, textural properties via N₂ physisorption and morphology of CNF using transmission electron microscope or through quantification of oxygen containing groups by acid base titration. As results, an extension of residence time increases the amount of amorphous and damages the structure of mesoporous CNF texture unexpectedly. The change from hydrophobic to hydrophilic

surface of CNF is due to the growing number of oxygen. The surface area of CNF by HNO₃ treatment method produces 115.14m²/g which is higher than that of using thermal method.

354. **Nilsson C, Godoy-Ramirez K, Hejdeman B, Bråve A, Gudmundsdotter L, Hallengård D, Biberfeld G. Broad and potent cellular and humoral immune responses after a second late HIV-modified vaccinia virus Ankara vaccination in HIV-DNA-primed and HIV-modified vaccinia virus Ankara-boosted Swedish vaccinees. AIDS research and human retroviruses. 2014; 30(3): 299-311.**

We have previously shown that an HIV vaccine regimen including three HIV-DNA immunizations and a single HIV-modified vaccinia virus Ankara (MVA) boost was safe and highly immunogenic in Swedish volunteers. A median 38 months after the first HIV-MVA vaccination, 24 volunteers received 108 plaque-forming units of HIV-MVA. The vaccine was well tolerated. Two weeks after this HIV-MVA vaccination, 18 (82%) of 22 evaluable vaccinees were interferon (IFN)- γ enzyme-linked immunospot (ELISpot) reactive: 18 to Gag and 10 (45%) to Env. A median minimal epitope count of 4 to Gag or Env was found in a subset of 10 vaccinees. Intracellular cytokine staining revealed CD4⁺ and/or CD8⁺ T cell responses in 23 (95%) of 24 vaccinees, 19 to Gag and 19 to Env. The frequency of HIV-specific CD4⁺ and CD8⁺ T cell responses was equally high (75%). A high proportion of CD4⁺ and CD8⁺ T cell responses to Gag was polyfunctional with production of three or more cytokines (40% and 60%, respectively). Of the Env-specific CD4⁺ T cells 40% were polyfunctional. Strong lymphoproliferative responses to Aldrithiol-2 (AT-2)-treated subtype A, B, C, and A_E virus were demonstrable in 21 (95%) of 22 vaccinees. All vaccinees developed binding antibodies to Env and Gag. Neutralizing antibodies were detected in a peripheral blood mononuclear cell (PBMC)-based assay against subtype B and CRF01_AE viruses. The neutralizing antibody response rates were influenced by the vaccine dose and/or mode of delivery used at the previous HIV-MVA vaccination. Thus, a second late HIV-MVA boost induced strong and broad cellular immune responses and improved antibody responses. The data support further exploration of this vaccine concept.

355. Nilsson J, Pembe AB, Urasa M, Darj E. Safe injections and waste management among healthcare workers at a regional hospital in northern Tanzania.2014.

Description: Unsafe injections and substandard waste management are public health issues exposing healthcare workers and the community to the risk of infections. The objective of this study was to assess the knowledge and practice of safe injections and health care waste management among healthcare workers at a regional hospital in northern Tanzania. This cross sectional descriptive study was conducted in a regional hospital in northern Tanzania. Data was collected through a self-administered questionnaire with additional observations of the incinerator, injections, waste practices, and the availability of medical supplies. Data was analysed in SPSS descriptive statistics and chi-square tests were performed. A total of 223 of 305 (73%) healthcare workers from different cadres were included in the study. The majority of healthcare workers had adequate knowledge and practice of safe injections, but inadequate knowledge about waste management. The majority of the staff reported knowledge of HIV as a risk factor, however, had less knowledge about other blood-borne infections. Guidelines and posters on post exposure prophylaxes and waste management were present at the hospital, however, the incinerator had no fence or temperature gauge. In conclusion, healthcare workers reported good knowledge and practice of injections, and high knowledge of HIV transmission routes. However, the hospital is in need of a well functioning incinerator and healthcare workers require sufficient medical supplies. There was a need for continual training about health care waste management and avoidance of blood-borne pathogens that may be transmitted through unsafe injections or poor health care waste management.

356. Njelekela MA, Liu E, Mpembeni R, Muhihi A, Mligiliche N, Spiegelman D, Mtabaji J. Socio-economic status, urbanization, and cardiometabolic risk factors among middle-aged adults in Tanzania. *East African journal of public health*. 2014; 8(3): 216-224.

Objective: This study was conducted to examine the associations between socioeconomic status, urbanization, and cardio-metabolic risk factors in

Tanzania.**Methods:** Participants were 209 adults (45-66 years) in Dar es Salaam, Tanzania. A structured questionnaire was used to evaluate socioeconomic status and behavioral characteristics, including income, education, occupation, residence (urban, rural, mixed), dietary factors, and smoking. Blood samples were collected and analyzed to measure lipid profiles and fasting glucose levels. Cardiometabolic risk factors were defined using World Health Organization criteria.**Results:** Urban residence and higher socioeconomic status were associated with decreased intake of traditional staple food (ugali), and increased consumption of meat products and beverages. Higher socioeconomic status was associated with a significant 3.5-kg/m² higher BMI (p=0.0001) and 8 cm higher waist circumference (p<0.001), and a three-fold increase in the risk of obesity. Urban residence was associated with poorer lipid profile, including significantly higher total cholesterol, increased LDL cholesterol, but lower triglycerides, compared to rural residence. The prevalence of metabolic syndrome was high (38%), and was associated with increased socioeconomic status.**Conclusion:** Urban residence and higher socioeconomic status were important correlates of cardiometabolic risk factors, including obesity and poorer lipid profile. Primary prevention and health screening strategies are needed to target cardiometabolic risk factors in urban areas, to reduce the burden of cardiovascular disease in Tanzania.

357. Nor M, Hafizah N, Mohamed F, Shafri M, Affendi M. Construction of in vitro Blood-Brain Barrier (BBB) model using MDCK-1 cell line.2014.

Introduction: The BBB constitutes the major obstacle to drug delivery to the brain. To test BBB's permeability using the paracellular, non-specific transport pathway of a newlyformulated hydrophilic particle for neuromodulating application, BBB model using the EOO (epithelial cell/absent cell/absent cell) arrangement was constructed. **Materials and methods:** Briefly, Madin-Darby Canine Kidney (MDCK) 1 cells were cultured in Dulbecco's Minimum Essential Medium (DMEM) complete growth media and plated at the density of 1 x 10⁵ on 0.4 µm PET filter of the Millipore hanging cell culture inserts supplemented with 0.3 ml of the complete growth medium in the luminal space and 1.1 ml of the complete growth media in the abluminal space. The inserts were placed in the 24-well plates to replicate the parenchymal and microvascular space of the BBB. Media

were changed for every 2 alternate days, cells were allowed to resume growth and differentiate within 4-9 days, and finally subjected to the permeation study involving the 'sink condition' where the complete growth media were substituted with Hanks Balance Salt Solution (HBSS) pH 7.4 (0.2 ml in the luminal space; 1.1 ml in the abluminal space) for pre-equilibration for 1 hour. Cells were moderately shaken in the incubator shaker for 30 minutes at 100rpm, and trans-epithelial electrical resistance (TEER) reading was measured every 30 minutes up to 3 hours. Then, cells were washed with HBSS and substituted with the complete culture media before being stored overnight in the incubator (37°C, 95% relative humidity, 5% CO₂). The recovery of the TEER was measured 24 hours post-treatment using similar measurement used at the start of the experiment. **Results and discussion:** In this study, the TEER values of the MDCK cells were in the range of ~600 to ~900 $\Omega \times \text{cm}^2$. **Conclusion:** Hence the integrity of MDCK 1 BBB was successfully sustained to meet standard models.

358. **Nouh A, Mohamed F. Wind energy conversion systems: Classifications and trends in application. In *Renewable Energy Congress (IREC), 2014 5th International. 2014; 1-6***

.In recent years, wind turbines have become an acceptable alternative for electrical energy generation by fossil or nuclear power plants, because of the environmental and economic benefits. Wind energy conversion systems are becoming a reliable competitor of classical power generation systems, which are facing to constantly changing operating parameters, such as fuel cost, multiple fuel tradeoffs. This study is based on exhaustive review of the state of art in order to comparison the performances of electrical generators. The different wind energy conversion systems are compared based on topology, cost, efficiency, power consumption and control complexity. In addition, a Matlab/Simulink simulation, for wind energy induction generator in isolated network, will be exposed.

359. **Noureen A, Ilyas Z, Shahzadi I, Iqbal M, Shafiq M, Irshad A. Mobile IP Issues and Their Potential Solutions: An Overview. *Advances in Computer Science: an International Journal. 2014; 3(1): 106-114.***

A typical Internet protocol (IP) could not address the mobility of nodes and was only designed for fixed networks where the nodes were improbable to move from one location to other. An ever-increasing dependence on network computation makes the use of portable and handy devices, inevitable. Mobile IP protocol architecture was developed to meet such needs and support mobility. Mobile IP lets the roving nodes to establish an uninterrupted connection towards internet without altering the IP address while moving to another network. However, Mobile IP goes through several issues like ingress filtering, triangle routing, handoff and Quality of service problems etc. In this paper we discuss few of those with their possible solutions. That resolves these problems, reduce the unnecessary load from the network and enhance the efficiency. Some security threats on mobile and their solutions are also focused to secure the communication during mobility.

360. Nyamhanga T, Fruemnce G, Mwangu M, Hurtig A. Achievements and Challenges of Resource Allocation for Health in a Decentralized System in Tanzania: Perspectives of National and District Level Officers. *East African Journal of Public Health*. 2014; 10(2): 417-428.

Objective: The goal of this study was to identify the achievements and challenges of a resource allocation process in a decentralized health system in Tanzania as they are perceived by national and district level officers. **Methodology:** This study was conducted between May 2011 and July 2012 in two districts of Dodoma region: Kongwa and Bahi. Data were collected from 25 key people involved in policy, planning and management aspects for the allocation of financial resources from the central government to local government districts. Thus, the recruitment of the study participants was purposive, as it took account of their positions and experience in health resource allocation and management. The data were collected through conversation in face-to-face in-depth interviews with the officers concerned. The data were analysed manually using qualitative content analysis. **Results:** The study has identified the achievements and challenges of resource allocation in a decentralized health system of Tanzania. The achievements include: the design and use of a needs-based resource allocation formula; reduced resource allocation inequalities between rural and urban districts; and a wide discretion by the district council to mobilize and utilize health insurance funds and user

fees. On the other hand, the challenges are: the disbursed funds fall far short of centrally determined budget ceilings, and the funds are sent late; Council Health Management Teams (CHMT) develop budgets but are restricted on the percentage they can allocate to different areas – so there is severe under-funding of disease prevention and health promotion initiatives at the community level. **Conclusion:** This study has identified achievements that should be further nurtured and challenges that should be worked on for the improvement of the decentralized health system. Thus, as a way forward, it is recommended that the equitable allocation of resources should go beyond the recurrent costs for the delivery of health services.

361. Nyamhanga T, Frumence G, Mwangi M, Hurtig A. ‘We do not do any activity until there is an outbreak’: barriers to disease prevention and health promotion at the community level in Kongwa District, Tanzania. *Global health action*. 2014; 7.

Background: Little is known about the barriers to disease prevention and health promotion at the community level within a decentralized health system. **Objective:** This paper, therefore, presents and discusses findings on barriers (and opportunities) for instituting disease prevention and health promotion activities. Design: The study was conducted in Kongwa District, Tanzania, using an explorative case study approach. Data were collected through document reviews and in-depth interviews with key informants at district, ward, and village levels. A thematic approach was used in the analysis of the data. **Results:** This study has identified several barriers, namely decision-makers at the national and district levels lack the necessary political will in prioritizing prevention and health promotion; the gravity of prevention and health promotion stated in the national health policy is not reflected in the district health plans; gross underfunding of community-level disease prevention and health promotion activities; and limited community participation. **Conclusion:** In this era, when Tanzania is burdened with both communicable and non-communicable diseases, prevention and health promotion should be at the top of the health care agenda. Despite operating in a neoliberal climate, a stronger role of the state is called for. Accordingly, the government should prioritize higher health-protecting physical, social, and economic environments. This will require a

national health promotion policy that will clearly chart out how multisectoral collaboration can be put into practice.

362. **Nyamhanga T, Frumence G. Intimate partner violence to HIV sexual risk among married rural women in Tarime, Tanzania. African Journal of Midwifery and Women's Health. 2014; 8(2): 76-81.**

This study examined the relationship between intimate partner violence and high-risk sexual behaviours (unprotected sex and partner promiscuity) among 392 married women. The findings show that about half (44.9%) of the respondents experienced physical violence. Furthermore, 47.5% of the respondents reported that they were made to have sex when they did not want to, without a condom. About two thirds (64.5%) of women were both physically hurt and made to have sex when they did not want to (P=0.03). Likewise, about half (42.8%) of women who reported to have experienced physical violence also admitted that their partners engaged in sexual intercourse outside their union (P=0.001). This study found a strong association between experience of physical violence and engagement in non-consensual sex without a condom and having an unprotected sex with an unfaithful husband.

363. **Nyamweru BC, Sempombe J, Kaale E, Layloff T. Development and Validation of a Thin-Layer Chromatographic-Densitometric Method for the Analysis of Clotrimazole Vaginal Tablets. JPC-Journal of Planar Chromatography-Modern TLC. 2014; 27(1): 47-51.**

A thin-layer chromatography (TLC) method for the analysis of clotrimazole was developed and validated according to the International Conference on Harmonization (ICH) and the United States Pharmacopeia (USP) guidelines. The developed method will be used for a qualitative and quantitative analysis of clotrimazole in vaginal tablets. The method was developed using mobile phase containing toluene-acetone (15:10 v/v) on precoated TLC silica gel 60 F254 glass plates at a detection wavelength of 215 nm using reflectance absorbance and saturation time of 20 min. Densitometric analysis showed clotrimazole being retained at RF of 0.27. The method had acceptable level of specificity where no interference was observed between clotrimazole peaks to that of blank. The

calibration curve of clotrimazole was estimated using both linear and polynomial regression function in the range of 1000–2400 ng spot⁻¹ with regression coefficient, r^2 , of 0.992 for linear and 0.999 for polynomial regression. The accuracy at nominal concentration of clotrimazole was found to be 99.14%, and % RSD was 1.13% for repeatability and 1.30% for intermediate precision that involved two analysts. The developed analytical method is useful for the determination of clotrimazole in the finished drug formulation. Also it helps to identify substandard and fake medicines labeled as clotrimazole during postmarketing surveillance of the drug and especially in resource-constrained countries.

364. **Nyanda EL. Characterization Of Hormonal Receptors And Human Epidermal Growth Factor Receptor - 2 Of Breast Tissue From Women With Breast Cancer At Muhimbili National Hospital, Dar Es Salaam, Tanzani. Master of Medicine (General Surgery) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam**

Background: Breast cancer is the most common cancer and leading cause of cancer deaths among women worldwide. At Muhimbili national hospital as in most centres in Tanzania there is no data on immunohistochemical determination of HER2 expression in breast carcinoma. Hormonal as well as HER2 status have been found to influence use of adjuvant hormonal and immunotherapy in advanced breast cancer disease and following mastectomy by predicting treatment outcome and prognosis. The main objective of this study was to determine the pattern of hormonal receptors and HER-2 status of breast tissue among women breast cancer at Muhimbili National Hospital. **Methodology:** A hospital-based descriptive cross-sectional study which included female breast tissue biopsy in the archives at the histopathology department from January 2013 to December 2013 with calculated minimum sample size of 70 patients. Haematoxylin and eosin staining was done to each tissue specimen for confirming grade and type of breast cancer then immunohistochemistry for ER, PR and HER2 were done using DAKO immunostainer. Data collection was done using a structured questionnaire and analyzed using SPSS software. **Results:** During 11 months of study a total of 218 breast tissue biopsies were confirmed to be carcinoma of which 70 tissues met inclusion criteria out of

which 53(75.7%) cases were stained for ER and PR and 46 (65.7%) cases were immunostained hormonal and HER-2. Eighty eight (88.6%) cases had invasive duct carcinoma. Majority of tumors were grade two (42.9%) followed by grade three (35.7%). ER, PR and HER-2 expression was seen in 43.4%, 26.4% and 15.2% respectively. Forty five percent(45.6%) were Triple negative or basal like followed by 23.9% ER+,PgR±,HER2- and HER2+,ER-,PR- were 13%. A Significant inverse relation was observed between hormonal receptor status and Her-2 expression.HER2 expression was related with age group <35 years. ER expression was related to grade 1 tumour. **Conclusion:** Majority of our patients are triple negative. Estrogen expression was related to low grade tumours. An inverse relation exists between HER2 over expressers and hormonal receptor expression in patients attending Muhimbili. **Recommendation:** Hormonal receptors and HER2 expression should be assessed to all patients with breast cancer attending Muhimbili national hospital and that there should be constant supply of reagents and facilities for hormonal receptors and HER2 protein. A multidepartment multicentre consensus meeting to be held by surgeons, pathologists and oncologists on ideal management of breast cancer patients according to ASCO/CAP guidelines. A comprehensive Multicentre study should be done on hormonal receptors and HER2 status and Ki67 in relation to different prognostic factors so as to ascertain their prevalence in Tanzania as the whole.

365. Nyongole OV, Akoko LO, Mwanga AH, Mkony C. Treatment Options and Outcomes of Urethral Stricture in Dar Es Salaam, Tanzania. Have we utilized all the Options? *East and Central African Journal of Surgery*. 2014; 18(3): 29-33.

Background: The historical management of urethral strictures constituted regular dilations of the scar tissue but this inevitably failed for long strictures or subjected to secondary trauma, ischemia, scarring and further reduction of luminal caliber. A urethral stricture would best be managed by taking into account its etiology, site, length and caliber as well as applying the right procedure. Length, patient's age and co morbid factors play significant roles in the choice of treatment. Therefore this study was set to document treatment options and early treatment outcomes of urethral stricture among patients seeking urological services in Dar es Salaam. **Methodology:** This was a hospital

based descriptive, prospective study which involved all patients presenting to urology clinics confirmed to have urethral strictures during the period of study from March 2011 to December 2011. **Results:** A total of 111 patients with urethral strictures were recruited into the study, all were male with age range of 10 – 97 years with a mean of 52.7. DVU was the most performed procedure accounting for 73 (65.8%) of all patients followed by primary urethroplasty at 31 (27.9%) and multistage urethroplasty at 7 (6.3%). DVU was the commonest procedure in all age groups. **Conclusions:** Three treatment options of urethral stricture DVIU, primary urethroplasty, and multistage urethroplasty including clean intermittent catheterization (cic) were adopted as modes of treatment of patients with urethral stricture seeking urological services at Muhimbili National hospital and Tumaini hospital in Dar es Salaam, DVIU being the commonest mode treatment. Primary urethroplasty and DVIU had better treatment outcome during the follow up of 3 months.

366. Okoronkwo AS, Ibrahim T. Tackling Drilling Challenges through Engineered BHA and Optimised Drilling Parameters: A Case Study from the Niger Delta. In IADC/SPE Asia Pacific Drilling Technology Conference. Society of Petroleum Engineers. 2014.

In the Niger Delta in Nigeria, some fields are classified as tough drilling environment due to numerous challenges encountered during the drilling phase of well construction process. In the Gbaran field in the Niger Delta, the greatest challenge is encountered in top hole drilling in 16'' whole size and above. From a stratigraphical standpoint, the surface whole formation down to 6000ft in this field and other fields of similar drilling challenges shared common characteristics, with the lithology ranging from soft and loose to medium and abrasive sand inter-bedded with stringers of lignites, gumbo shale, and hard streaks (cemented sand). Bottom hole assembly (BHA) failures such as wash outs, cracks and twist-offs caused by erratic torques, excessive lateral, axial and torsional vibrations are regular occurrence while drilling top hole at depths between 3000ft and 6000ft. From offset well records, 75% of 16'' and 17-1/2'' surface hole drilled in the Gbaran field ended up with unplanned side-tracks due to twist-off and lost-in-hole. In some wells, the non-productive time arising from these failures is up to 100% of planned AFE time for the section with the attendant cost impact on the wells in addition to lost-in-

hole charges. To address these challenges, steps were taken to analyse the failures in the offset wells and come up with BHA design capable of withstanding the inherent down-hole vibrations. This paper discusses this engineered approach which is centred on two things: Fit-for-purpose BHA design and optimized drilling parameters. It also highlights the success story of drilling the deepest 16'' hole so far in the field without BHA failure as experienced in other wells drilled in the same field. Furthermore, the MWD output of down-hole vibrations showing the BHA performance is reviewed and compared with data from offset wells.

- 367. Olofin IO, Spiegelman D, Aboud S, Duggan C, Danaei G, Fawzi WW. Supplementation with multivitamins and vitamin A and incidence of malaria among HIV-infected Tanzanian women. *Journal of acquired immune deficiency syndromes (1999)*. 2014; 67(4): S173.**

Introduction: HIV and malaria infections occur in the same individuals, particularly in sub-Saharan Africa. We examined whether daily multivitamin supplementation (vitamins B complex, C, and E) or vitamin A supplementation altered malaria incidence in HIV-infected women of reproductive age. **Methods:** HIV-infected pregnant Tanzanian women recruited into the study were randomly assigned to daily multivitamins (B complex, C, and E), vitamin A alone, both multivitamins and vitamin A, or placebo. Women received malaria prophylaxis during pregnancy and were followed monthly during the prenatal and postpartum periods. Malaria was defined in 2 ways: presumptive diagnosis based on a physician's or nurses clinical judgment, which in many cases led to laboratory investigations, and periodic examination of blood smears for malaria parasites. **Results:** Multivitamin supplementation compared with no multivitamins significantly lowered women's risk of presumptively diagnosed clinical malaria (relative risk: 0.78, 95% confidence interval: 0.67 to 0.92), although multivitamins increased their risk of any malaria parasitemia (relative risk: 1.24, 95% confidence interval: 1.02 to 1.50). Vitamin A supplementation did not change malaria incidence during the study. **Conclusions:** Multivitamin supplements have been previously shown to reduce HIV disease progression among HIV-infected women, and consistent with that, these supplements protected against development of symptomatic malaria. The clinical significance of

increased risk of malaria parasitemia among supplemented women deserves further research, however. Preventive measures for malaria are warranted as part of an integrated approach to the care of HIV-infected individuals exposed to malaria.

368. **Olwit C, Musisi S, Leshabari S, Sanyu I. Chronic Sorrow: Lived Experiences of Caregivers of Patients Diagnosed With Schizophrenia in Butabika Mental Hospital, Kampala, Uganda. *Archives of Psychiatric Nursing*. 2014.**

During the experience of chronic sorrow, people feel emotional discomfort, and hopelessness. It may progress to pathological grief, depression or trigger some of the psychiatric disorders in individuals who are vulnerable. The study explored the experience of chronic sorrow among caregivers of patients diagnosed with schizophrenia. A descriptive qualitative design using focus groups and indepth interviews was used. Most caregivers experienced chronic sorrow and identified trigger factors and coping strategies. The findings may enlighten psychiatric nurses in the care of mentally ill patients, caregivers and family members. The results may also help policy makers to prioritize mental health in the country.

369. **Ombeni W Assessment Of Lipid Profile In HIV Infected Patients Using The First Line Antiretroviral Drugs At Muhimbili National Hospital Master of Pharmacy (Hospital and Clinical Pharmacy) *Dissertation* 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: The use of antiretroviral therapy has been reported to cause dyslipidemia and increased risk of cardiovascular diseases (CVD) in HIV -infected patients in industrialized countries. The effects of antiretroviral drugs (ARVs) on lipid metabolism among sub-Saharan Africans, for whom access to antiretroviral therapy is expanding, remain largely unknown. Various factors have been found to be associated with poor lipid profiles. Therefore assesment of lipid profile as a marker for CVD in HIV -infected patients, is important in order to identify factors that are most likely to cause this problem among ARVs users. Identification of these factors is important in order to formulate appropriate interventions that will result in improved lipid profile and hence prevention of CVD among patients. **Objectives:** The aim of this study was to determine

the prevalence of dyslipidemia in HIV- infected patients using the first line ARVs triple regimen. The magnitude of the prevalence will help in addressing factors associated with dyslipidemia and discuss the treatment of choice for individuals experiencing dyslipidemia while using ARVs triple regimen. **Methodology:** A hospital based cross-sectional study was conducted among HIV- infected patients aged 15 years and above attending Care and Treatment Clinic (CTC) at Muhimbili National Hospital (MNH). A systematic random sample of 231 patients using first line triple therapy of ARVs for at least 24 weeks were enrolled over a period of 3 months from January 2014 to March 2014 to participate in the study. Patient's data were collected from patient identification card (CTC1) & patient record form (CTC2) and interviews were done using a structured questionnaire. Blood samples from patients was collected during their regular visits at the CTC and assayed for total cholesterol (TC), triglycerides (TO), high density lipoprotein (HDL), low density lipoprotein (LDL) cholesterol and CD4 cell counts. Data were described using means for continuous variables and proportions for categorical variables. Significance testing of proportions was carried out by using Chi-square test, where a probability (P) of less than 0.05 was considered to be statistically significant. Any factor with p- value of less or equal to 0.2 was considered for binary logistic regression which was used to study the independent factors predicting poor lipid parameters. **Results:** Majority of patients (75.9%) were females. The mean age of the patients was 42 ± 9.19 years and their median CD4 cell count was 346 cells/mm³ (2-2600), after a median duration of 24 months (6-287) on ARVs. Proportion of patients using various first line ARVs, included 42.4%, 33.8%, 19.9% and 3.9% for zidovudine /lamivudine/efavirenz (AZT/3TCIEFV), zidovudine/lamivudine/nevirapine (AZT/3TC/NVP), tenofovir/emtricitabine/efavirenz (TDF/FTCIEFV) and tenofovir/lamivudine/efavirenz (TDF/3TCIEFV) respectively. The overall prevalence of dyslipidemia was 77.5%, the prevalence of hypercholesterolemia, hypertriglyceridemia, low HDLc and, increased LDLc were 53.5%, 29.6%, 16.5%, and 59.8% respectively. Sex, age, CD4 cell count levels, body mass index (BMI) and duration of more than two years for ARVs use was significantly associated with poor lipid profiles. **Conclusion:** Overall, the findings from the current study indicate that there is high prevalence of dyslipidemia among HIV - infected patients using first line ARVs attending CTC at MNH. We recommend that the

National AIDS Control Program should institute mandatory laboratory monitoring of serum lipids for HIV infected patients at baseline before initiation of ARVs treatment and lipid profile monitoring during therapy.

370. **Omero GM. Exploring Barriers to Utilization of Mental Health Services in Malawi. Master of Mental Health Nursing Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: There are only two mental health hospitals for over fourteen million people in Malawi. However, studies indicate that the burden of mental health problem is as high as 10% compared with infectious diseases. Despite this burden, the total budget allocation for mental health is very low at 1.5%. The low-income groups in both urban and rural areas who access care through public mental health hospitals are therefore more likely not to receive the needed mental health services. **Objective:** the overall objective of this study was to explore barriers to utilization of mental health services at facility level as perceived by health care providers and caregivers. **Methodology:** This study used qualitative exploratory descriptive research design. Participants were recruited through purposive and snowballing sampling methods. Twelve participants were recruited into the study, among them 6 were health care providers and 6 were caregivers. Data were collected via semi-structured interviews. Thematic analysis method was employed to analyze the data. Ethical principles of respect of human dignity, beneficence and justice were observed. **Findings:** The study revealed that both hospital and non hospital factors affect utilization of mental health services in Malawi. Hospital factors included: Outdated mental health policy, inadequate mental health professionals, lack of knowledge and skills of health care providers, health care providers negative attitudes toward the mentally ill clients long waiting time at the hospital and inadequate medications. Non hospital factors were: unavailability of mental health facilities in the community, lack of knowledge by the communities about mental illness, Cultural beliefs, Stigma and discrimination, long distances of travel. **Conclusion:** Lack of current and implementation of mental health policy to guide mental health activities, weak health system, high levels of stigma among health care providers and the community, negatively affects mental health services utilization in Malawi. Extensive efforts need to be made to

overcome community ignorance and discrimination. If mental health services are to genuinely prioritize wellbeing and prevention of mental health problems then mental health policy need to be revised and resources shifted to primary health care level.

- 371. Ondrovics M, Silbermayr K, Mitreva M, Young ND, Gasser RB, Joachim A. Proteomics elucidates key molecules involved in exsheathment in vitro in Oesophagostomum dentatum. *International journal for parasitology*.2014; 44(11): 759-764.**

We explored molecules involved in in vitro exsheathment of Oesophagostomum dentatum L3s using a proteomic-transcriptomic-bioinformatic approach. Analysis of L3s before, during and after exsheathment identified 11 proteins that were over-expressed exclusively during exsheathment. These proteins (including key enzymes, heat shock, structural and nematode-specific proteins) were inferred to be involved in development, metabolism, structure, and motility and/or host-parasite interactions. Some of these molecules represented homologues linked to entry into and exit from the dauer stage in the free-living nematode *Caenorhabditis elegans*. The approach established here provides a basis for investigations of ecdysis in other strongylid nematodes.

- 372. Otto AT. The Effect of I.V Lignocaine on Cardiovascular Responses Due To Laryngoscopy and Intubation among Elective Surgery Patients at Muhimbili Orthopedic Institute, Tanzania. Master of Medicine (Anesthesiology) *Dissertation* 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: Cardiovascular changes during laryngoscopy and endotracheal intubation have been a challenge for decades. These are transient, self-limiting and innocuous in healthy individuals, but would be devastating to patients with co-morbidities like cardiovascular diseases and cerebrovascular diseases. **Broad objective:** To evaluate the effects of plain intravenous (LV) lignocaine on cardiovascular responses due to laryngoscopy and endotracheal intubation, among patients undergoing elective surgery at Muhimbili Orthopedic Institute (MOI). **Methodology:** A prospective randomized, single blinded controlled study, between 1. V bolus lignocaine and placebo was conducted. The study was conducted at MOI, and all patients were ASA II and 1. Standard induction and

maintenance of anesthesia was done, after which the patients were intubated. And three minutes prior to intubation, 1.5mg/kg LV bolus plain lignocaine was given to the patients in the drug group while 0.9 % normal saline was given to the patients in the control group. The changes in blood pressure (BP) and heart rate (HR) were recorded for the first 5 minutes using automated BP measuring device. **Results:** Systolic blood pressure (SBP) in the control group rose after the first minute post intubation, then decreased gradually to values below baseline. While SBP in the drug group decreased from first minute post intubation to values below baseline. The diastolic blood pressure (DBP) in both groups decreased from first minute post intubation to values below baseline. The mean arterial pressure (MAP) in both groups increased in the first 3 minutes post intubation, after which it decreased in the 4th and 5th minute to values below baseline. The HR in both groups increased from first minute post intubation and remained higher than the baseline value throughout the study period. **Conclusions:** We observed a consistent change in the HR due to lignocaine effect. The increase in HR that was high enough to cause CV complication (>20% baseline) was observed consistently in the control group, throughout the study period. There was also a change seen in the SBP due to lignocaine effect. In both the HR and SBP changes observed, there was a protective effect seen in the lignocaine group. The lignocaine group had a lesser increase in HR, and a decreased SBP that was seen particularly after 1 st minute post intubation, compared to the control group. In the other parameters such as DBP and MAP, no change was seen between both groups.

373. Patel N, Varghese J., Masaratana P, Latunde-Dada GO, Jacob M, Simpson RJ, McKie AT. The transcription factor ATOH8 is regulated by erythropoietic activity and regulates HAMP transcription and cellular pSMAD1, 5, 8 levels. *British journal of haematology*.2014; 164(4): 586-596.

ATOH8 has previously been shown to be an iron-regulated transcription factor, however its role in iron metabolism is not known. ATOH8 expression in HEK293 cells resulted in increased endogenous HAMP mRNA levels as well as HAMP promoter activity. Mutation of the E-box or SMAD response elements within the HAMP promoter

significantly reduced the effects of ATOH8, indicating that ATOH8 activates HAMP transcription directly as well as through bone morphogenic protein (BMP) signalling. In support of the former, Chromatin immunoprecipitation assays provided evidence that ATOH8 binds to E-box regions within the HAMP promoter while the latter was supported by the finding that ATOH8 expression in HEK293 cells led to increased phosphorylated SMAD1, 5, 8 levels. Liver Atoh8 levels were reduced in mice under conditions associated with increased erythropoietic activity such as hypoxia, haemolytic anaemia, and hypotransferrinaemia and erythropoietin treatment and increased by inhibitors of erythropoiesis. Hepatic Atoh8 mRNA levels increased in mice treated with holo transferrin, suggesting that Atoh8 responds to changes in plasma iron. ATOH8 is therefore a novel transcriptional regulator of HAMP, which is responsive to changes in plasma iron and erythroid activity and could explain how changes in erythroid activity lead to regulation of HAMP.

374. Patel SS Clinical Presentation and Treatment Outcome of Children with Wilms Tumour at Muhimbili National Hospital, Dar es Salaam. Master of Medicine (Pediatrics and Child Health) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.

Background: Wilms tumour is the most common malignant neoplasm of the genitor-urinary tract in children. It is an embryonal tumour of the kidney in which blastemal, stromal and epithelial cells are present in variable proportions. Since the description by Dr Wilms in 1899, the management of Wilms tumour has evolved from surgery alone to the multimodal treatment with surgery, chemotherapy and radiotherapy. In many developing countries, however, the outcome of treatment is still poor. Factors identified as contributing to this include late presentation, a relative lack of medical expertise and lack of collaboration among and within institutions. **Objectives:** The main objective of this study was to determine the clinical characteristics and treatment outcome of children with Wilms tumour treated at Muhimbili National Hospital (MNH) Tanzania from January 2011 to January 2013. **Methodology:** This was a retrospective hospital based study involving chart review of patients admitted in paediatric oncology ward at MNH, from January 2011 to January 2013. Information of 78 children with clinical and

radiologic diagnosis of Wilms Tumour was extracted from patients' files. Data were recorded in a structured questionnaires' information recorded included age, gender, clinical features on admission, treatment given and treatment outcomes. **Results:** Children enrolled in the study were aged between 6 months up to 13 years of age, with the mean age of 36 months and females (53.8%) were more than males. Majority of patients. (87.2%) presented with abdominal distension of which 55 (80.9%) had abdominal mass, fever in (38.5%), abdominal pain in (29.5%) and hematuria in (10%). The most affected age group was 25 to 48 months (29%). Most of the cases were in stage III (45.1%) followed by stage II (28.3%). The mortality rate at two years was 64.1%, 13 patients (16.7%) died, while 47.4% were lost to follow up and 4% relapsed. **Conclusion:** This study showed abdominal distension was the most common clinical feature found among the patients of which 80.9% had abdominal mass. Therefore children presenting with abdominal distension should undergo the basic investigations to rule out other causes of abdominal distension and mass. Those with suspected intra-abdominal malignancy should be immediately referred to a tertiary care level for further specialized investigation and treatment. The mortality rate at two years is 64.1%, however larger prospective studies are required in which patients will be followed for longer duration of time and determine the survival rates.

375. **Patience WL. Prevalence of Physical Disabilities in Patients with Epilepsy Attending Epilepsy Clinics – Muhimbili National Hospital. Master of Science (Neurology) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: Epilepsy affects about 50 million people worldwide accounting for 0.5% of global burden of the disease. The majority of the worldwide burden of epilepsy is found in low-income countries, where the prevalence is substantially higher than in high-income countries. Prevalence surveys in different parts of Africa produce widely differing estimates, ranging from 0.2% to 5.8% in one review. By contrast, a systematic review of studies in Europe showed less variation in estimated prevalence, which ranged from 0.4% to 0.8%. Co morbid conditions in patients with epilepsy include cognitive impairment, neuropsychiatry problems, physical disabilities and psychosocial difficulties.

These are often more disabling than the seizures themselves. **Broad Objective:** To find the prevalence of physical disabilities in patients with epilepsy attending epilepsy clinics at Muhimbili National Hospital, Tanzania. **Methods:** This was a descriptive cross-sectional study that was conducted at Muhimbili National Hospital. The target population was, patients with epilepsy attending epilepsy clinics. Patients with epilepsy were assessed for physical disability using PULSES Profile. Data was analysed by using the Statistical Package for Social science (SPSS) for windows; version 16, which provided a broad range of capabilities for the entire analytical process. **Results:** Total number of patients 175 met criteria of having epilepsy; of these, 96(54.9%) were males, and with 76(43.4%) patients aged less than 18 years, while those with age above 18 was 99(56.6%). Individuals who had not attended school were 29(16.6%), school dropout was 90(51.4%) and other formal schooling was 56(32.9%). Of 49(28.0%) people with epilepsy (PWE) had physical disabilities, 18(10.3%) had severe form and 31(17.7%) had mild form of physical disabilities. **Conclusion:** From the study; the prevalence of physical disabilities among patients with epilepsy was 49/175(28.0%) of whom 18/175(10.3%) had severe form and 31/175(17.7%) mild form of physical disability; slightly higher than previous studies.

376. **Patrice K. THE Pattern of Ocular Trauma at Muhimbili National Hospital, 2014. Master of Medicine (Ophthalmology) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Introduction: Eye injury is the most common cause of monocular blindness worldwide including Tanzania. For many years it has been described as a neglected issue, it was highlighted as a major cause of visual morbidity more recently. Available evidence has shown that half a million people in the world are blind as a result of ocular injuries. Eye injury is common in young and active people, and has economic as well as health implication. The pattern of ocular injuries tends to vary from one location to another. **Broad objective:** To determine the prevalence, the nature, the causes and the visual outcome after treatment of ocular trauma in patients who attended Ophthalmology department at Muhimbili National Hospital. **Methodology:** This was an eight month hospital-based, prospective, cross-sectional descriptive study, conducted at

ophthalmology department in Muhimbili National Hospital (MNH), Dar es Salaam, Tanzania, from May 2013 to December 2013. The study sample was obtained by convenient sampling whereby all patients with ocular injuries (adults and children) were enrolled for the study. Data were collected by use of a data sheet which was prepared specific for the study. The information collected included demographic data; history, ocular examination findings, management as well as visual acuity at presentation to hospital and on the day of discharge were recorded. Data entry in the computer was done by Epi Info program and data analysis was done using SPSS software. **Results:** Ocular injuries constituted 5.8% of all patients who attended the eye unit over the study period, the prevalence which is within the range of other previous studies. Most of the people with ocular injury were males (70.6%) though the results were marginally significant (p value is 0.046). The results have shown that ocular injuries were more frequent in children (35.7 %) and young adults (28.6%). These children and young people were students accounting (47.6%) of the study group. Furthermore, the study has shown that, the injuries occurred at home (45.2%) when children were playing. Majority of the patients (92.9%) who had occupational ocular injuries did not wear visual protective devices at the time of injury and all of them were males. The findings of this study revealed that about a half of traumatized eyes were blind (visual acuity of $< 3/60$) on the day of admission and on the day of discharge. 83.3% of the study population came late to the eye unit (more than six hours) and the treatment first in the periphery hospital was the main reason for this late presentation. **Conclusion:** The prevalence of ocular injury was high among children and young age and the injuries happened at home when children were playing.

377. **Pembe AB, Ndolele NT. Dysmenorrhoea and coping strategies among secondary school adolescents in Ilala district, Tanzania. *East African Journal of Public Health*. 2014; 8(3): 233-237.**

Background: Dysmenorrhoea is common problem among adolescents worldwide. Its prevalence varies greatly in different populations and ethnic groups. Adolescents with severe dysmenorrhoea may miss classes and other social activities. The aim of this study was to determine the prevalence and coping strategies for dysmenorrhoea among

secondary school adolescents in Ilala municipal, Tanzania. **Methods:** A cross sectional study was conducted in eight public and private secondary schools in Ilala municipal. A total of 880 girls in form II and form III who had attained menarche were interviewed using a self administered questionnaire between August and October 2007. **Results:** The mean age at menarche was 13.3 years with the youngest at nine years and the oldest at sixteen years. Six hundred fifty two (74.1%) girls had dysmenorrhoea. Backache, breast tenderness and non specific joint pains were significantly more common symptoms among adolescents with dysmenorrhoea than without dysmenorrhoea. Medication was used by 362 (55.5 %) girls to relieve dysmenorrhoea. Commonest medications used were paracetamol and diclofenac. Adolescents who missed school due to dysmenorrhoea were 154 (23.6%) and 140 (21.5%) missed social activities. **Conclusions:** High proportion of secondary school adolescents has dysmenorrhoea in Ilala municipal with a significant number missing school and social activities. Reproductive health education in primary and secondary schools should be enhanced to increase awareness and care seeking.

378. Pembe AB, Paulo C, Brenda SD, van Roosmalen J. Maternal mortality at muhimbili national hospital in Dar-es-Salaam, Tanzania in the year 2011. *BMC pregnancy and childbirth*. 2014; 14(1): 320.

Background: Improving maternal health is one of the eight millennium development goals adopted at the millennium summit in the year 2000. Within this frame work, the international community is committed to reduce the maternal mortality ratio by 75% between 1990 and 2015. The objective of this study was to determine the maternal mortality ratio, classify causes of maternal deaths and assess substandard care factors at Muhimbili National Hospital (MNH), Dar-es-Salaam in Tanzania. **Methods:** A retrospective review of all maternal death records of cases that occurred from 1st January to 31st December 2011 was done. **Results:** There were 10,057 live births, 155 maternal deaths and hence MMR of 1,541 per 100,000 live births. Direct causes of maternal deaths were classified in 69.5% of the maternal deaths. Of the direct causes, preeclampsia/eclampsia was the major cause (19.9% of all deaths), followed by post partum haemorrhage (14.9%), abortion complications (9.9%) and sepsis (9.2%). Among the indirect causes anaemia was the leading cause (11.3%) of all deaths, followed by

HIV/AIDS (9.9%). Substandard care factors contributing to deaths were identified in 116 (82.3%) of all cases. Among these 28 had patient factors only, 71 medical service factors while 17 had both patient and medical service substandard care factors. The common factors from the woman's side included delay in seeking care (73.3%) and complete lack of antenatal care (11.1%). Of the medical service factors, inadequate (26.1%) or no blood for transfusion (19.3%), delay in receiving treatment (18.3%) and mismanagement (17%) were the common factors. **Conclusion:** There is a high maternal mortality ratio at MNH. Hypertensive disorders of pregnancy, post partum haemorrhage and anaemia are the leading causes of maternal deaths in this institution. Multiple substandard care factors identified both at individual and health care service levels that contributed to maternal deaths. There is a need for increasing efforts in the fight to reduce maternal deaths at the institution. A more pro-active role from the referring facilities in the region is needed.

379. Penera K, Manji K, Wedel M, Shofler D, Labovitz J. Ankle Syndesmotic Fixation Using Two Screws: Risk of Injury to the Perforating Branch of the Peroneal Artery. *The Journal of Foot and Ankle Surgery*.2014; 53(5):534-538.

Trans-syndesmotic screws are commonly used to repair syndesmosis ruptures and stabilize the ankle joint. Just as with any surgery, the neurovascular structures can be compromised, causing complications. We evaluated the position of the perforating branch of the peroneal artery to define the risk of arterial compromise during placement of 2 trans-syndesmotic screws. In 37 cadaveric specimens, 2 trans-syndesmotic screws were inserted 2 and 4 cm proximal to the ankle joint. The distances between the perforating branch of the peroneal artery and the screws and the other anatomic landmarks were measured. Significant differences were calculated between the male and female limbs, and regression analysis was used to determine the significant associations between the tibial length and screw location. The perforating branch of the peroneal artery passed through the interosseous membrane 3.42 ± 0.6 cm proximal to the tibial plafond. The artery was located up to 4 mm from the superior and inferior screws 51.4% and 10.8% of the time, respectively. A greater percentage of male specimens displayed close proximity between the artery and the superior screw, and the distance of the artery from the distal fibula was statistically significant compared with the distance in the female specimens.

Regression analysis revealed that the greater the tibial length, the closer the superior screw was to the artery, with a negative correlation discovered for the inferior screw. We concluded that superior screw placement increased the risk of injuring the perforating branch of the peroneal artery injury, and the likelihood of injuring the artery with the inferior screw increased as the length of the tibia decreased

380. Penezina O, Krueger NX, Rodriguez-Chavez IR, Busch MP, Hural J, Kim JH, Levin AE. Performance of a redesigned HIV Selectest enzyme-linked immunosorbent assay optimized to minimize vaccine-induced seropositivity in HIV vaccine trial participants. *Clinical and Vaccine Immunology*. 2014; 21(3): 391-398.

Vaccine-induced seropositivity (VISP) or seroreactivity (VISR), defined as the reaction of antibodies elicited by HIV vaccines with antigens used in HIV diagnostic immunoassays, can result in reactive assay results for vaccinated but uninfected individuals, with subsequent misclassification of their infection status. The eventual licensure of a vaccine will magnify this issue and calls for the development of mitigating solutions in advance. An immunoassay that discriminates between antibodies elicited by vaccine antigens and those elicited by infection has been developed to address this laboratory testing need. The HIV Selectest is based on consensus and clade-specific HIV peptides that are omitted in many HIV vaccine constructs. The assay was redesigned to enhance performance across worldwide clades and to simplify routine use via a standard kit format. The redesigned assay was evaluated with sera from vaccine trial participants, HIV-infected and uninfected individuals, and healthy controls. The HIV Selectest exhibited specificities of 99.5% with sera from uninfected recipients of 6 different HIV vaccines and 100% with sera from normal donors, while detecting HIV-1 infections, including intercurrent infections, with 95 to 100% sensitivity depending on the clade, with the highest sensitivities for clades A and C. HIV Selectest sensitivity decreased in very early seroconversion specimens, which possibly explains the slightly lower sensitivity observed for asymptomatic blood donors than for clinical HIV cases. Thus, the HIV Selectest provides a new laboratory tool for use in vaccine settings to distinguish the immune response to HIV vaccine antigens from that due to true infection.

381. **Perfect KG. Prevalence and pattern of hearing loss among adult HIV/AIDS patients attending art clinic at Muhimbili national hospital Dar es Salaam, Tanzania. Master of Medicine (Otorhinolaryngology) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Introduction: Hearing is a complex sense involving both the ear's ability to detect sounds and the brain's ability to interpret those sounds, including the sounds of speech. Hearing loss is the most frequent sensory deficit in human populations, affecting more than 250 million people in the world. Consequences of hearing impairment include inability to interpret speech sounds, often producing a reduced ability to communicate, economic and educational disadvantage, social isolation and stigmatization. HIV/AIDS is among infectious diseases that has significant detrimental effects on the auditory system. As many as 75% of adults living with HIV are reported to experience at some point in time, auditory dysfunction secondary to HIV infection. The exact prevalence and mechanisms of auditory dysfunction remain unclear to date and poses challenges in the assessment, treatment and monitoring of these patients. Study by Khoza & Ross 2002 found that the prevalence of SNHL was higher compared to CHL. The prevalence of unilateral HL 22% was almost similar to that of bilateral HL (19.5%) with increase HL proportional to the progression of disease. The increase in SNHL was statistically significant with the progression of disease $P < 0.05$, chi-square). With the disease progression an increase the number of mild HL was also seen as well as an increased prevalence of bilateral SNHL.**Objective:**To determine the prevalence and pattern of hearing loss among HIV/AIDS adult patients attending ART clinic at Muhimbili National Hospital Dar es Salaam Tanzania.**Methodology:** A total of 371 HIV/AIDS adults patients attending ART clinic at MNH from July to December 2013 through convenient sampling were enrolled to participate in this study .Patients were interviewed by the structured questionnaire followed by otoscopic examination and pure tone audiometry. The patient's medical files were reviewed to get the recent CD4 count. All information obtained was entered in a computer and analyzed using SPSS version 17 software. Frequency and percentage was calculated to find the prevalence and pattern of hearing loss among the study population. The Chi-square test for proportions was used to determine the differences among different groups. **Results:** The study included 371 HIV/AIDS adults

patients 39.1% were males and 60.9% were females, 80.6% were on ART and 19.4% were not on ART. 33. The prevalence of hearing loss was 33.2%. As age advances from 30-39,40-49 and above 50 years there was an increase in hearing loss from 28.3%,30.4% and 57.7% respectively which was statistically significant($P<0.05$). The study found that SNHL was high 19.1%, followed by conductive 11.6% and mixed hearing loss 2.4% ($p<0.05$).Among the study population 32.3%, 30.5% and 37.2% were found to have hearing loss corresponding to CD4 <200 ,200-499, and >500 respectively. These findings were no statistically significant ($P>0.05$). There was an increase in the prevalence of SNHL15.5%, 18.1%, 22.5% and conductive hearing loss 10.8% 11.3%, 12.4% which was corresponding to increases in CD4 count CD4 <200 ,200-499, and >500 respectively. Mild hearing loss was found to be 23.5% with decrease in percentage as severity of hearing loss advances. There was high prevalence of hearing loss on those not on ART 44.4% compared to 30.4% on those on ART. These finding was statistically significance ($P <0.05$). **Conclusion:** The findings were corresponding well to certain findings that exist in the literature although some were different. Confounding factors such as noise exposure, use of ototoxic drugs, duration since onset of HIV and the duration of use ART also may contribute to the difference compared to other studies. Such factors should be addressed in future studies so clear correlation of the HIV and ART in the auditory system can be found.

382. Poddar S, Lingala SG, Jacob M. Joint recovery of under sampled signals on a manifold: Application to free breathing cardiac MRI. In Acoustics, Speech and Signal Processing (ICASSP), 2014 IEEE International Conference on. 2014; 6904-6908.

We introduce novel algorithms for the joint recovery of an ensemble of signals that live on a smooth manifold from their under sampled measurements. Unlike current methods that are designed to recover a single signal assuming perfect knowledge of the manifold model, the proposed algorithms exploit similarity between the signals without prior knowledge of the underlying manifold structure. Our first algorithm is a two-step scheme, where the Laplacian of the graph associated with the manifold is estimated from similar under sampled measurements made on the signals; this Laplacian is used to formulate the

problem as a penalized optimization scheme, where smoothness of the signals on the manifold is chosen as the penalty. The second algorithm is an iterative scheme that alternates between computation of the Laplacian and the signals. Validation of the proposed algorithms using simulations and experimental MRI data demonstrate their utility in accelerating free breathing cardiac MRI.

383. Portevin D, Moukambi F, Clowes P, Bauer A, Chachage M, Ntinginya NE, Geldmacher C. Assessment of the novel T-cell activation marker–tuberculosis assay for diagnosis of active tuberculosis in children: a prospective proof-of-concept study.*The Lancet Infectious Diseases*. 2014; 14(10): 931-938.

Background: The diagnosis of paediatric tuberculosis is complicated by non-specific symptoms, difficult specimen collection, and the paucibacillary nature of the disease. We assessed the accuracy of a novel immunodiagnostic T-cell activation marker–tuberculosis (TAM-TB) assay in a proof-of-concept study to identify children with active tuberculosis.**Methods:** Children with symptoms that suggested tuberculosis were prospectively recruited at the NIMR-Mbeya Medical Research Center in Mbeya, and the Ifakara Health Institute in Bagamoyo, Tanzania, between May 10, 2011, and Sept 4, 2012. Sputum and peripheral blood mononuclear cells were obtained for Mycobacterium tuberculosis culture and performance assessment of the TAM-TB assay. The children were assigned to standardised clinical case classifications based on microbiological and clinical findings.**Findings:** Among 290 children screened, we selected a subgroup of 130 to ensure testing of at least 20 with culture-confirmed tuberculosis. 17 of 130 children were excluded because of inconclusive TAM-TB assay results. The TAM-TB assay enabled detection of 15 of 18 culture-confirmed cases (sensitivity 83•3%, 95% CI 58•6–96•4). Specificity was 96•8% (95% CI 89•0–99•6) in the cases that were classified as not tuberculosis (n=63), with little effect from latent tuberculosis infection. The TAM-TB assay identified five additional patients with highly probable or probable tuberculosis, in whom M tuberculosis was not isolated. The median time to diagnosis was 19•5 days (IQR 14-45) for culture.**Interpretation:** The sputum-independent TAM-TB assay is a rapid and accurate blood test that has the potential to improve the diagnosis of active tuberculosis in children.**Funding:** European and Developing Countries Clinical Trials

Partnership, German Federal Ministry of Education and Research, and Swiss National Science Foundation.

- 384. Prasad RH, Hashim U, Foo KL, Adam T, Shafi M. Study the optical characteristic of ZnO nanostructure through annealing at various time periods. *Advanced Materials Research*. 2014; 832: 68-72.**

Main purpose of this research is to study the optical and electrical characteristic of zinc oxide material after undergoing annealing process at various time periods. Hypothesis of this research have proved that the physical properties of zinc oxide material have changed by increasing time period for annealing process due to changes of optical and electrical characteristic of ZnO material. Morphological observation shows that, the transmittance properties of ZnO material on glass substrate varies after annealing at time period 5 hours compare to annealing time of 3 hours followed by annealing time of 1 hour. All the annealing process is conducted at temperature 200°C. Zinc oxide is synthesized through a facile method which is known as sol-gel method. Sol-gel solution is prepared based on mixture of zinc acetate dehydrate and stabilizer mono ethanolamine (MEA) with ratio 1:1 and the mixture solution is left for more than 24 hours for precipitation process to occur. The prepared solution is then coated with 3 layers on silicon oxide substrate and annealed at time period of 1 hour, 3 hours and 5 hours. The annealed samples with different period of time are further characterized through UV-Vis test and electrical test.

- 385. Radzi FN, Yahya N. Evaluation of digital speckle filters for ultrasound images. In *Control System, Computing and Engineering (ICCSCE), 2014 IEEE International Conference on* (pp. 337-342).**

Ultrasound (US) images are inherently corrupted by speckle noise causing inaccuracy of medical diagnosis using this technique. Hence, numerous despeckling filters are used to denoise US images. However most of the despeckling techniques cause blurring to the US images. In this work, four filters namely Lee, Wavelet Linear Minimum Mean Square Error (LMMSE), Speckle-reduction Anisotropic Diffusion (SRAD) and Non-local-means (NLM) filters are evaluated in terms of their ability in noise removal. This is done through calculating four performance metrics Peak Signal to Noise Ratio (PSNR),

Ultrasound Despeckling Assessment Index (USDSAI), Normalized Variance and Mean Preservation. The experiments were conducted on three different types of images which is simulated noise images, computer generated image and real US images. The evaluation in terms of PSNR, USDSAI, Normalized Variance and Mean Preservation shows that NLM filter is the best filter in all scenarios considering both speckle noise suppression and image restoration however with quite slow processing time. It may not be the best option of filter if speed is the priority during the image processing. Wavelet LMMSE filter is the next best performing filter after NLM filter with faster speed.

386. Raja K, Jacob M, Asthana S. Portal Vein Thrombosis in Cirrhosis. *Journal of Clinical and Experimental Hepatology*. 2014; 4(4): 320-331.

Portal vein thrombosis (PVT) is being increasingly recognized in patients with advanced cirrhosis and in those undergoing liver transplantation. Reduced flow in the portal vein is probably responsible for clotting in the spleno-porto-mesenteric venous system. There is also increasing evidence that hypercoagulability occurs in advanced liver disease and contributes to the risk of PVT. Ultrasound based studies have reported a prevalence of PVT in 10–25% of cirrhotic patients without hepatocellular carcinoma. Partial thrombosis of the portal vein is more common and may not have pathophysiological consequences. However, there is high risk of progression of partial PVT to complete PVT that may cause exacerbation of portal hypertension and progression of liver insufficiency. It is thus, essential to accurately diagnose and stage PVT in patients waiting for transplantation and consider anticoagulation therapy. Therapy with low molecular weight heparin and vitamin K antagonists has been shown to achieve complete and partial recanalization in 33–45% and 15–35% of cases respectively. There are however, no guidelines to help determine the dose and therapeutic efficacy of anticoagulation in patients with cirrhosis. Anticoagulation therapy related bleeding is the most feared complication but it appears that the risk of variceal bleeding is more likely to be dependent on portal pressure rather than solely related to coagulation status. TIPS have also been reported to restore patency of the portal vein. Patients with complete PVT currently do not form an absolute contraindication for liver transplantation. Thrombectomy or thromboendovenectomy is possible in more than 75% of patients

followed by anatomical end-to-end portal anastomosis. When patency of the portal vein and/or superior mesenteric vein is not achieved, only non-anatomical techniques (reno-portal anastomosis or cavo-portal hemitransposition) can be performed. These techniques, which do not fully reverse portal hypertension, are associated with higher morbidity and mortality risks in the short term.

387. **Ramadhani F, Karyanta NA. Hubungan antara Resiliensi dan Kepercayaan Diri dengan Motivasi Berprestasi pada Penyandang Cacat Tubuh di Balai Besar Rehabilitasi Sosial Bina Daksa Prof. Dr. Soeharso Surakarta. Jurnal Ilmiah Psikologi Candrajiwa. 2014; 3.**

Motivasi berprestasi merupakan dorongan dalam diri individu untuk mencapai keberhasilan dengan melakukan sesuatu lebih baik dari sebelumnya. Penyandang cacat tubuh yang memiliki resiliensi dan kepercayaan diri dapat menumbuhkan motivasi berprestasinya. Tujuan penelitian ini adalah untuk mengetahui: (1) Hubungan antara resiliensi dan kepercayaan diri dengan motivasi berprestasi pada penyandang cacat tubuh, (2) Hubungan antara resiliensi dengan motivasi berprestasi pada penyandang cacat tubuh, (3) Hubungan antara kepercayaan diri dengan motivasi berprestasi pada penyandang cacat tubuh. Populasi dalam penelitian ini adalah penyandang cacat tubuh di BBRSBD Prof. Dr. Soeharso Surakarta dengan kriteria pria dan wanita, usia 20-40 tahun, pendidikan minimal SMP, IQ normal, mengalami kecacatan karena penyakit atau kecelakaan sebanyak 75 orang, tetapi pada pelaksanaan penelitian ada 7 orang tidak hadir, sehingga total responden menjadi 68 orang. Instrumen penelitian menggunakan skala motivasi berprestasi koefisien validitas 0,305 hingga 0,676 dan reliabilitas 0,880, skala resiliensi koefisien validitas 0,277 hingga 0,632 dan reliabilitas 0,890, dan skala kepercayaan diri koefisien validitas 0,280 hingga 0,732 dan reliabilitas 0,941. Teknik analisis data yang digunakan untuk menguji hipotesis pertama analisis regresi linier berganda dan untuk menguji hipotesis kedua dan ketiga korelasi parsial. Hasil analisis regresi linier berganda diperoleh nilai koefisien korelasi (R) sebesar 0,821, $p < 0,05$, dan $F_{hitung} 67,454 > F_{tabel} 3,138$. Hasil tersebut menunjukkan bahwa ada hubungan antara resiliensi dan kepercayaan diri dengan motivasi berprestasi pada penyandang cacat tubuh. Hasil analisis korelasi parsial menunjukkan bahwa ada hubungan antara resiliensi dengan

motivasi berprestasi pada penyandang cacat tubuh dengan koefisien korelasi sebesar 0,417, $p < 0,05$, serta ada hubungan antara kepercayaan diri dengan motivasi berprestasi pada penyandang cacat tubuh dengan koefisien korelasi sebesar 0,249, $p < 0,05$. Persentase sumbangan variabel resiliensi dan kepercayaan diri terhadap variabel motivasi berprestasi sebesar 67,5%.

388. **Ramadhan AH. Spine Injuries; Pattern, Mechanism of Injury and Management Outcomes among Patients Admitted At Muhimbili Orthopedic Institute. Masters of Medicine (Orthopedics and Grammatology) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Spine injury is trauma to the cord and/or its surrounding structures including the vertebral bones, ligaments and blood vessels as a result of an externally applied mechanical force. Some etiologic factors include road traffic accident, fall, missile, assault, domestic / industrial accident and sport / recreational activity. Acute injuries of the spine and spinal cord are among the most cause of severe disability and death after trauma. Acute management includes medical agents and surgical treatment that usually includes either all or a combination of reduction, decompression, and stabilization. In our settings very little is known regarding the prevalence, age, gender, anatomical levels, mechanism of injuries and management outcomes among patient with SCI. This study have helped us to understand the pattern, mechanism, management outcomes and the burden of spine injured patients admitted at MOL, thus will help to plan on care of these patients and improve rehabilitation services. **Objective:** To determine patterns, mechanism of injury and management outcomes among patients with spine injuries treated at MOL **Methodology:** Hospital based descriptive cross sectional study was conducted at MOL Forty five patients with spine injuries admitted at Muhimbili Orthopedic Institute were enrolled in this study from March 2013 to February 2014. Structured questioners were used to interview the patients. **Results:** Forty five patients were interviewed, two patients died during the course of study. Male were 42(93.3%) and Female 3(6.7%). Male to Female ratio (14:1). With a mean age of 34.5 ± 9.4 years. The most affected individuals were in the age group 26 - 45 years (68.9%). MVC were the leading cause of spine injury and it occurred in 29 patients (64.4%). The cervical spine was most affected segment of

the spine (53.3%), followed by thoracic spine (28.9%) and lumbar spine (17.8%). Neurological deficit was observed in 31 patients (ASIA A-D) and 14 patients had no neurological deficit, (ASIA E), compression fracture (type A) and distraction injury (type B) account 91.1% and rotational injury (type C) occurred in 8.9% of patients. Among nonsurgical treated patients, 3(30.0%) patients neurologically improved. Surgical treatment was done in twenty one patients of which, 9(42.9%) patients neurologically improved. P- value: 0.72. **Conclusion:** .Young adult males are majority of patients who sustained spine injuries follows MVC. The cervical spine was, the most common level of injury with complete neurologic deficit predominating.

389. **Raymond L. Clinical Characterization of Tinnitus and Its Effect on Quality Of Life among Patients Attending ENT Clinic at Muhimbili National Hospital. Master of Medicine (Otorhinolaryngology) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Introduction: Tinnitus is a prevalent problem. It can cause significant levels of distress including anxiety, irritability, depression, sleep disturbances, obsessive compulsive disorders and summarization to its sufferer thereby affecting their quality of life (QOL). These effects affect the response to treatment and can be measured using self reported questionnaires like the Tinnitus Handicap Inventory. This study will describe the characteristics of tinnitus and its impact on the QOL of adult sufferers in the Muhimbili Hospital ENT clinic. **Objective:** To determine clinical characteristics of tinnitus patients attending ENT clinic in Muhimbili and their effects on quality of life Study Design: A Descriptive cross-sectional hospital based study. Study Location; The study was conducted between august 2013 and January 2014 at the ENT outpatients' clinic, Muhimbili Hospital, Dar es Salaam Tanzania. **Subjects and Methods:** A total of 1181 attended ENT clinic at Muhimbili National hospital and 92 patients had tinnitus. The instrument for the data collection was a close-ended questionnaire that elicited information on demographic, Tinnitus handicap inventory score to ass's quality of life and history of tinnitus from the sample population. Data analysis was done by using the statistical package for social science (SPSS version 11). The results presented using, descriptive statistics, cross-tabulation and test of associations **Results:** 1181 patients were

screened during the study period, 92 (7.8%) were found to have tinnitus. 52 (56.5%) were males and 40(43.5%) were females. The most affected age group being 39- 48years (24%). Most patients had tinnitus for 4weeks to 1year(39.1 %), most prevalent origin being the right ear(53.3%).Quality of life was affected slightly in 75% of patients with tinnitus and among the slightly affected group, age group 29-38year were more prevalent.(84%) $p=0.12$. Female had 83.5% in slightly affected group with $p=0.21$. Number of type of tinnitus heard had impact on quality of as those with more than one type of tinnitus heard had more moderate to catastrophic effects.(79%) $p=0.002$. Patients who had tinnitus for less than 4 weeks their quality of life was affected moderate to catastrophic with 63%. $p=0.04$. **Recommendation:** The study had limitations of short duration, small sample and lack of equipments that could match the tinnitus pitch. Long duration studies incorporating adequate researchers to increase power of study and proper equipments are required to get sufficient data for analysis so as to establish proper treatment options of tinnitus among our settings.

390. **Rugaimukamu MW The Challenges Facing Primary School Teachers In Teaching Health Education In Temeke Municipality Dar es Salaam Tanzania Master of Public Health Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: The provision health education is important in achieving quality health education and assisting children to build their future status. Teaching of health education in Temeke Municipality has not been effectively provided due to mainly challenges affecting the teachers. The competency of teachers teaching science or health education in Temeke Municipality primary schools and the competency influencing factors such as teachers' background knowledge in health education and the criteria used to assign teachers to teach science subjects was not well known. Further the primary schools health sanitation status was not well known. Main Objective: The main objective of this study was to identify challenges faced by teachers who teach health education in primary schools in Temeke Municipality, Dar es Salaam. **Method:** A cross-sectional descriptive study using both qualitative and quantitative approaches was used to generate data for this study. Semi structured questionnaires were administered to 265 science subject

teachers in selected primary schools. Multi- stage sampling was used to get the study sample. First, two divisions out of the three divisions in the municipality were selected. Then one ward was picked from each of the selected divisions. All primary schools within the selected wards were included in the study. Finally, all science subject teachers from the selected schools were recruited as study participants. Observation method was used to assess the hygienic status of the school toilets. **Results:** The result shows that almost a third of the science teachers never received health education training before they started teaching in primary schools; few had been exposed to in-service training. More than three quarters (76.6%) of the study participants were assigned by school authority to teach the subject based mainly on their pre-service background knowledge from the teachers' training institutes. More than half (55%) of the pupils' toilets were dirty in comparison with less than half (45 %) of the teachers' toilets. Though health education teaching guidelines were in place, the quality of health education was, in most schools found to be highly challenged by limited resources, high number of pupils to available few teachers and facilities and limited knowledge of teachers to teach health education. Conclusion The study concluded that limited of resources and lack of adequate competence of teachers was the main cause leading to ineffective provision of health education in Temeke Municipality primary schools. Most teachers had received inadequate in- service training and in-service development on health education. **Recommendations:** I t is recommended to improve the pre-service and in-service training system in Tanzania. As well as to define the criteria and the authority for appointing teachers, by providing required resources for teaching health education in primary schools.

391. Rashid S, Kilewo C, Aboud S. Seroprevalence of hepatitis B virus infection among antenatal clinic attendees at a tertiary hospital in Dar es Salaam, Tanzania. *Tanzania Journal of Health Research.* 2014; 16(1).

Hepatitis B virus (HBV) infection is a serious public health problem in sub-Saharan Africa. The risk of vertical transmission increases if the mother is hepatitis B surface antigen (HBsAg) positive and more so when she is also hepatitis B envelope antigen (HBeAg) positive. Since 2000, the World Health Organization recommends screening of

pregnant women for HBV infection. However, this is not currently practiced in Tanzania. The objective of this study was to determine seroprevalence and associated factors of HBV infection among pregnant women attending antenatal clinic at the Muhimbili National Hospital, in Dar es Salaam, Tanzania. This cross-sectional study was conducted from August-September 2010. Data on socio-demographic characteristics, obstetric and risk factors such as history of blood transfusion, and risky sexual practices was collected. Blood samples were tested for HBsAg, HBeAg, antibodies to HBsAg (Anti-HBs), IgM antibodies to hepatitis B core antigen (Anti-HBc) and anti-HIV antibodies. A total of 310 pregnant women (28.5±5.4 years) were enrolled in the study. Thirty-one percent (96) of the women were primigravidae. Most of studied women were of low educational status and married. The seroprevalence of HBsAg was 3.9% (12/310) and none had detectable anti-HBs. None had IgM HBcAb, thus excluding acute HBV infection. All women tested negative for HBeAg. The overall seroprevalence of HIV infection was 9.7%. Three of 12 (25%) women had HBV-HIV co-infection. None of the assessed associated factors were significantly related to HBV infection. In conclusion, the seroprevalence of HBsAg among women attending antenatal care at Muhimbili National Hospital is moderate. It is recommended to introduce routine antenatal screening for HBV and “at birth dose” vaccination to new born babies of mothers found to be HBsAg positive.

392. **Rasper M, Gramer BM, Settles M, Laugwitz KL, Ibrahim T, Rummeny EJ, Huber A. Dual-source RF transmission in cardiac SSFP imaging at 3 T: systematic spatial evaluation of image quality improvement compared to conventional RF transmission. *Clinical imaging*.2014.**

The purpose of this investigation was to systematically evaluate the spatial distribution of image quality improvement with dual-source radiofrequency (RF) transmission in cardiac steady-state free precession sequences at 3.0 T. imaging with and without dual-source RF transmission was performed in 30 patients. Contrast-to-noise ratio for the left ventricular myocardium was significantly higher using dual-source RF transmission, but improvement was not uniformly distributed. The posterior myocardium showed significantly less contrast-to-noise ratio gain than all other cardiac regions. Signal-to-

noise ratio increase was higher in the right than in the left ventricle. Subjective image quality was significantly enhanced by parallel RF transmission.

- 393. Raymond NC, Osman W, Jennifer MO, Ali N, Kia F, Mohamed F, Okuyemi K. Culturally informed views on cancer screening: a qualitative research study of the differences between older and younger Somali immigrant women. *BMC public health*.2014; 14(1): 1188.**

Background: Somali women are infrequently screened for breast or cervical cancer, and there is a paucity of evidence-based interventions to increase cancer screening in this community. In order to create a culturally relevant intervention for Somali women living in Minnesota, we sought to understand what Somali immigrant women know about breast and cervical cancer, what the attitudes toward screening are and what cultural barriers are there to screen as well as cultural factors that would facilitate screening. **Methods:** In partnership with a community-based organization, New American Community Services (NACS), focus groups were conducted to explore the issues described above. Two focus groups were held with younger women age 20 to 35 and two were held with women age 36 to 65. **Results:** Twenty-nine women participated in the four focus groups. The women identified 1) differences in health care seeking behavior in Somalia verses the United States; 2) cultural understanding of cancer and disease; 3) barriers to mammogram or Pap screening; 4) facilitators to seeking preventive cancer screening; and 5) risk factors for developing cancer. **Conclusions:** Cultural misperceptions and attitudes need to be addressed in developing culturally-appropriate interventions to improve screening uptake for Somali women. A nuanced response is required to address barriers specific to younger and older groups. Culturally informed beliefs can be integrated into intervention development, preventive care and screening promotion.

- 394. Rehema K. Exposure To Sexual Materials And Perceived Implications Among Secondary School Students In Ilala District - Dar Es Salaam Region, Tanzania. Master of Public HealthDissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: There is a growing concern of young people particularly secondary school students, globally and nationwide on the exposure to sexual contents/materials through television, music, video, internet, pornographic pictures, x-rated movies and other electronic media. Such exposure has negative health outcomes to school students like risky sexual behaviours, early pregnancy, HIV/AIDs, substance use, sexual victimization and maternal mortality.**Objective:** This study aimed at investigating secondary school students' exposure to sexual materials and their perceived implications, in Ilala District, Dar es Salaam region, Tanzania. **Methodology:** A cross sectional study was conducted among secondary school students in Ilala District, Dar es Salaam in the private and government secondary schools. A total of 426 students were enrolled for the study. Quantitative approach was used to collect data through questionnaires with structured questions were given to the Form Four students aged 15 years and above to fill in and come up with data which was analysed by using SPSS.**Results:** Respondents who had been exposed to sexual materials reported that accessing sexual materials results into sexual fantasies, having interest in sex and masturbation. Respondents who had ever been exposed to sexual materials were statistically significant ($p < 0.000$) they ever had sexual intercourse as well as having practiced vaginal sex. The results also showed that, out of 407 respondents, 57.4% had their first sexual intercourse when they were 15 years or below and 52.5% used condom during the last sexual intercourse.**Conclusion and Recommendation:** It was concluded that secondary school students were exposed to sexual materials than what the society expected. Therefore, further research should be done on a large sample size in order to establish the magnitude of the problem of exposure to sexual materials and perceived implications among secondary school students instead of only this cross-sectional study that was based in one district in Dar es Salaam.

395. **Rehema M. Assessment of First Line Antiretroviral Treatment Failure and Recognition of Treatment Failure in Coast Region, Tanzania. Masters of Public Health Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: Tanzania in collaboration with PEPFAR has scaled up access to care and treatment services where 384,816 PLHIV are on Anti Retroviral Therapy. Reported rates in coast region of identification of 1st line therapy failure is low, where by viral load test is un available, clinicians must use immunological and clinical criteria to define HIV virological treatment failure. This study aimed to explore different factors and magnitude of antiretroviral 1st line failure.**Objectives:** To determine prevalence and factors associated with recognition of 1st line antiretroviral therapy failure in care and treatment clinics settings in the Coast Region. **Materials and Methods:** Analytical cross sectional study conducted from Nov 2011 to March 2012 to PLHIV on ART for at least 12 months and 54 health care providers' providing services at seven District hospitals. Four facilities were randomly selected then systematic sampling used to select registration unique numbers of files records for data extraction of PLHIV files for treatment failure. A structured questioner and a checklist with structured questions used to capture information from health care providers and PLHIV files. The study investigated reasons associated with low ART treatment failure identification and the associated factors from the health care providers' knowledge and settings. Knowledge was measured by direct questions yes, no and I don't know and later coded on likerts scale, into low and high knowledge, data were tabulated and cross tabulations and logistic regression were done and analyzed using SPSS 11.5 computer software to determine proportion of and factors associated in identification of 1st line immunological treatment failure. Summary statistics and associations were examined using chi square and fisher's exact tests. P values < 0.05 were used to test associations of the findings.**Results:** A total of 336 PLHIV and 54 health care providers were included in the study. PLHIV mean age in years was 39.5 standard deviation 13.4 years ranged between 11 months to 72 years. 181 (53.9%) were males. Majority 221 (65.8%) of PLHIV had been on ART for a period of 3 -5 years. The respondent's median duration in ART was four (4) years.Among three hundred and thirty six 250(74.4%) of PLHIV who were on ART for more than 1 year met the minimum criteria for assessment of 1st line ART treatment failure. Twenty nine (8.6%) PLHIV had sings suspected to have 1st line ART failure by immune clinical criteria. One (0.6%) was on second line treatment Mean baseline, current and peak CD4 cells were 164,421,512 cells mm³/l respectively. Standard deviations 159,272 and 315

respectively. Two hundred and thirty four (94.7%) clients enrolled with low immune response less than 350 cells, while on ART more than half 156(51%) of PLHIV had CD4 values between increased to 350-700. Duration in ART has slightly associated with failure, were those on ART for six years and more had eight-fold increased odds of 1st line ART failure as compared with those had been on ART for less than three years.(OR=8.1;95% CI=1.0,68.2)Among 54 health care workers enrolled Clinicians were 32(59.2%). Among clinicians 80% had low knowledge in diagnosis and management of patients with 1st line ART failure.**Conclusions:** Duration in ART associated with ART first line failure. Factors associated with low identification in health care workers perspective is unavailability of viral load machine at the setting and knowledge gap in management of 1st line ART failure. Provision of on job trainings and supervisions into middle level service delivery is important for quality management of chronic HIV/AIDS. Coast Regional Hospital to have viral load machine as a standard of care and monitoring PLHIV on treatment.

396. Reither K, Katsoulis L, Beattie T, Gardiner N, Lenz N, Said K, Churchyard GJ. Safety and Immunogenicity of H1/IC31®, an Adjuvanted TB Subunit Vaccine, in HIV-Infected Adults with CD4+ Lymphocyte Counts Greater than 350 cells/mm³: A Phase II, Multi-Centre, Double-Blind, Randomized, Placebo-Controlled Trial. *PloS one*. 2014; 9(12): e114602.

Background: Novel tuberculosis vaccines should be safe, immunogenic, and effective in various population groups, including HIV-infected individuals. In this phase II multi-centre, double-blind, placebo-controlled trial, the safety and immunogenicity of the novel H1/IC31 vaccine, a fusion protein of Ag85B-ESAT-6 (H1) formulated with the adjuvant IC31, was evaluated in HIV-infected adults.**Methods:**HIV-infected adults with CD4+ T cell counts >350/mm³ and without evidence of active tuberculosis were enrolled and followed until day 182. H1/IC31 vaccine or placebo was randomly allocated in a 5:1 ratio. The vaccine was administered intramuscularly at day 0 and 56. Safety assessment was based on medical history, clinical examinations, and blood and urine testing. Immunogenicity was determined by a short-term whole blood intracellular cytokine staining assay.**Results:**47 of the 48 randomised participants completed both vaccinations.

In total, 459 mild or moderate and 2 severe adverse events were reported. There were three serious adverse events in two vaccinees classified as not related to the investigational product. Local injection site reactions were more common in H1/IC31 versus placebo recipients (65.0% vs. 12.5%, $p = 0.015$). Solicited systemic and unsolicited adverse events were similar by study arm. The baseline CD4+ T cell count and HIV viral load were similar by study arm and remained constant over time. The H1/IC31 vaccine induced a persistent Th1-immune response with predominately TNF- α and IL-2 co-expressing CD4+ T cells, as well as polyfunctional IFN- γ , TNF- α and IL-2 expressing CD4+ T cells.**Conclusion:**H1/IC31 was well tolerated and safe in HIV-infected adults with a CD4+ Lymphocyte count greater than 350 cells/mm³. The vaccine did not have an effect on CD4+ T cell count or HIV-1 viral load. H1/IC31 induced a specific and durable Th1 immune response.

397. **Reither K, Manyama C, Clowes P, Rachow A, Mapamba D, Steiner A, Lwilla F. Xpert MTB/RIF assay for diagnosis of pulmonary tuberculosis in children: A prospective, multi-centre evaluation. *Journal of Infection*. 2014.**

Background: Following endorsement by the World Health Organisation, the Xpert MTB/RIF assay has been widely incorporated into algorithms for the diagnosis of adult tuberculosis (TB). However, data on its performance in children remain scarce. This prospective, multi-centre study evaluated the performance of Xpert MTB/RIF to diagnose pulmonary tuberculosis in children.**Methods:** Children older than eight weeks and younger than 16 years with suspected pulmonary tuberculosis were enrolled at three TB endemic settings in Tanzania and Uganda, and assigned to five well-defined case definition categories: culture-confirmed TB, highly probable TB, probable TB, not TB, or indeterminate. The diagnostic accuracy of Xpert MTB/RIF was assessed using culture-confirmed TB cases as reference standard.**Results:** In total, 451 children were enrolled. 37 (8%) had culture-confirmed TB, 48 (11%) highly probably TB and 62 probable TB (13%). The Xpert MTB/RIF assay had a sensitivity of 68% (95% CI, 50%–82%) and specificity of 100% (95% CI, 97%–100%); detecting 1.7 times more culture-confirmed cases than smear microscopy with a similar time to detection. Xpert MTB/RIF was positive in 2% (1/48) of highly probable and in 3% (2/62) of probable TB

cases. **Conclusions:** Xpert MTB/RIF provided timely results with moderate sensitivity and excellent specificity compared to culture. Low yields in children with highly probable and probable TB remain problematic.

398. **Reyes-Bahamonde J, Raimann JG, Canaud B, Etter M, Kooman JP, Levin NW, Carrero JJ. CKD GENERAL AND CLINICAL EPIDEMIOLOGY 1. *Nephrology Dialysis Transplantation*. 2014; 29(3): iii124-iii139.**

Introduction and Aims: In hemodialysis (HD) patient's low pre-HD serum sodium (SNa⁺) and high Na⁺ gradients have been associated with higher mortality. Increased pre-HD SNa⁺ variability has been linked to mortality, while stable SNa⁺ levels are associated with better survival. Here we investigated the joint relationship of SNa⁺ variability (expressed as standard deviation, SD) and rate of change of SNa⁺ (slope of SNa⁺) with the risk of all-cause death in incident HD patients. **Methods:** We studied 20,193 incident HD patients (age 63.3±15.0 years, 59% males, 34% diabetic, relative interdialytic weight gain (IDWG %) 2.9%±1.0%, BMI 26.9±7.5 kg/m²) from Europe (N=14,763) and the U.S. (N=5,430). During baseline (first 12 months on HD) mean SNa⁺, SNa⁺ slope and SNa⁺ SD were computed. Patient outcomes were noted in months 13 to 24 (follow-up). We investigated the joint effects of SNa⁺ and a) SNa⁺ variability and (b) SNa⁺ slopes, respectively, during baseline on probability of death during follow-up using logistic regression with smoothing spline ANOVA models. Models were adjusted for age, gender, diabetes, IDWG%, serum albumin, phosphorus and BMI. **Results:** Risk of death was lowest with SNa⁺ around 138 to 141 mEq/L and SNa⁺ SD of 0 to 2 mEq/L. Deviations from this region in any direction were associated with increased risk. The increase in mortality risk associated with higher SNa⁺ variability was steepest at SNa⁺ levels <135 mEq/L (Fig 1). Stable SNa⁺ conferred the lowest risk with SNa⁺ levels around 139 to 142 mEq/L (Fig 2). Mortality risk progressively increased outside of this domain. Of note, over the range of our data, SNa⁺ departures from this range carried a steeper risk increase than departures in SNa⁺ slope. Lastly, while patients with SNa⁺ >136 mEq/L realized their best survival probability with SNa⁺ slopes around zero, in patients with SNa⁺ <136 mEq/L more positive SNa⁺ slopes were always linked to better survival along the entire range of SNa⁺ slopes (Fig 2). View larger version: In this

page in a new window download as PowerPoint Slide Figure 1 Estimated probability of death as a function of SNa+ SD for male, diabetic patients with other continuous variables fixed at their median values. View larger version: In this pageIn a new window Download as PowerPoint Slide Figure 2 Estimated probability of death as a function of SNa+ slope for male, diabetic patients with other continuous variables fixed at their median values. **Conclusions:** In line with earlier findings, this joint analysis of SNa+, SNa+ slope and SNa+ variability suggests effects of SNa+ variability and rate of change at all levels of SNa+ on mortality. Stable SNa+ appears to confer a survival benefit, whereas low SNa+ levels associate with an increased risk of all-cause death. Further research into these dynamic aspects of SNa+ levels may help to identify patients at increased risk.

399. **Ricci M, Amadori E, Chiesa F, Bongiovanni A, Liverani C, Fabbri L, Ibrahim T. Single bone metastasis from adenocarcinoma of the lacrimal gland: a case report. *Future Oncology*. 2014; 10(10): 1735-1739.**

Malignant tumors of the lacrimal gland are rare, and single bone metastases from lacrimal gland carcinoma are an exceptional event. We present the case of a 71-year-old man with a history of lumbar pain and left exophthalmos. Surgical resection of the lacrimal lesion and a bone biopsy gave a final histopathological diagnosis of primary ductal adenocarcinoma of the lacrimal gland with bone metastasis. The pathological tissue from both procedures was positive for androgen receptor expression. The patient underwent embolization and radiotherapy in association with total androgen blockade. After 20 months, the patient is still asymptomatic and has maintained the partial response at L1 with no progression to other sites. Our patient would appear to have a better prognosis and the disease a more indolent clinical course than the other cases of ductal adenocarcinoma of the lacrimal gland reported in the literature.

400. **Richard TM. The Diagnostic Value Of Digital Rectal Examination And Prostate Specific Antigen In Patients Suspected To Have Carcinoma Of Prostate At Two Dar Es Salaam Hospitals. Master of Medicine (General Surgery) *Dissertation* 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: The purpose of this study was to establish the diagnostic value of DRE and PSA among males suspected to have Pca at two Dar es salaam Hospitals.**Methodology:** A prospective descriptive cross sectional hospital based study conducted in Muhimbili National Hospital and Tumaini Hospital Dar es salaam. Patients were interviewed by researcher and research assistant. DRE findings and PSA values were sought from patient's notes. Histopathology results were sought from Central Pathology Laboratory. During analysis digital rectal examination findings were redefined as normal and abnormal. Abnormal were considered when prostate had hard nodule, asymmetry with obliteration of median sulcus, fixity to rectal mucosa or hard consistency. PSA were also grouped into two groups taking 4ng/ml as a cutoff point. The data were analyzed using SPSS software.**Results:** Three hundred and seventy-three patients were enrolled in the study with mean age 70.72 years and range from 45 to 102 years. The peak age group was 61-70 comprising 40% of study population. The youngest age at diagnosis was 49years.Two hundred thirty eight patients making 64.6% of patients were residing from Dar es Salaam. The rest came from other regions. Of the 373 patients enrolled 142 (38%) were found to have prostate carcinoma. The sensitivity , specificity and positive predictive value of DRE was 76.8%,82.3% and 0.82 respectively; while for PSA respective values were 100%,29% and 0.47.Eighty eight percent of patients with PSA above 50ng/ml were diagnosed to have prostate carcinoma. Combination of DRE and PSA had a positive predictive value of 0.87making diagnosis accuracy of 87% when the two tests were combined. All patients with serum PSA value above 91.35ng/ml were diagnosed with prostate cancer. Of 65 patients whose Gleason's scores were reported, 70.8% were 8 and below.**Conclusion:** Digital rectal examination and Prostate Specific Antigen provide good discrimination between patients with and without prostate cancer when these two tests combined. In this study the diagnosis accuracy of DRE and PSA alone was low compared with the diagnosis accuracy of the two combined which was 0.87. So as per WHO recommendations, these two tests should be used together since they complement each other. Furthermore the PSA has been found to have very low specificity, in this study 29%, necessitating the usefulness of DRE in categorizing and prioritizing patients with prostatic disease to undergo needle biopsy and who not.Likewise, in this study all patients with PSA above 91.35ng/ml were diagnosed as

prostate carcinoma. In environment where the gold standard Trucut needle biopsy cannot be performed, for instance in absence of a pathologist, absence of Trucut needle, lack of patients tolerance or cooperation ,the two tests can be diagnostic.

401. Riss S, Chandrakumaran K, Dayal S, Cecil TD, Mohamed F, Moran BJ. Risk of definitive stoma after surgery for peritoneal malignancy in 958 patients: Comparative study between complete cytoreductive surgery and maximal tumor debulking. *European Journal of Surgical Oncology (EJSO)*.

Introduction: Complete cytoreductive surgery (CRS) can achieve cure or long-term survival in selected patients with peritoneal malignancy. In selected patients, due to extensive disease, complete tumour removal is impossible and optimal strategy may be maximal tumour debulking (MTD). We analysed the stoma related outcome in a series of patients undergoing surgery in a National Peritoneal Malignancy Referral Centre. **Methods:** All patients who underwent CRS, with or without, intra-operative hyperthermic intraperitoneal chemotherapy (HIPEC) between 1994 and 2012 were included. Data was collected prospectively in an institutional database and analysed retrospectively. **Results:** CRS was performed in 958 patients (female: 595, male: 363) of whom 781 (81.5%) had a primary appendix tumour, 63 (6.6%) had a colorectal primary, 47 (4.9%) peritoneal mesothelioma, 38 (4%) an ovarian tumour and 29 patients (3%) other tumours. Complete CRS was achieved in 72% (693/958). Overall 352/958 (37%) had a stoma, which was permanent in 165/958 (17.2%). The median time interval from CRS to reversal of stoma was 4.4 months (range: 1.4–13.8). Stomas were created in 113/265 (42.6%) at MTD (permanent: n = 105 (93%), temporary: n = 8 (7%)), and 239/693 (34.5%) at complete CRS (permanent: n = 60 (25%), temporary: n = 179 (75%)) (p = 0.020). All temporary stomas in the 168/693 (24.4%) of patients who had complete CRS were subsequently reversed. **Conclusion:** To achieve complete CRS for peritoneal malignancy a stoma is often required and in a proportion this will be permanent. Overall over one third had a stoma at surgery with almost half subsequently reversed.

402. Ritte SA, Kessy AT Social factors and lifestyle attributes associated with nutritional status of people living with HIV/AIDS attending care and treatment

clinics in Ilala district, Dar es Salaam. *East African journal of public health.* 2014; 9(1): 33-38.

Objective: Tanzania is one of the countries that suffer huge burden of malnutrition and food poverty with over two million people living with HIV/AIDS. Despite ongoing nutritional interventions in care and treatment clinics for people living with HIV/AIDS (PLWHA), a high proportion of them still face nutritional problems, with about 29% being underweight. This study therefore aimed assessing social factors and lifestyle attributes associated with nutritional status among adults living with HIV/AIDS and attending care and treatment clinics (CTCs) in an urban district in Tanzania.**Methods:** An interview schedule was administered to 412 randomly selected adult male and female clients attending different CTCs in Ilala district. Their anthropometric measurements i.e. body weights and heights were also taken.**Results:** Findings revealed that 18.4% of males and females were underweight according to their body mass indices. The risk of being underweight was higher among respondents who were young; who had never married; had no formal education as well as those who reported to be living with their families or friends, although these associations were not statistically significant. On the other hand, factors which had statistically significant association with nutritional status included the type of persons the client was living with and the habit of drinking alcohol.**Conclusion:** From the findings we conclude that PLWHA attending Care and Treatment Clinics in Ilala district, Dar es Salaam have problems with their nutrition with underweight being common among them. This suggests that the existing care and treatment clinics that provide nutritional support to PLWHA do not appear to address these issues in their totality. There is therefore, need to ensure that more efforts are geared towards providing nutritional counseling, support and encouragement of these clients within social contexts of their lives in order for the current efforts to give best results.

403. Runyoro DKB, Ngassapa O, Kachali L, Obare V, Lyamuya EF. Biological activities of essential oils from plants growing in Tanzania. *East and Central African Journal of Pharmaceutical Sciences.* 2014; 13(3).

Essential oils from eleven plant species belonging to the Asteraceae, Lamiaceae, Lauraceae and Myrothamnaceae families growing in Tanzania were screened for

mosquito larvicidal and anti-candida activities, and were subjected to the brine shrimp lethality test. In the larvicidal and brine shrimp tests, the organisms were exposed to varying oil concentrations for 24 h, after which mortality was assessed. The anticandida activity was determined using the bioautography agar overlay method. All oils showed larvicidal activity with two *Ocimum suave* oil samples being the most active with LC50 values of 169.8 and 151.3 ppm. The same *Ocimum suave* oils also exhibited the highest brine shrimp mortality (LC50 4.0 and 12.6 ppm). Most of the oils showed anti-candida activity, with oils from *Ocimum* species being the most active compared to the others. Thus, *Ocimum suave* oils merit further investigation towards the development of safe and biodegradable larvicides. Furthermore, oils from *Ocimum basilicum* and *Ocimum kilimandscharicum* could offer useful alternatives for combating candidiasis, a common opportunistic infection in HIV/AIDS patients.

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405. **Sabrina K. Prevalence of Depression and Anxiety Symptoms among Patients Attending Outpatient Clinic at Hindu Mandal Hospital, Dar es Salaam. Master of Medicine (Psychiatry and Mental Health) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Introduction: Depression is a significant contributor to the global burden of disease and affects people in all communities across the world; often occurring with symptoms of anxiety. Patients with depression and anxiety present with a combination of psychological and somatic symptoms and are more likely to make contact with primary healthcare providers. They are, however, usually undiagnosed, and therefore untreated. These conditions can become chronic or recurrent and lead to substantial impairments in an individual's functioning in multiple domains. There is a paucity of research on prevalence of depression and anxiety among patients attending primary health clinics in Tanzania. The focus of available research has been on common mental disorders in general. Considering the adverse impact of undiagnosed and therefore untreated depression and anxiety, it is critical to know the extent of the problem so that appropriate measures can be taken to intervene as early as possible. **Objectives:** This study aimed at estimating the prevalence of depression and anxiety symptoms and associated risk factors (socio-demographic factors, environmental factors and chronic illnesses) among patients attending OPD clinic at Shree Hindu Mandal Hospital, Dar es Salaam, Tanzania. **Methods:** This was a hospital based descriptive cross sectional study, using quantitative data collection methods. Applying systematic random sampling procedure 420 patients who met eligibility criteria and consented were included in this study. A researcher administered structured questionnaire was used for data collection and included information on sociodemographic characteristics, environmental factors and presence of chronic physical illnesses. The 25-items of the Hopkins Symptom Checklist (HSCL-25) which has 15 questions for depression and 10 questions for anxiety was used to estimate the prevalence of depression and anxiety symptoms. **Results:** A total of 420 participants were included in the study, 135 (32.1%) male and 285 (67.9%) female patients. The mean age of the participants was 42.7 years. The estimated prevalence of depression and anxiety symptoms was 23.1% (97/420) and 25.7% (108/420) respectively. Among the studied associated factors gender, family history of mental illness and chronic

illnesses (hypertension/other cardiac illnesses and arthritis) were significantly associated with depression symptoms; whereas, gender, age (18-29 years) and hypertension/other cardiac illnesses were significantly associated with anxiety symptoms. The odds of depression (OR 2.56, 95% CI, 1.37-4.80) and anxiety symptoms (OR 2.12 95% CI, 1.23-3.64) in female patients is nearly 3 times the odds of depression and anxiety symptoms in males. The odds of depression in those with a positive family history of mental illness are about four times the odds of depression in those without such history (OR 4.33, 95% CI, 2.35-8.00). The odds of anxiety symptoms in patients aged 18-29 years is about 7 times (OR 6.84, 95% CI, and 2.04-22.90) the odds in those who are aged 60+. The odds of depression are nearly 3 times more in patients suffering from hypertension/other cardiac illnesses (OR 2.65, 95% CI, 1.41-4.95) and arthritis (OR 2.98, 95% CI, 1.11-8.00) than the odds of depression in patients who have not been diagnosed to suffer from these conditions. The odds of anxiety symptoms in patients suffering from hypertension/other cardiac illnesses is 3 times the odds of anxiety symptoms in those without such a diagnosis (OR 2.47, 95% CI, 1.35-4.50). The study found no association between level of education, employment status, substance use and other chronic illness (diabetes mellitus and HIV/AIDS) and symptoms of depression and anxiety. **Conclusion and recommendations:** The findings of the current study give a clear indication that depression and anxiety are prevalent conditions in primary care settings in Tanzania as elsewhere. It is recommended that interventions should focus on raising awareness among health care providers and patients, as well as training health care providers to carry out regular.

406. **Sabsabi MB, Abbas MI, Ibrahim T. A new analytical method to calculate the total and full-energy peak efficiencies of NaI (TI) and HPGe well-type detectors. 2014.**

The well type HPGe and NaI (TI) detectors are useful for the identification and quantification of unknown gamma-ray emitting radionuclides in geological and environmental samples due to the near 4π solid angle that can be obtained with them. In addition, the 4π gamma-ray-counting is a well-established method for direct activity measurements, and is especially suited for radionuclides with complex gamma-ray spectra.

A straightforward theoretical approach was carried out to calculate the total and full-energy peak efficiencies for point, thin circular disk and cylindrical sources of NaI (TI) and HPGe well-type detectors. The approach depends on the accurate calculation of two important factors: the path length, d , the photon traverses within the active volume of a gamma detector, and the geometrical solid angle, Ω , subtended by the source to the detector at the point of entrance. These two factors are theoretically derived through straightforward analytical formulae. Furthermore, the attenuation of photons by the source container and the detector housing materials is also treated by calculating the photon path length through these materials. The comparisons with the previous treatments reported in the literature indicate that the present approach is useful in the efficiency calculations of such complicated gamma-ray spectrometer.

407. **Saeed S, Saeed Q, Saeed R, Shafiq M, Jaleel W, Ishfaq M, Iqbal M. Impact of Various Diets on Biological Parameters of Chrysoperla Carnea Stephen (Neuroptera: Chrysopidae) Adults under Controlled Conditions. 2014.**

Human involvement distinguishes natural control from biological control. Production and augmentation have direct impact on biological control. Due to its cosmopolitan and polyphagous nature, *Chrysoperla carnea* is an important biological control agent in a number of agro-ecological systems. Due to complexities in natural diets artificial diet development is very important for successful production of *C. carnea*. Adult feed is of extreme importance in this regard. Three diets were prepared in laboratory and fed to the adults of *C. carnea*. Different biological parameters i.e. pre-oviposition, oviposition, post-oviposition period, longevity of males and females, fecundity and egg hatchability were studied on the three diets. Larval period of the larvae obtained from the eggs of adults reared on different diets, were also recorded. High biological success was obtained of *C. carnea* when adults were fed diet made from honey, pollen and yeast. Standard diet when fed to adults brought a positive change in hatching period and larval duration of *C. carnea*.

408. **Said MA. Barriers towards Utilization Of HIV-Related Services Among Injecting Drug Users In Urban-West Region, Zanzibar Master of Public Health of**

Muhimbili University Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.

Background: Injection drug use is a growing social and public health concern in Tanzania and Zanzibar in particular due to its implications in HIV / AIDS transmission. Studies conducted in Tanzania Mainland and Zanzibar estimated a high prevalence of HIV among injecting drug users (IDUs) than that of the general population. Despite this, utilization of HIV-related services by IDUs is low and constrained by some challenges in the form of individual, social and structural barriers. **Objective:** To describe the barriers in utilization of HIV -related services among injecting drug users in Zanzibar Urban-West region. **Methodology:** A descriptive cross-sectional study was conducted in June 2014 among IDUs residing in urban-west region, Zanzibar through time-location sampling. A study sample of 100 IDUs was obtained using a time-location sampling method. Data were collected on socio- demographic characteristics, awareness and utilization of services in place and barriers in relation to utilization of HIV -related services. The analysis of data was mostly of descriptive type, and SPSS software version 16 was used for data management. **Results:** A total of 100 IDUs (93 men; 7 women) participated in the study. Age ranged from 20 to 56 years with a mean of 34.5 ± 7.9 years. Three quarters of participants were from urban district, 48% divorced and majority attained primary or secondary education. Three mostly mentioned barriers for utilization of HIV test were fear of being found HIV positive (52.7%), fear of being stigmatized (34.5%) and lack of time (12.7%). Misconception that screening was done for someone who is sick was the most cited barrier on utilizing TB and hepatitis services (55.7% vs. 28.0%, respectively). Lack of laboratory test for TB and hepatitis at VeT and unavailability of drugs for opportunistic infections were some of the structural barriers for utilizing the services. More than two-fifth (43% of the participants were apparently able to mention three services available and 25% could not mention a single service. Services mostly known to the study participants and which can be utilized were HIV testing and supply of condoms and ARVs. Diagnosis and treatment of conditions like TB and hepatitis are least known. Meanwhile, 93.5% of the respondents reported having experienced stigma and discrimination from the community at some stage, with 73.0% of them mentioning family members and 13% mentioning health care providers as for the

behavior. **Conclusions:** The findings suggest that awareness and utilization of HIV - related services among IDUs in Zanzibar are low. IDUs are challenged more with personal barriers than structural barriers in relation to utilization of HI V-related services. **Recommendations:** Ministry of Health Zanzibar and its collaborating partners shall increase the awareness on the health services available to IDUs. Community needs to be educated about the relationship between HIV and injection of drugs so as to end the existing stigma and discrimination.

409. **Saiguran HS Quality of the Health Management Information System Data: A Case Study of Nutritional Status Surveillance in Arusha, Master of Science (Applied Epidemiology) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: Complete, timely and accurate public health information is essential for monitoring health and for improving the delivery of health-care services. Studies of public Health Management Information Systems (HMIS) in resource-poor countries frequently document problems with data quality, such as incomplete records and untimely reporting. Yet these systems are often the only data sources available for the continuous, routine monitoring of health programmes in the districts. Funding and support for public health activities, such as maternal and child health (MCH) services, depends on demonstrating coverage using routine data. Assessment of nutritional status is one of the services offered at MCH clinics where data is also routinely collected. The quality of nutrition surveillance data from MCH clinics under the health information system remains a challenge. This study, therefore, aimed at assessing the quality and factors associated with nutrition status surveillance data quality collected at health facilities under the HMIS. **Methods:** A cross-sectional study design was conducted in 20 health facilities of Arusha City from October 2013 to February 2014. These health facilities were selected using a stratified random sampling technique from 67 health facilities of the council. Documentary review was conducted to obtain information on data quality. Observation checklist and interviews were used to collect data on determinants of data quality. Data were analyzed using Epi Info computer software. Descriptive statistics was done to summarize the characteristics of study participants and

facilities. Regression analysis was performed to determine independent factors associated with quality of data and presented as AOR at 95% CI. A p-value < 0.05 is considered as statistically significant. **Results:** A total of 99 respondents from 20 health facilities in Arusha City were interviewed. About 87.0% (86/99) of the participants were female. The mean age of respondents was 37 (SD 9.68) years. On average the level of data accuracy in the health facilities was 55.1% ranging from 8.1% to 97.0% and the average completeness rate was 67.5%. The health facilities submit reports to the district on average eleven (11, SD 4.3) days after the pre-set deadline (Range: 1 to 38 days). Facilities with motivated health workers had high odds of having accurate AOR 7.0 (95%CI 3.7, 77.5) and complete data AOR 12.0 (95%CI 2.1, 69.8) compared to facilities with unmotivated workers. The availability of data collection tools increased the likelihood of having complete data (COR 2.3(3.19, 27.57»). The presence of HMIS focal person was significantly associated with data accuracy (COR 25.0(2.16, 73.37» and completeness (COR 16.0(2.40,61.74»). Knowledge on HMIS, perception of importance of good quality data and supportive supervision did not influence significantly data quality. **Conclusion:** The quality of HMIS data for nutritional status is of modest quality and below the recommended level, that is 95% accurate, 80% complete and timely (reported before or on the pre-set deadline). Extra efforts are required to improve the quality of data for effective use in decision-making and planning in the district and facilities.

410. **Sariah A. Factors Influencing Relapse among Patients with Schizophrenia In Muhimbili National Hospital: The Perspectives of Patients and Their Caregivers. Master of Science Nursing (Mental Health) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: Relapse in patients with schizophrenia is a major challenge for mental health service providers in Tanzania and other countries. Approximately 10% of patients with schizophrenia are re-admitted due to relapse at Muhimbili National Hospital (MNH) Psychiatric Unit each month. Relapse brings about negative effects and it results in a huge burden to patients, their families and mental health sector and country economy as well. So far no study has been done to address relapse in Tanzania. That is why there is a need to find out as to why individuals with schizophrenia experience relapse. **Objectives:**

This study aimed to explore perspectives on factors influencing relapse to patients with schizophrenia and their caregivers attended at Muhimbili National Hospital Psychiatric Out-patient Department, Dar es Salaam, Tanzania. **Methodology:** A qualitative study was conducted, involving in-depth interviews of 7 schizophrenic out-patients and their 7 caregivers at MNH Psychiatric Out-patient Department in Dar es Salaam, Tanzania. Purposive sampling procedure was used to select participants for the study. Audio recorded in-depth interviews in Swahili language were conducted with all participants in the study. The recorded information was transcribed to text in computer files and analyzed by using NVivo 9 computer assisted qualitative data analysis software. **Findings:** Personal and environmental factors for relapse were the main themes that emerged from this study. Patients and their caregivers perceived non adherence to antipsychotic medication as a leading factor to relapse. Other factors included poor family support, stressful life events and substance use. Family support, adherence to antipsychotic medication, employment and religion were viewed as protectors of relapse. Participants suggested strengthening mental health psycho education sessions and community home visits conducted by mental health nurses to help reduce relapse. Other suggestions included strengthening of nurse-patient therapeutic relationship in provision of mental health care. **Conclusion and recommendations:** It is important for mental health nurses to strengthen their therapeutic relationships with patients and their caregivers. Regular individual psycho education sessions and community based interventions would help reduce relapse and mental health service ix costs. Further larger studies with more diverse sample of people with schizophrenia and their caregivers are necessary to understand the issue of relapse in patients with schizophrenia.

411. **Safina ZM. Diabetic Nephropathy and Ultrasonographic Renal Changes in Adults with Diabetes Mellitus at Muhimbili National Hospital. Of Master of Medicine (Radiology) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: Diabetic kidney disease (DKD) is a common and co morbid complication of diabetes mellitus (DM) and the leading cause of chronic kidney disease in the world. In Africa it is probably the third most common cause of chronic kidney disease (CKD)

after hypertension and glomerulonephritis. It also accounts for a third of all patients requiring renal replacement therapies, which are prohibitively expensive and not widely available in Africa due to cost and lack of expertise. Less is known about renal changes in DM patients in Tanzania; hence the aim of this study was to evaluate renal changes among DM patients by using ultrasonographic technique. **Study objective:** To determine the prevalence of Diabetic nephropathy and Ultrasonographic Renal changes in adults with Diabetes Mellitus patients at MNH from September 2013 to January 2014. **Methodology:** This was a cross-sectional descriptive study that involved 139 adults diabetic patients aged 20 years and above who attended routine diabetic clinic at Muhimbili National Hospital (MNH) between September 2013 and January 2014. Demographic data, radiological changes and biochemical parameters were reviewed and evaluated. The obtained data was analyzed using SPSS version 20. Fishers and Chi-square test were used to compare between radiological changes and biochemical parameters at a statistical level of significance of $p < 0.05$. **Results:** The study involved 139 patients; prevalence of diabetic nephropathy was 12.9%. The most affected patients were within the age group 40-49 and 70-80 years. Male patients were more affected than females (15.6% vs 12.1%). The study also revealed that the prevalence of diabetic nephropathy was higher in type 2 diabetic mellitus (13.1%) than in type 1 diabetes mellitus patients (11.8%). Eighty seven patients (62.6%) had normal ultrasonographic findings while 52 patients (37.4%), had abnormal ultrasonographic renal changes (reduced renal length, reduced or increased parenchyma thickness or increased parenchyma echogenicity). The results revealed a statistical significance relationship between biochemical parameters and parenchyma echogenicity, ($p < 0.05$). However there was no statistical significance between biochemical parameters and renal length or renal parenchyma thickness ($p > 0.05$). The study also revealed that there was no statistical significance between diabetic nephropathy and age, sex, disease duration or type of diabetes mellitus ($p > 0.05$). There was no statistical significance between renal ultrasonographic changes and duration or type of diabetes mellitus ($p > 0.05$). **Conclusion:** The prevalence of diabetic nephropathy is alarming. The data borne by this study found that the correlation between biochemical parameters (proteinuria, serum creatinine level, creatinine clearance) and renal parenchyma echogenicity was statistically

significant. Therefore it can be postulated that increased renal parenchyma echogenicity on ultrasound is a good indicator of renal changes (that may progress into DKD) in patient with DM disease. It is therefore suggested that DM patients should undergo routine kidney screening by ultrasound; this may help to decide which patients require early clinical intervention by the nephrologists to prevent DKD progression into end stage renal disease (ESRD).

412. **Said A. Prevalence Of Domestic Violence During Pregnancy And Association With Abortion And Low Birth Weight Among Antenatal Clinic Attendees At Peramiho Hospital, Songea. Masters of Medicine (Obstetrics and Gynecology) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: Violence against pregnant women has recently been acknowledged as one of the threats to women's health. Domestic violence is defined as physical, sexual, or psychological and or emotional violence, or threats of physical or sexual violence that are inflicted on a woman by the current or former partners or any other family member. All forms of domestic violence in pregnancy have been shown to have adverse impact on the pregnancy outcome. This study documented the magnitude of DV during pregnancy among antenatal clinic attendees at Peramiho hospital, Songea and its association with selected pregnancy outcomes – abortion and low infant birth weight of their last pregnancy. This may help to plan and put in place strategies to identify and help women exposed to DV during pregnancy. **Objective:** The main objective of this study was to document the prevalence of DV in pregnancy and its association with abortion and low birth weight among antenatal clinic attendees at Peramiho hospital, Songea. **Methodology:** This study was an analytic cross sectional study which was done at Peramiho hospital antenatal clinic. All pregnant women attending the clinic during the time of data collection were recruited. Data was collected using an administered Swahili questionnaire. A total of 1305 pregnant women were interviewed for 11 weeks. An SPSS version 18 computer program was used for data analysis. Associations were calculated using logistic regression analysis. Associations were determined on selected pregnancy outcomes – abortion and low infant birth weight in the last pregnancy among the

multigravidae only. **Results:** The prevalence of DV before pregnancy was found to be 36.6% while it was 64.7% in the index pregnancy and 42.8% in the last pregnancy. Emotional/psychological abuse was reported by 85.5% of abused women, while 51.3% and 58.8% were exposed to physical and sexual abuse respectively. The intimate partner was found to be the most common perpetrator of violence to pregnant women. It was also found that abused women were more likely to be in the age of 40 years and above, have no education, peasants, have partners with no education and divorced or separated. Other associated factors found were partners consumption of alcohol, cigarette and drugs and having unplanned pregnancy. This study also found that women who were abused in the previous pregnancy were at risk of adverse pregnancy outcome such as low infant birth weight and spontaneous abortion. **Conclusion:** Domestic violence against women (especially from the intimate partner) during pregnancy and before pregnancy is high. Most abused women are verbally abused but physical and sexual abuses are also high. Old age, low education, low social economic status, alcohol & substance abuse by partner and being divorced/ separated are the main associated factors for increased violence. Violence during pregnancy is associated with adverse pregnancy outcome such as abortion and low infant birth weight. Health care providers should be emphasized on routine screening for violence against pregnant women in the clinics.

413. **Sakafu L, Kazema R, Kahesa C, Mwaiselage J, Akoko L, Ngoma T. The Role of Abdominal Ultrasound and Chest Radiography in Management of Breast Cancer Patients in a Low Resource Country: A Case of Tanzania. *East and Central African Journal of Surgery*. 2014; 18(3): 34-39.**

Background: Breast cancer is among the commonest cancers affecting women in Tanzania. Most of them seek hospital treatment when the disease has reached an advanced stage. Hence widely available modalities like ultrasound (LUS) and chest radiograph (CXR) can be used to establish metastasis in newly diagnosed patients. The main objective of this study was to determine the role of abdominal ultrasound and chest radiography in detection of liver and lung metastasis in newly diagnosed breast cancer patients. **Methods:** This was a descriptive cross sectional study in which 103 new breast cancer patients attending Ocean Road Cancer Institute (ORCI) were recruited

consecutively. All participants were investigated for liver and lung metastases using abdominal ultrasound and chest x-ray respectively. Standardized questionnaires were used to obtain socio-demographic and to document examination findings. **Results:** Participants were aged between 26 – 77 years, with a mean of 48 ± 11.22 . The prevalence of metastasis to the liver and lungs were 18.4% and 20.4% respectively. Majority of patients with breast cancer had locally advanced breast cancer disease that is either TNM stage three (59.2%) or four (32%) disease upon arrival to ORCI. **Conclusion:** This study has demonstrated a high detection rate of LUS and CXR for liver and lung metastasis in patients with locally advanced breast cancer.

414. **Salama I. Survival of Patients with Colorectal Cancer at Ocean Road Cancer Institute. Masters of Medicine (Clinical Oncology) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: Colorectal cancer is the third most commonly diagnosed cancer in males and the second in females worldwide. It is the sixth common cancer in males and the fifth in females in Eastern Africa. Survival rates for colorectal cancer vary worldwide, with the highest in the developed countries and lowest in Africa despite the low incidence rates in Africa. There is no study done in Tanzania to determine survival of patients with colorectal cancer, therefore, this study aims to find out the survival of patients with colorectal cancer treated at Ocean Road Cancer Institute, the only specialized cancer hospital in Tanzania. **Study objective:** To determine the survival of patients with colorectal cancer treated at Ocean Road Cancer Institute between 2006 and 2009. **Methodology:** The study was a hospital based retrospective observational study done at Ocean Road Cancer Institute in Dar es Salaam, Tanzania. Files of patients with histological proven colorectal cancer who were treated at Ocean Road Cancer Institute between 2006 and 2009 were reviewed. Data on sociodemographic characteristics, HIV status, histology and stage of disease, carcinoembryonic antigen level before treatment and status of patient at closing date was collected and analyzed. **Results:** A total of 50 patients were included in the study. Mean age of the patients was 53 years. All patients had advanced disease, stage III and IV and most (48%) of them had moderately differentiated cancers. Majority of the patients had chemotherapy (68%). Overall survival

was found to be 11.8%. **Conclusion:** Most patient present late for treatment with advanced stage of the disease and poor performance status which affect treatment outcome and overall survival.

415. Salama IA, Shoreem HA, Saleh SM, Hegazy O, Housseni M, Abbasy M, Ibrahim T. Iatrogenic Biliary Injuries: Multidisciplinary Management in a Major Tertiary Referral Center. *HPB Surgery* 2014.

Background: Iatrogenic biliary injuries are considered as the most serious complications during cholecystectomy. Better outcomes of such injuries have been shown in cases managed in a specialized center. **Objective:** To evaluate biliary injuries management in major referral hepatobiliary center. **Patients & Methods:** Four hundred seventy-two consecutive patients with postcholecystectomy biliary injuries were managed with multidisciplinary team (hepatobiliary surgeon, gastroenterologist, and radiologist) at major Hepatobiliary Center in Egypt over 10-year period using endoscopy in 232 patients, percutaneous techniques in 42 patients, and surgery in 198 patients. **Results:** Endoscopy was very successful initial treatment of 232 patients (49%) with mild/moderate biliary leakage (68%) and biliary stricture (47%) with increased success by addition of percutaneous (Rendezvous technique) in 18 patients (3.8%). However, surgery was needed in 198 patients (42%) for major duct transection, ligation, major leakage, and massive stricture. Surgery was urgent in 62 patients and elective in 136 patients. Hepaticojejunostomy was done in most of cases with transanastomotic stents. There was one mortality after surgery due to biliary sepsis and postoperative stricture in 3 cases (1.5%) treated with percutaneous dilation and stenting. **Conclusion:** Management of biliary injuries was much better with multidisciplinary care team with initial minimal invasive technique to major surgery in major complex injury encouraging early referral to highly specialized hepatobiliary center.

416. Salinas FV, Joseph RS. Peripheral nerve blocks for ambulatory surgery. *Anesthesiology clinics*. 2014; 32(2): 341-355.

Peripheral nerve blocks (PNBs) for ambulatory surgery, and in particular for orthopedic surgery, may be used as either the primary anesthetic or more commonly as an anal-gesic

adjunct to general anesthesia. The benefits of PNBs for ambulatory surgery include reductions in postoperative pain, opioid requirements, and postoperative nausea and vomiting, and possibly decreased time to functional recovery.^{1,2} Poorly controlled pain after ambulatory surgery may lengthen stay in the postanesthesia care unit, and possibly even require hospitalization.^{3–5} Thus, PNBs have also been shown to facilitate postanesthesia care unit bypass and decrease time to achieve discharge criteria after ambulatory upper and lower extremity orthopedic surgery.^{6–9} Recent data indicate that for patients undergoing arthroscopic shoulder surgery in the beach chair position, regional anesthesia with sedation compared with general anesthesia significantly decreases the incidence of critical cerebral deoxygenation events.¹⁰ The benefits of single-injection PNB techniques are primarily determined by the physical properties of the local anesthetic agent (and analgesic adjuncts) chosen for

417. **Samuel S. Nonodontogenic Tumours and Tumour-Like Lesions of the Oral and Maxillofacial Region among Patients Attending Muhimbili National Hospital, Tanzania. Master of Dentistry (Oral & Maxillofacial Surgery) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: Nonodontogenic tumours and tumour-like lesions of the oral and maxillofacial region represent a large heterogeneous group of diverse diseases. The diversity of nonodontogenic tumours and tumourlike lesions may cause difficulties in their definitive diagnosis, classification and institution of appropriate management. Currently, little is known about the occurrence and clinico-pathologic presentation of nonodontogenic tumours and tumourlike lesions and their management in Tanzania. The purpose of this study was to investigate the occurrence, the clinical and pathologic characteristics of nonodontogenic tumours and tumour-like lesions and their management. **Objective:** To investigate the occurrence, clinico-pathological characteristics and management of nonodontogenic tumours and tumour-like lesions of the oral and maxillofacial region among patients attending the Muhimbili National Hospital. **Methods:** This was a prospective, descriptive and cross-sectional hospital based study that was conducted at Muhimbili National Hospital (MNH) from 1st July 2013 to February 2014. About 490 patients who were attended to MNH with oral and

maxillofacial lesions were histopathologically investigated. Out of these, 165 patients were confirmed to have had nonodontogenic tumours and tumour-like lesions and were recruited into the study. These were then interviewed using a specially designed questionnaire to obtain socio-demographic information, chief complaints and nature of symptoms. Later the patients were thoroughly clinically examined, investigated and the findings were recorded in special forms. Management was given according to the MNH protocol. The collected data were entered into a computer and analyzed using Statistical Package for Social Sciences (SPSS) for windows version 19.0. **Results:** Four hundred and ninety patients who attended the Dental outpatient department and those who were admitted in wards 19, 20, 23 and 24 with oral and maxillofacial lesions were biopsied during this study period. Among these, 165(33.7%) had histological diagnosis of nonodontogenic tumours and tumour-like lesions and 61(12.5%) had odontogenic tumours. The rest 264(53.9%) patients had conditions other than nonodontogenic tumours and tumour-like lesions which included cysts, inflammatory conditions and salivary gland tumours. The age of the 165 study participants who included 75(45.5%) males and 90(54.5%) females ranged from 1 to 95 years (mean age = 34.38years \pm 21.9SD). The age group 10-19-year was the most affected. Ossifying fibroma was the commonest encountered benign nonodontogenic tumour that affected 23(27.4%) patients majority of them in the 10-39-year age group. Squamous cell carcinoma was the commonest encountered malignant nonodontogenic tumour that affected 29(35.8%) patients followed by nonhodgkin lymphoma in 19(23.4%) patients. Squamous cell carcinoma occurred in almost all age groups except the 0-19-year age group and it affected more males than females. The mandible was slightly more affected than the maxilla by benign nonodontogenic tumours and tumour-like lesions. Almost all benign nonodontogenic tumours and tumour-like lesions presented with swelling in 83(98.8%) patients followed by disfigurement and pain. The buccal mucosa was the most affected site by 63(77.8%) malignant nonodontogenic tumours followed by the floor of the mouth and gingiva. Majority (90.1%) patients with malignant nonodontogenic tumours presented with swelling while 46(56.8%) patients had lymphnode involvement. Ulceration and pain were observed in 24(29.6%) patients. Conservative surgical excision was the commonest treatment modality used for treating the patients (78.5%) with benign lesions. The

commonest modalities for treating malignant lesions were palliative radiotherapy in 30(36.0%) patients followed by curative chemotherapy, palliative chemotherapy, wide surgical excision and adjuvant chemotherapy. **Conclusion:** Generally, males were slightly more affected by nonodontogenic tumours and tumour-like lesions than females. However, benign nonodontogenic tumours and tumour-like lesions affected more females while malignant counterparts affected more males than females. Ossifying fibroma was the commonest encountered benign nonodontogenic tumour and it affected more females than males. Malignant nonodontogenic tumours affected young patients and the occurrence of these lesions increased with increasing age of the patients. Squamous cell carcinoma that dominated malignant nonodontogenic tumours in this study affected patients aged 50 years and above while nonhodgkin lymphoma the second commonest affected almost all age groups. More than a half of the patients with nonodontogenic tumours and tumour-like lesions were peasants, from the rural areas with low education and income. Majority of benign nonodontogenic tumours and tumour-like lesions were treated by conservative surgical excision alone. As a result of late reporting, only a few patients with malignant nonodontogenic tumours were treated by wide surgical excision alone while majority of them were treated by palliative, curative or adjuvant chemotherapy / radiotherapy.

418. Sánchez-Juan P, Ghosh PM, Hagen J, Gesierich B, Henry M, Grinberg LT, Rabinovici GD. Practical utility of amyloid and FDG-PET in an academic dementia center. *Neurology*. 2014; 82(3): 230-238.

Objective: To evaluate the effect of amyloid imaging on clinical decision making. **Methods:** We conducted a retrospective analysis of 140 cognitively impaired patients (mean age 65.0 years, 46% primary β -amyloid (A β) diagnosis, mean Mini-Mental State Examination 22.3) who underwent amyloid (Pittsburgh compound B [PiB]) PET as part of observational research studies and were evaluated clinically before and after the scan. One hundred thirty-four concurrently underwent fluorodeoxyglucose (FDG)-PET. We assessed for changes between the pre- and post-PET clinical diagnosis (from A β to non-A β diagnosis or vice versa) and Alzheimer disease treatment plan. The association between PiB/FDG results and changes in management was evaluated using χ^2 and

multivariate logistic regression. Postmortem diagnosis was available for 24 patients (17%). **Results:** Concordance between scan results and baseline diagnosis was high (PiB 84%, FDG 82%). The primary diagnosis changed after PET in 13/140 patients (9%) overall but in 5/13 (38%) patients considered pre-PET diagnostic dilemmas. When examined independently, discordant PiB and discordant FDG were both associated with diagnostic change (unadjusted $p < 0.0001$). However, when examined together in a multivariate logistic regression, only discordant PiB remained significant (adjusted $p = 0.00013$). Changes in treatment were associated with discordant PiB in patients with non- $A\beta$ diagnoses (adjusted $p = 0.028$), while FDG had no effect on therapy. Both PiB (96%) and FDG (91%) showed high agreement with autopsy diagnosis. **Conclusions:** PET had a moderate effect on clinical outcomes. Discordant PiB had a greater effect than discordant FDG, and influence on diagnosis was greater than on treatment. Prospective studies are needed to better characterize the clinical role of amyloid PET.

- 419. Sangeda RZ, Mosha F, Prosperi M, Aboud S, Vercauteren J, Camacho RJ, Vandamme AM. Pharmacy refill adherence outperforms self-reported methods in predicting HIV therapy outcome in resource-limited settings. *BMC public health*. 2014; 14(1): 1035.**

Background: Optimal adherence to antiretroviral therapy is critical to prevent HIV drug resistance (HIVDR) epidemic. The objective of the study was to investigate the best performing adherence assessment method for predicting virological failure in resource-limited settings (RLS). **Method:** This study was a single-centre prospective cohort, enrolling 220 HIV-infected adult patients attending an HIV/AIDS Care and Treatment Centre in Dar es Salaam, Tanzania, in 2010. Pharmacy refill, self-report (via visual analog scale [VAS] and the Swiss HIV Cohort study-adherence questionnaire), pill count, and appointment keeping adherence measurements were taken. Univariate logistic regression (LR) was done to explore a cut-off that gives a better trade-off between sensitivity and specificity, and a higher area under the curve (AUC) based on receiver operating characteristic curve in predicting virological failure. Additionally, the adherence models were evaluated by fitting multivariate LR with stepwise functions, decision trees, and random forests models, assessing 10-fold multiple cross validation

(MCV). Patient factors associated with virological failure were determined using LR. **Results:** Viral load measurements at baseline and one year after recruitment were available for 162 patients, of whom 55 (34%) had detectable viral load and 17 (10.5%) had immunological failure at one year after recruitment. The optimal cut-off points significantly predictive of virological failure were 95%, 80%, 95% and 90% for VAS, appointment keeping, pharmacy refill, and pill count adherence respectively. The AUC for these methods ranged from 0.52 to 0.61, with pharmacy refill giving the best performance at AUC 0.61. Multivariate logistic regression with boost stepwise MCV had higher AUC (0.64) compared to all univariate adherence models, except pharmacy refill adherence univariate model, which was comparable to the multivariate model (AUC = 0.64). Decision trees and random forests models were inferior to boost stepwise model. Pharmacy refill adherence (<95%) emerged as the best method for predicting virological failure. Other significant predictors in multivariate LR were having a baseline CD4 T lymphocytes count <200 cells/ μ l, being unable to recall the diagnosis date, and a higher weight. **Conclusion:** Pharmacy refill has the potential to predict virological failure and to identify patients to be considered for viral load monitoring and HIVDR testing in RLS.

420. **Sarah M. Clinical Profile of Renal Transplant Patients Attending Transplant Clinic at Muhimbili National Hospital, Dar es Salaam. Master of Medicine (Internal Medicine) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Introduction: Chronic kidney disease is common worldwide and its prevalence has significantly increased in sub-Saharan African countries including Tanzania. This increase is attributed to the increasing burden of both communicable and non-communicable diseases. Despite this increase, there are no reliable data on the true burden or spectrum of end stage renal disease in sub Saharan Africa including Tanzania. Due to the high cost of renal replacement therapy for End stage renal disease, prognosis remains poor among many patients with chronic kidney disease in Africa and Tanzania as well. This study therefore sought to describe the clinical profile of renal post transplant patients attending the only public post renal transplant clinic in Tanzania so as to generate

an update on some clinical profiles of renal transplant patients in a low income setting.**Objective:** The main objective of this study was to describe the clinical profile of renal transplant patients attending the renal transplant clinic at MNH, Dar es Salaam. **Methodology:** This was a retrospective chart review of all renal transplant patients attending the renal transplant clinic at MNH, Dar es Salaam carried from May through December 2013. The patients' records were retrieved and studied. Standard pre-tested questionnaires were used to collect available socio-demographic characteristics, clinical symptoms patients presented with and physical findings observed and documented on physical examination, laboratory results like serum creatinine, urea, WBC count, Hb level, random blood sugar and cholesterol levels recorded at less than one year, one to five years and after five years post renal transplant. Data entry and analysis was done using SPSS version 21.0. Continuous variables were summarized as means and standard deviations while categorical variables as frequencies or percentages. The study was approved by the MUHAS research and ethics committee.**Results:** A total of eighty seven (87) files from post renal transplant patients were retrieved and studied. Of these (75/87) 86.2% were male and the mean age at transplant was 48.2 years (\pm 13.6).Hypertension and diabetes mellitus were the most common recorded possible underlying causes of ESRD before renal transplantation accounting for (77/87)88.5% and (25/87)28.8% respectively. Siblings were the main kidney donors contributing to (49/87)56.3%. Lower urinary tract symptoms like urgency, frequency and dysuria were the most common recorded symptoms (23/91) 25.2% followed by decreased urine output (18/91) 19.8%. Uncontrolled hypertension was observed in over 50% of patients at different follow up time. Majority of patients were on stage 1-3 of chronic kidney disease post renal transplant accounting to 90.5%, 87.1% and 91.3% at less than one year, between one to five years and after five years respectively.Most of post renal transplant complications were reported between the first and fifth year post transplant with exception of urinary tract infections which its occurrence was increasing with increase in time post renal transplant; (28/87)32.2%, (59/74)79.7 and (19/23)91.3% at less than one year, between one to five years and after five years respectively.**Conclusion:** Clinical and laboratory profiles of renal transplant patients improved post transplant with 14.9% having graft dysfunction. **Recommendation:** Preventive measures towards CKD hence ESRD should

be emphasized by controlling both communicable and non communicable diseases as renal transplant does not give complete recovery of the kidney disease.

- 421. Sarasini S, Jacob M. Past, Present, or Future? Managers' Temporal Orientations and Corporate Climate Action in the Swedish Electricity Sector. *Organization & Environment*. 2014; 27(3): 242-262.**

Existing research shows that corporate climate actions are the result of public policies and a limited range of other factors that can influence business strategy. Managers are depicted as lacking agency in that they passively adhere to “drivers” of climate actions, with little room for autonomy. This study takes issue with such a view by examining agency vis-à-vis managers' temporal orientations. In particular, we seek to examine why managers adopt certain temporal orientations and not others in the context of the climate issue and Swedish electricity production. We find that whilst managers are predominantly focused on future policy developments, they also deliberate over, reconstruct, and in some cases actively refute other pressures for climate action that were borne in the past, feature in the present, and which relate to alternative future projections. We further examine reasons for such behaviour.

- 422. Sayyah SM, Abd-Elrehim SS, Azooz RE, Mohamed F. Electrochemical Study of the Copolymer Formation between o-Chlorophenol and o-Hydroxyphenol. *Journal of the Korean Chemical Society*. 2014; 58(3).**

Electrochemical copolymerization of o-chlorophenol (oCP) with o-hydroxyphenol (oHP) was carried out in aqueous H₂SO₄ by using cyclic voltammetry (CV) technique. In addition, CV was used to evaluate the differences in electrochemical characteristics of the copolymer in comparison with the corresponding homopolymers, poly (o-chlorophenol) (PoCP) and poly (o-hydroxyphenol) (PoHP). The variation of peak currents with respect to sweep rates was compared between copolymer and homopolymers, PoCP and PoHP, films. Further support for copolymer characterization was obtained by recording UV-visible, IR spectra and elemental analysis. The mechanism of the electrochemical polymerization has been discussed. The monomer reactivity ratio (r_1 and r_2) were

calculated using Fineman-Röss method and was found to be 0.4 and 1.3 repetitively and the copolymer structure is a block structure and more rich in oHP units.

423. Schulz S, Richardt G, Laugwitz KL, Morath T, Neudecker J, Hoppmann P, von-Merzljak B. Prasugrel plus bivalirudin vs. clopidogrel plus heparin in patients with ST-segment elevation myocardial infarction. *European heart journal*. 2014; 35(34): 2285-2294.

Aims: Whether prasugrel plus bivalirudin is a superior strategy to unfractionated heparin plus clopidogrel in patients with ST-segment elevation myocardial infarction (STEMI) undergoing primary percutaneous coronary intervention (PCI) has never been assessed in specifically designed randomized trials. **Methods and results:** The Bavarian Reperfusion Alternatives Evaluation (BRAVE) 4 study is an investigator-initiated, randomized, open-label, multicentre trial, designed to test the hypothesis that in STEMI patients with planned primary PCI a strategy based on prasugrel plus bivalirudin is superior to a strategy based on clopidogrel plus heparin in terms of net clinical outcome. Owing to slow recruitment, the trial was stopped prematurely after enrolment of 548 of 1240 planned patients. At 30 days, the primary composite endpoint of death, myocardial infarction, unplanned revascularization of the infarct related artery, stent thrombosis, stroke, or bleeding was observed in 42 patients (15.6%) randomized to prasugrel plus bivalirudin and 40 patients (14.5%) randomized to clopidogrel plus heparin [relative risk, 1.09; one-sided 97.5% confidence interval (CI) 0–1.79, P = 0.680]. The composite ischaemic endpoint of death, myocardial infarction, unplanned revascularization of the infarct-related artery, stent thrombosis, or stroke occurred in 13 patients (4.8%) in the prasugrel plus bivalirudin group and 15 patients (5.5%) in the clopidogrel plus heparin group (relative risk, 0.89; 95% CI 0.40–1.96, P = 0.894). Bleeding according to the HORIZONS-AMI definition was observed in 38 patients (14.1%) in the prasugrel plus bivalirudin group and 33 patients (12.0%) in the clopidogrel plus heparin group (relative risk, 1.18; 95% CI 0.74–1.88, P = 0.543). Results were consistent across various subgroups of patients. **Conclusion:** In this randomized trial of STEMI patients, we were unable to demonstrate significant differences in net clinical outcome between prasugrel plus bivalirudin and clopidogrel plus heparin. Neither the composite of ischaemic

complications nor bleeding were favourably affected by prasugrel plus bivalirudin compared with a regimen of clopidogrel plus unfractionated heparin. However, the results must be interpreted in view of the premature termination of the trial.

424. Schwarz L, Worliczek HL, Winkler M, Joachim A. Superinfection of sows with *Cystoisospora Sui* ante partum leads to a milder course of cystoisosporosis in suckling piglets. *Veterinary parasitology*. 2014; 204(3): 158-168.

Cystoisospora (syn. *Isospora*) *Suis* are a leading cause of diarrheal disease in neonatal piglets. To address the possibility of maternal immunization against *C. Sui* infection six non-naïve pregnant sows were superinfected with 100,000 oocysts 2 weeks ante partum and compared to non-superinfected animals. Their piglets were infected with 1000 oocysts on the third day of life. Clinical and parasitological parameters as well as antibody titers in colostrum/milk and blood of sows and in the blood of piglets were evaluated by IFAT against sporozoites and merozoites from 2 weeks ante partum until the 35th day after birth. For IFAT two different invasive stages of *C. suis* were used to find possible differences between the immune response against the initially infectious stages (sporozoites) and later occurring asexual developmental stages (merozoites), which might be responsible for persisting/extraintestinal infections. IFN- γ production of PBMC and piglet splenocytes was determined by ELISPOT. Maternal superinfection resulted in increased titers of IgA, IgM and IgG in colostrum and milk as well as in the blood of sows and their piglets. Oocyst shedding and diarrhea were observed in the offspring of both groups, but piglets of superinfected sows showed significantly reduced oocyst shedding and less diarrhea. This protective effect was correlated with increased titers of antibodies, especially IgA, in colostrum, milk and blood serum of sows and piglets, and with the reactivity of splenocytes to parasite antigen. Superinfection of sows ante partum could partially protect piglets against the clinical outcome of experimental infection. Both colostrum and milk contain maternal protective substances as the effect of protection was highly correlated with antibody titers during the first 2 weeks of life. IgA in different substrates may serve as a marker for the level of protection against clinical cystoisosporosis.

425. **Seif SA, Kohi TW. Caretaker-Adolescent Communication on Sexuality and Reproductive Health: My Perceptions Matter; A Qualitative Study on Adolescents' Perspectives in Unguja-Zanzibar. *Health*. 2014; 6(21): 2904.**

This study was conducted to explore the perceptions of adolescents on caretaker-adolescent communication on sexuality. Using an Information-Motivation-Behavioural Skills model, this article highlights areas to emphasise when planning strategies to improve caretaker-adolescent communication on sexuality. Twelve focus group discussions were held with adolescents aged between 15 and 19 years, and data were analysed using content analysis. The participants found it important for caretakers to communicate with adolescents about sexuality to avoid sexual and related health risks. Caretakers were the most preferred communicators, by adolescents, on sexuality matters. It became apparent that information about the use of condoms was the most unpopular topic during the discussions, while information about the use of contraceptives seemed to be more interesting to the majority of the participants. From the adolescents' point of view, the barriers to communication about sexuality on the caretakers' side, include, the belief that such information might encourage promiscuity; some caretakers do not find it easy to discuss matters related to sexuality with their children; and others feel that some adolescents know more about sexuality than themselves. On the other hand, barriers on adolescents' side include, "fear" of the caretakers, some of whom seem harsh, unfriendly, and sometimes unapproachable. Following the findings, it is being suggested that intervention strategies that would help to alleviate communication barriers would consequently facilitate caretaker-adolescent discussions about sexuality and reproductive health.

426. **Secha ZP. Access To Essential Medicines For Managing Opportunistic Infections Among HIV/AIDs Patients In Dar-Es-Salaam Regional Hospitals, Tanzania Master of Public Health *Dissertation* 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: Insufficient access to essential medicines for managing opportunistic infections in CTC clinics and high medicines prices in the private pharmacies are still the leading problems in the management of opportunistic infections among HIV patients. In

Tanzania and other East African countries, little is documented regarding the access of essential medicines for treatment of opportunistic infections at the patient level. Findings from this study are important for decision makers in developing effective policies and provide equitable access to essential medicine for managing opportunistic infections.

Objective: The main objective of this study was to assess the access of essential medicines for managing opportunistic infections among HIV / AIDS patients in Dar-es-salaam regional hospitals. **Methods:** A cross-sectional study was conducted among selected HIV/AIDS patients, pharmaceutical personnel at three CTC clinics (Amana, Mwananyamala and Temeke) and 6 private pharmacies. Data was collected by using adopted WHO/HAI methodology. Median price of these medicines were compared with International Reference Price. The salary of the lowest- paid un-skilled government worker and National Poverty Line income was used to assess affordability of essential medicines for managing OIs. Data was analyzed by using EPI Info version 3.5.4. Chi-square test was used to test for statistical significance of the observed results. **Results:** This study enrolled 305 participants with a mean age of 41 years, of which more than 59% earn below TZS 5,500 per day. The selected common OIs found were respiratory tract infection (RTI), skin fungal infection (SFI), urinary tract infection (UTI) and oral candidacies (OC), and common prescribed medicines were Amoxicillin 250mg capsules, Ciprofloxacin 500mg tablets, co-trimoxazole 480mg tablets, fluconazole 150mg tablets and Clotrimazole 1 % cream. The availability of medicines for managing opportunistic infections in the CTC clinics were found to be very low about 15%, 17% and 24% for Mwananyamala, Temeke and Amana CTC respectively. Most of the patients have inadequate ability to purchase medicines due to high price in the private pharmacies, (MPR =2.605), of which patients need to utilize up to more than 5 working days of lowest unskilled government employee to purchase a minimum dose, while for those patients who are living below poverty line (TZS 2000) need to work for about 12 days' Wages in order to pay for a one-treatment dose of an essential medicines. **Conclusion and recommendations:** The study reveals poor accessibility of essential medicines for managing opportunistic infections in the CTC clinics. The prices of medicines are very high for majority of HIV/AIDS patients to have ability to pay for medicines. Therefore the availability, pricing and affordability of essential medicines should be improved in

order to ensure equity in access to medicines among HIV/AIDS patients in CTC clinics among referral hospitals in Dar-es-salaam. Through adopting health financing system and universal health coverage approach at the CTC clinics, consideration of other alternative strategies for controlling measures of essential medicines availability, prices and drug subsidation in the private pharmacies will make these medicines readily available and affordable by the majority of the HIV patients.

427. **Shabbir MA. Evaluation of Associated Factors for Recurrence of Breast Cancer at Orca-A Retrospective Study. Master of Medicine (Clinical Oncology) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: Breast cancer is by far the most frequent cancer among women with an estimated 1.38 million new cancer cases diagnosed in 2008 (23% of all cancers), and ranks second overall (10.9% of all cancers). In Tanzania it is estimated that approximately 1074 women with breast cancer register in different hospitals each year. To my knowledge data for breast cancer recurrence in Tanzania is not available. New information is developing all the time, but for now, this study can help us determine risk factors associated with breast cancer recurrence. To my knowledge there aren't any studies which have been done in Tanzania to assess this problem. Thus the findings of this study will help to identify the factors and ultimately manage to improve the survival of patients with breast cancer recurrence.**Broad objective:** To determine factors associated with breast cancer recurrence at ORCA.**Methods:** This was a retrospective study whereby all patients with recurrent breast cancer were studied from 2009-2010. Associated factors were obtained from the questionnaire. The collected data was analyzed using SPSS. Continuous data was presented as range and categorical data by number (percentage). The relationship between variables was done by Chi-square test and logistic regression.**Results:** A total of 196 randomly selected patient files were studied. 49 of the patients were below the age of 50 years. About half of the study population did not have any kind of education. 36.7% of the patients presented with stage 2b disease followed by stage 3a (35.7%). Infiltrating ductal carcinoma was the commonest type of histology (92.3%). The commonest type of surgery performed was total mastectomy (46.9%)

followed by modified radical mastectomy (39.8%). 34.7% of the patients underwent surgery followed by chemotherapy. 49% of the patients started treatment by 4 weeks from the time of diagnosis. Of the 196 patients 13.8% had recurrence. Strong association was found between breast cancer recurrence and initial stage of disease and breast cancer type. **Conclusion and recommendation:** Majority of the breast cancer patients were in their productive stage of life. Lack of education contributed to late diagnosis and hence treatment. Health education and sensitization through screening prevents late stage presentation and leads to early diagnosis and detection of recurrences. Proper documentation of the patient's case history/notes is important. Improvement of cancer treatment facilities at ORCI and revision of breast cancer treatment protocol is required.

428. **Shafie A, Yahya N, Kashif M, Zaid HM, Soleimani H, Alnarabiji MS. The Band Structures of Single-Walled Carbon Nanotubes and ZnO Nanoparticles Used for Oil Recovery in Water Flooding System. *Journal of Nano Research*. 2014; 26: 101-110.**

A major challenge for the oil industry is increasing the oil recovery from reservoirs. Nanofluid injection with the aid of electromagnetic (EM) waves can improve oil recovery. Nanoparticles of zinc oxide (ZnO) were synthesised using a sol-gel method and characterised using X-ray diffraction (XRD) and field emission scanning electron microscopy (FESEM). Nanofluids of SWCNT and zinc oxide (ZnO) were used in this oil recovery study. It was observed that curved antennae with magnetic feeders gave a 472% larger D-field signal than those without magnetic feeders. The Dmol3 simulations showed that the band gap of ZnO is 1.088 eV, and the band gap of the SWCNT was 0.326 eV. The particle sizes of the ZnO nanoparticles were in the range of 30-39 nm. FESEM and HRTEM images showed that the samples were highly crystalline, and the grain size increased as the temperature increased. As a result, these nanoparticles were suitable for the preparation of the nanofluid and oil recovery applications. Oil recovery using 0.001% (w/w) ZnO nanofluid and EM was 16.10 % of OOIP, and using 0.01% SWNT nanofluid yielded an oil recovery of 23 ROIP %. These results imply that injecting a ZnO oxide nanofluid of 0.001% w/w coupled with a curved antenna and magnetic feeders has the potential to improve oil recovery in waterflooding systems.

429. Shafiq M, AbdelWahab AM. Differentiation between atrioventricular reentrant tachycardia (AVRT) and AV nodal reentrant tachycardia (AVNRT). *The Egyptian Heart Journal*. 2014; 66(1): 7.

Differentiation between atrioventricular reentrant tachycardia (AVRT) and AV nodal reentrant tachycardia (AVNRT) can be sometimes challenging in the EP lab. RV pacing during SVT produces progressive QRS fusion before QRS morphology becomes stable. This fusion zone (FZ) may differentiate AVRT from AVNRT independent of entrainment success. PPI-TCL during RV entrainment can help in differentiation; however it has some fallacies and limitations. We thought to compare the accuracy of atrial preexcitation (AP) & Stimulus to atrial (S-A) interval fixation in relation to fusion zone in identifying the mechanism of SVT. We studied retrospectively and prospectively the effect of properly timed RVP on atrial timing during FZ. 118 SVT patients had RVP within 40 ms shorter than tachycardia cycle length (TCL). S-A interval and atrial CL were measured during FZ and with each QRS complex thereafter. A fixed S-A interval was defined as variation < 5 ms during RVP & AP is the first change in atrial CL ≥ 10 ms. 9 patients were excluded due to cycle length oscillation > 10 ms before the onset of RVP and 6 patients had atrial tachycardia (VA dissociation with RVP) and were excluded. In the remaining 103 patients, PPI-TCL was significantly longer in AVNRT patients but postpacing response couldn't be assessed in 12 patients who showed consistent termination of tachycardia during RVP entrainments; 3 AVNRT patients (5%) & 9 AVRT patients (22%). And when assessed it was not diagnostic in additional 4 (6%) patients with AVNRT (< 115 ms) & 7 (17%) patients with AVRT (≥ 115 ms). Atrial preexcitation (AP) occurred during FZ in most AVRT patients and after FZ in most AVNRT patients. However, S-A fixation occurred during FZ in all AVRT patients and after FZ in all AVNRT patients. Fixation of S-A interval in relation to FZ was more accurate than either AP or PPI-TCL in identifying the mechanism of SVT (100%, 92.4% and 84.8% consecutively). We can conclude that during RVP within 40 ms of the tachycardia cycle length, fixed S-A interval and AP in relation to FZ were superior to PPI-TCL measurement in identifying the mechanism of SVT.

- 430. Shafiq M, Subhash G. A novel technique for the determination of surface biaxial stress under external confinement using Raman spectroscopy. *Experimental Mechanics*.2014; 54(5): 763-774.**

Bi-axial compressive stress induced as a result of mechanical confinement within zirconium diboride-silicon carbide (ZrB₂-SiC) ceramic composite has been quantified using micro Raman spectroscopy and then validated using two independent experimental methods. First a relationship relating the Raman peak-shift on a confined silicon carbide (SiC) particle to magnitude of imposed confinement stress was developed by utilizing phonon deformation potentials for 3C-SiC diamond and zinc-blende crystal structures. ZrB₂-5wt%SiC samples, prepared using spark plasma sintering were subjected to different confinement pressure on the lateral surface by thermal shrink fitting metallic sleeves. The relationship between Raman peak-shift and confinement stress was then verified by comparing the measured stress in this method with that calculated from analytical expressions readily available for thick walled cylinders. The relationship was further validated independently using digital image correlation (DIC) by measuring the displacements for unknown levels of progressively increasing confinement stress induced by a shaft-collar ring on similar specimens. The Raman peak-shift relation derived for SiC phase also correctly predicted process-induced residual stresses due to a mismatch in coefficient of thermal expansion between the matrix phase and SiC particles. The derived Raman peak-shift relationship can also be generalized and can be a valuable tool to experimentally determine unknown bi-axial stress in a Raman active structure.

- 431. Shah I, Ilyas M, Raja M, Saleh S, Khan M, Qamar A, Radha H. Predicting New Collaborations in Academic Citation Networks of IEEE and ACM Conferences. 2014.**

In this paper we study the time evolution of academic collaboration networks by predicting the appearance of new links between authors. The accurate prediction of new collaborations between members of a collaboration network can help accelerate the realization of new synergies, foster innovation, and raise productivity. For this study, the authors collected a large data set of publications from 630 conferences of the 000 papers, capturing more than 000 authors, 61000 IEEE and ACM of more than 257 000

collaborations spanning a period of 10 years. The data set is rich in 818 semantic data that allows exploration of many features that were not considered in previous approaches. We considered a comprehensive set of 98 features, and after processing identified eight features as significant. Most significantly, we identified two new features as most significant predictors of future collaborations; 1) the number of common title words, and 2) number of common references in two authors' papers. The link prediction problem is formulated as a binary classification problem, and three different supervised learning algorithms are evaluated, i.e. Naive Bayes, C4.5 decision tree and Support Vector Machines. Extensive efforts are made to ensure complete spatial isolation of information used in training and test instances, which to the authors' best knowledge is unprecedented. Results were validated using a modified form of the classic 10-fold cross validation (the change was necessitated by the way training, and test instances were separated). The Support Vector Machine classifier performed the best among tested approaches, and correctly classified on average more than 80% of test instances and had a receiver operating curve 80% (ROC) area of greater than 0.

432. **Sherin AK . Clinical Features and Diagnostic Findings Of Patients Presenting To Mnh - Emd With Suspected Ectopic Pregnancy. Master of Medicine (Emergency Medicine) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam**

Background: Ectopic pregnancy refers to implantation of pregnancy outside the uterus. It is the most common life-threatening condition causing maternal death in early pregnancy and the second cause of overall maternal mortality. Classic symptoms include amenorrhea, abdomino - pelvic pain, vaginal bleeding, and syncope but presentation is highly variable. **Aim:** To describe the clinical presentation, risk factors and ultrasound findings of women with suspected ectopic pregnancy seen at MNH – EMD **Methods:** This was a descriptive cohort study of symptomatic pregnant women presenting to the MNH – EMD. Data was collected prospectively for patients that were diagnosed with ectopic pregnancy in the EMD and a retrospective chart review was done to gather data on all women who presented to the EMD with symptomatic pregnancy, during the same time period. Data was collected and entered into Excel spreadsheet and imported to

statistical software SPSS version 20. **Results:** 156 women with symptomatic pregnancies presented during the study period. Ectopic pregnancy was ultimately diagnosed in 68 (44%) women. The mean age, gravidity and gestation age of the patients was 28 ± 6 years, 3 ± 2 and 5 ± 3 weeks respectively. Most of the patients had been referred from another health facility with a majority evaluated at least by two health facilities prior to being brought to the emergency department. The commonest clinical presentations were abdomino - pelvic pain 97.1%, weakness and fatigue 83.6%, dizziness 70.1% and palpitations 70.1%, with 34.3% of women presented with syncope. Less than a quarter of patients had identified any known risk factors. Tachypnea 57 (85.1%) and tachycardia 43 (64.2%) were the most common abnormal vitals seen with less than 10% of patients presented with signs of shock. Also 74.6% of patients had peritoneal signs and 56.1% were pale on examination. The mean hemoglobin was 7.75 ± 2.72 g/dl. All patients had a BUS done of which 95.6% had free fluid in the abdomen on arrival. All patients were surgically managed and 79.4% were transfused at least one unit of blood. **Conclusion and Recommendations:** Our study showed women with Ectopic pregnancy presented early in their first trimester, commonly with abdomino - pelvic pain, fatigue, weakness and syncope. Majority of patients with ruptured ectopic presented with normal vital signs and had no identifiable risk factors. More than half of women required two or more visits to health facilities prior to arriving to MNH for definitive management. We recommend continuous training and education for health care workers to have a high index of suspicion for women of reproductive age presenting with symptomatic pregnancy.

433. **Shija KC. Thyroid Dysfunction: Prevalence and Associated Factors in End Stage Renal Disease Adult Patients at Muhimbili National Hospital in Dar Es Salaam, Tanzania. Master of Science (Nephrology) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: Thyroid dysfunction is very common in patients with chronic kidney disease especially those with end stage renal disease. The presentation and prevalence varies between studies and in Tanzania little has been done. **Objective:** This study was aimed at determining the prevalence and associated factors of thyroid dysfunction in ESRD patients at Muhimbili National Hospital in Dar es Salaam Tanzania. Methodology:

A descriptive cross sectional study was carried out after obtaining an informed consent. A total of 286 patients with CKD and ESRD were consecutively recruited and enrolled in the study after meeting the criteria. Thyroid hormones including FT4, FT 3 and TSH were measured using an electrochemiluminescence immunoassay. Subclinical hypothyroidism (SeH) was defined as TSH above the normal range with normal FT 4 and FT3. Overt hypothyroidism was defined as TSH above the normal with low FT4 and FT3 while overt hyperthyroidism was defined as low TSH with high free T4 and T3. By using structured questionnaire and patients charts data were gathered and entered in SPSS version 16 for analysis. Frequency and statistical tests including chi square and Fischer exact tests were applied to obtain proportions and statistical significance with p value of less than 0.05. Binominal logistic regression was applied to ascertain the association. RE Of the 286 ESRD patients 66.4% were on conservative treatment, 23.1 % were kidney transplanted and 10.5% were on RD. Sixty two percent (177/286) were male patients. The mean and standard deviation for age was 48 ± 13 . Overall overt hypothyroidism was 12% of the majority (97%) were those on conservative treatment group whereas overall subclinical hypothyroidism was 7.7%. There was high prevalence of low serum free T3 as well as T4 levels with their proportions being 45% and 27% respectively. The age was significantly associated with subclinical hypothyroidism in the conservatively treated group. Level of education, serum albumin and employment were significantly associated with thyroid dysfunction in the hemodialysis group. By the binominal logistic regression analysis age above 55 years was significantly associated with subclinical hypothyroidism in conservatively treated group. **Conclusion:** We found high prevalence overt hypothyroidism, subclinical hypothyroidism and low serum levels of T3 and T4 in patients with ESRD who were on conservative while lower prevalence of these disorders was found in hemodialysis and no overt hypothyroidism in kidney transplant patients. Age above 55 was found to be significantly associated with subclinical hypothyroidism in the conservatively treated patients.

434. Shaikh PH, Nor NBM, Nallagownden P, Elamvazuthi I, Ibrahim T. A review on optimized control systems for building energy and comfort management of smart sustainable buildings. *Renewable and Sustainable Energy Reviews*. 2014; 34: 409-429.

A building all around the world consumes a significant amount of energy, which is more or less one-third of the total primary energy resources. This has raised concerns over energy supplies, rapid energy resource depletion, rising building service demands, improved comfort life styles along with the increased time spent in buildings; consequently, this has shown a rising energy demand in the near future. However, contemporary buildings' energy efficiency has been fast tracked solution to cope/limit the rising energy demand of this sector. Building energy efficiency has turned out to be a multi-faceted problem, when provided with the limitation for the satisfaction of the indoor comfort index. However, the comfort level for occupants and their behavior have a significant effect on the energy consumption pattern. It is generally perceived that energy unaware activities can also add one-third to the building's energy performance. Researchers and investigators have been working with this issue for over a decade; yet it remains a challenge. This review paper presents a comprehensive and significant research conducted on state-of-the-art intelligent control systems for energy and comfort management in smart energy buildings (SEB's). It also aims at providing a building research community for better understanding and up-to-date knowledge for energy and comfort related trends and future directions. The main table summarizes 121 works closely related to the mentioned issue. Key areas focused on include comfort parameters, control systems, intelligent computational methods, simulation tools, occupants' behavior and preferences, building types, supply source considerations and countries research interest in this sector. Trends for future developments and existing research in this area have been broadly studied and depicted in a graphical layout. In addition, prospective future advancements and gaps have also been discussed comprehensively.

435. **Shilekirwa MM. Humeral Supracondylar Fractures In Children: - Epidemiological Features and Short Term Management Outcome at Muhimbili Orthopedic Institute. Master of Medicine Orthopedics and Trauma Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: Humeral supracondylar fracture is the extra capsular fracture of distal humerus. Sometimes it is misdiagnosed with other elbow injuries in children like condylar fractures probably due to the unique nature of pediatric elbows. Fracture

displacement is accompanied by corresponding increased periosteal disruption, with decreased fracture stability. The Gartland classification of humeral supracondylar fractures was used in this study. The management of supracondylar fracture of humerus in this study involved the following, depending on the type: - **Aim of the study:** - To determine the epidemiological features and short term management outcomes of humeral supracondylar fractures in children attended at Muhimbili Orthopedic Institute (MOI) from April to September 2013. **Methodology:** A Hospital based descriptive cross-sectional study was done at MOI located in Dar-es-salaam city. All paediatric patients aged 13 years and below with humeral supracondylar fracture treated at MOI from April to September 2013 were recruited in the study and followed up for twelve weeks, the estimated minimum sample size was 50 patients. Data was collected using structured questionnaire and then analyzed using Statistical software (SPSS version 20). **Results:** The proportion of humeral supracondylar fracture among trauma children at MOI was found to be 16.6%; boys were more frequent injured than girls by ratio of 2.2:1 and their mean age is 5.8 years with standard deviation 2.5 years. 90.7% of all children are right side dominant and left arm was more injured 53.3% as compared to right. Fall from height is the leading cause of this fracture by 54.7%. Gartland type III is commonest 66.7% at MOI compared to other types. There is significant difference in the mean range of elbow movement between those who started supervised physiotherapy within 6 weeks after treatment and those who didn't start and that 86.7% of all fractures healed uneventful by the end of study period (12 weeks.) **Conclusion:** There is no difference in epidemiological features in children with humeral supracondylar fractures between those treated at MOI and from other countries and that there is good outcome in children treated at MOI in which 86.7% healed uneventful by the end of study period (12 weeks.)

436. **Shimwela M, Mwita JC, Mwandri M, Rwegerera GM, Mashalla Y, Mugusi F. Asthma prevalence, knowledge, and perceptions among secondary school pupils in rural and urban coastal districts in Tanzania. *BMC public health*. 2014; 14(1): 387. **Background:** Asthma is a common chronic disease of childhood that is associated with significant morbidity and mortality. We aimed to estimate the prevalence of asthma among secondary school pupils in urban and rural areas of coast districts of Tanzania.**

The study also aimed to describe pupils' perception towards asthma, and to assess their knowledge on symptoms, triggers, and treatment of asthma. **Methods:** A total of 610 pupils from Ilala district and 619 pupils from Bagamoyo district formed the urban and rural groups, respectively. Using a modified International Study of Asthma and Allergies in Childhood (ISAAC) questionnaire, a history of "diagnosed" asthma or the presence of a wheeze in the previous 12 months was obtained from all the studied pupils, along with documentation of their perceptions regarding asthma. Pupils without asthma or wheeze in the prior 12 months were subsequently selected and underwent a free running exercise testing. A $\geq 20\%$ decrease in the post-exercise Peak Expiratory Flow Rate (PEFR) values was the criterion for diagnosing exercise-induced asthma. **Results:** The mean age of participants was 16.8 (± 1.8) years. The prevalence of wheeze in the past 12 months was 12.1% in Bagamoyo district and 23.1% in Ilala district ($p < 0.001$). Self-reported asthma was found in 17.6% and 6.4% of pupils in Ilala and Bagamoyo districts, respectively ($p < 0.001$). The prevalence of exercise-induced asthma was 2.4% in Bagamoyo, and 26.3% in Ilala ($P < 0.002$). In both districts, most information on asthma came from parents, and there was variation in symptoms and triggers of asthma reported by the pupils. Non-asthmatic pupils feared sleeping, playing, and eating with their asthmatic peers. **Conclusion:** The prevalence rates of self-reported asthma, wheezing in the past 12 months, and exercise-induced asthma were significantly higher among urban than rural pupils. Although bronchial asthma is a common disease, pupils' perceptions about asthma were associated with fear of contact with their asthmatic peers in both rural and urban schools.

437. **Sifael KF. Periodontal Status, Treatment Needs and Awareness of Periodontal Diseases among Adult Cardiac Patients Attending Muhimbili National Hospital, Dar Es Salaam, Tanzania. Master of Dentistry (Restorative Dentistry) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: The periodontal diseases (PDs) have recently been reported to be associated with cardiovascular diseases (CVDs). In Tanzania there is no available information on the matter. In Tanzania, the most common cardiovascular diseases

includes: hypertension, cardiomyopathy, stroke, angina pectoris valvular heart diseases, rheumatic heart disease, congestive cardiac failure, ischemic heart disease. **Objective:** The aim of this study was to determine the periodontal status, treatment needs and awareness of periodontal diseases among adult cardiac patients attending the Muhimbili National Hospital, Dar-es-salaam Tanzania. **Methodology:** This was a hospital based descriptive cross-sectional study conducted between July and December 2013. No sampling was done. All consented patients were included in the study. The study participant's socio-demographic factors were gathered through self administered structured questionnaires in the cardiac unit, followed by clinical examination carried out by single examiner in the dental building for assessing the presence of plaque, calculus, gingival bleeding on gentle probing, periodontal pocket depth in (mm), gingival recession in (mm) and periodontal attachment loss in (mm). Also tooth mobility and missing teeth were assessed accordingly. A sample of 340 cardiac patients, 116 male and 224 female subjects aged 18 years and above who attended the Muhimbili Cardiac clinic during the study period was enrolled in the study. All information obtained were coded, entered in a computer and analyzed using SPSS version 16.0: Frequencies and percentages were chosen to show the distribution of periodontal diseases in adult cardiac patients. Chi-square test was used to compare proportions between sex and age group studied. The t-test was used for comparing the mean number of sextants examined according to the age groups and sex respectively, and the level of statistical significance was set at $p < 0.05$. **Results:** Of the 340 study participants, 224 (65.9%) were female providing a male to female ratio of about 1:2. It was observed that, majority of the males (75.9%) and females (74.6%) participants were not aware of the gum diseases and their differences were not statistically Significant. Majority of the patients presented with plaque, calculus and gingival bleeding on gentle probing in one or more of the teeth surfaces examined. The prevalence of gingival bleeding on gentle probing was 79.3% among all cardiac patients studied, among males (84.8%), among female (73.5%) with mean number of sites with gingival bleeding 11.11 ± 6.27 . The prevalence of dental plaque was 91.8% among all cardiac patients studied, among males (97.3%) and among females (95.6%) with mean number of sites with plaque 2.28 ± 6.84 . The prevalence of dental calculus was 96.5% among all cardiac patients studied, among males (98%), among females (95.8%) with

mean number of sites with calculus 15.0 ± 6.42 . The prevalence of mobile teeth was 17% among all cardiac patients studied with mean number of mobile teeth 0.5 ± 1.58 . Majority with mobility grade II. The prevalence of missing teeth was 90.9% among all cardiac patients studied. The mean number of missing teeth was 3.47 ± 3.48 among males and 3.15 ± 3.06 among females. There was statistical significance difference in mean number of missing teeth between the age groups. Majority of tooth loss was due to dental caries 91.4% followed by periodontal diseases 7.3% and the least was due to trauma (1.3%). The prevalence of periodontal pockets greater than 3.5 mm was 9.4% among all cardiac patients studied. Periodontal pockets were more common in the age groups 45-64 and 65+ years. There was significant difference in mean sites with periodontal pockets less than 3.5mm between age groups. The prevalence of gingival recession was 20.5% among all cardiac patients studied with mean 5.39 ± 14.63 with no significant difference in the mean number between males and females as well as between age groups. The prevalence of periodontal attachment loss was 20.3% among all cardiac patients studied with mean 5.69 ± 15 . There was no difference in mean number of sites with periodontal attachment loss between males and females as well as between age groups. Practically every participant needed oral hygiene instructions and professional scaling and root planning (TN-1 and TN-2). Scaling and root planning (TN-2) was needed to all participants. Complex periodontal treatment needs required to about 0.9% all over 45 years old for the patients with periodontal pockets greater than 5.5 mm. **Conclusion:** This study has shown that majority of the patients were not aware of the gum diseases. Majority of the patients presented with plaque, calculus and gingival bleeding on gentle probing in the teeth surfaces examined. Teeth mobility was observed in few subjects examined of which majority of the examined teeth had grade two mobility. Periodontal diseases accounted the second cause of teeth loss. Periodontal pockets were more prevalent in the age groups of forty five years and above. About one fifth of the studied population had gingival recession and the prevalence increased with age. The periodontal treatment needs for the study population include mainly oral hygiene instructions followed by professional scaling and root planning. The need for complex periodontal therapy was limited to a smaller proportion of the study population. **Recommendations:** 1. more effort is needed to provide oral health information (education) to general public. This can be done to:

Individuals (attendance to dental clinics for check up and treatment) Cardiac patients at clinics to reinforce effective tooth brushes for needy patients Medical personnel to include some dental contents in medical, nursing curricular to increase the awareness. Communities through media (radio and television programs). 2. Oral health promotion is to be instituted to improve oral hygiene so as to prevent gingivitis and periodontal diseases to the general population.

- 438. Silbermayr K, Horvath-Ungerboeck C, Eigner B, Joachim A, Ferrer L. Phylogenetic relationships and new genetic tools for the detection and discrimination of the three feline Demodex mites. *Parasitology research*. 2014; 114(2): 747-752.**

Two feline Demodex mite species have been described as causative agents of feline demodicosis, until recently a third species was detected. We provide an updated analysis on the phylogenetic relationship of Demodex mites. In addition, we present the first qPCR assay for the detection and differentiation of all three feline mite species in a single reaction. Specimen of *Demodex cati*, *Demodex gatoi*, and the recently discovered third species were collected from skin scrapings and fecal flotation for DNA extraction, conventional PCR, sequencing, and alignment. A total of 24 sequences of the partial 16S rRNA gene were used to estimate the evolutionary divergence in a p-distance model and a maximum likelihood phylogenetic tree. For the qPCR assay, new primers and fluorescent probes for the simultaneous detection of all three feline Demodex mites were designed. A consensus fragment of 351 bp was phylogenetically analyzed. The third species sequence of our study shares 98.6 % similarity to the available sequence in GenBank®. It is most similar to *D. gatoi* (82.41 %) and most distant to the canine *Demodex injai* (78.28 %). In contrast, *D. gatoi* is most similar to human *Demodex brevis* (87.01 %). The multiplex qPCR detected and discriminated the three different mite species in one reaction. The detection limit is ≤ 1.4 ng of mite DNA. The three feline Demodex species have distinct genotypes and did not cluster in one genetic clade. The species differentiation and assessment of evolutionary relationships will ultimately support correct diagnostics and treatment approaches.

439. **Silvano F. Feudalization and Physical Condition of Mosquito Nets and Associated Factors in Lindi Rural District, Tanzania. Master of Science (Applied Epidemiology) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: Mosquito nets have been established as the main vector control strategy to prevent malaria in Africa. Mosquito nets provide users with physical and chemical protection against bites from infective mosquitoes. Sustained high level of mosquito net use reduces malaria transmission at community-level (mass effect). Lindi region in Tanzania has high malaria prevalence (26%) despite of high ownership (96%) and use (87.1%) of mosquito nets (THMIS 2011/12). Mosquito nets provide optimal protection to users when they are new and physically intact. Most of mosquito nets are withdrawn from use at the age of 1.5 years in use due to physical deterioration (Mutuku et al., 2013). This study analysed mosquito nets use, physical condition and associated factors in Lindi rural district. **Methodology:** A community based cross-sectional study design was employed. A structured questionnaire on ownership and use of mosquito nets was administered to heads of households from sampled households in Lindi rural district. Physical inspection of all routinely used mosquito nets was done by counting holes and measuring their sizes as per WHOPES guideline for durability of nets. The information was recorded on the checklist. A proportionate Hole Index was used to measure the physical condition of the mosquito nets. **Results:** The survey covered 180 households with 733 individuals who slept in the households the night before survey. In total, 95.6% (172/180) of households owned at least one mosquito net. Overall 53.5% (392/733) of household members slept under the mosquito net the night before survey. Children of < 5 years were the highest (72%) users of mosquito nets among the three age groups, while the least (40%) users were children of 5 – 15 years. Among the heads of households, 55.9% (57/102) slept under the mosquito net the night prior to the survey. The main reasons reported by non users of mosquito nets were; hot weather condition (40%) and lack of mosquito net (37.8%). Utilization of mosquito nets by the heads of households was found to be significantly associated with their level of education ($P < 0.01$). Of the 310 mosquito nets, 105 (33.9%) were in good physical condition. The factors for poor physical condition of mosquito nets were destruction by fire from open tin lamps and

wear and tear from long term use (2 years and beyond) of mosquito net. **Conclusions:** There is high ownership of mosquito nets at a household level in Lindi rural district but use in the households is low. The evidence of a significant association between use of nets and level of education among heads of households was established. Two-thirds of mosquito nets were in poor physical condition and therefore “ineffective” in mosquito control. Mosquito nets of 2 years and beyond in use found to be in poorer physical condition than mosquito nets of 1 year in use.

440. **Simon AC. Impact of Two Rounds of Praziquantel Mass Drug Administration to School Children on Urinary Schistosomiasis and Associated Factors in Bahi District Dodoma. Master of Science (Parasitological and Medical Entomology) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: The major goal of mass drug administration (MDA) with Praziquantel (PZT) in the control of urinary Schistosomiasis among school children has been to reduce prevalence and intensity. Two rounds of MDA campaign have been conducted in Bahi district; however, its impact on prevalence, intensity and associated factors of *S. haematobium* infection is not known. **Objective:** This study assessed the impact of MDA with two rounds of PZQ to school children on prevalence and intensity of *S. haematobium* infection, as well as impact of MDA campaigns on knowledge, safe water usage and contact with water bodies potentially infested with cercariae. **Methods:** A quantitative cross-sectional study among primary school children was done between March and April, 2013. A structured questionnaire was used to collect information on coverage of MDA, knowledge about disease, sources of water for domestic use and water contact patterns. In addition, urine samples were collected from each pupil to examine the prevalence and intensity of *S. haematobium*. Snails from water bodies were sampled and examined for cercarial shedding to establish whether there is continued transmission. Chi-square test was used to compare proportions between two groups with P-value set at 0.05. **Results:** About 30% of children received PZQ in both MDAs, with 39.5% of them receiving in 2011 and 43.6% receiving in 2012. MDA had impact on prevalence and intensity of *S. haematobium* infection ($P = 0.000$) and prevalence was 15%. The MDA

campaigns had positive impact on usage of safe water ($P = 0.044$), as well as on knowledge ($P = 0.021$): however, the campaigns had no impact on water-contact patterns ($P = 0.060$). Fresh water snails were found shedding *S. haematobium* cercariae indicating continuity of transmission and therefore re-infection in the study area. **Conclusion:** Two rounds of annual MDA with praziquantel to school children have significantly reduced both prevalence and intensity of *S. haematobium* infection in Bahi district. However, re-infection is still a problem indicting the need for further rounds of MDA campaigns coupled with IEC & BCC.

441. **Simon RMN. Clinico-Pathological Characteristics of Oropharyngeal Squamous Cell Carcinoma among Patients Attending Muhimbili National Hospital in Tanzania. Master of Dentistry (Oral and Maxillofacial Surgery *Dissertation* 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Introduction: At Muhimbili National Hospital (MNH), patients present with different oro-facial malignant lesions and majority of these are oropharyngeal squamous cell carcinoma (OPSCC). No enough data from our region that is indicating the clinic pathological features of these malignant lesions. . Tobacco have been associated with OPSCC, however, the other one fourth of patients comprises a special group who never smoked or drunk alcohol and this is a group and id possibly associated to other risk factors including immunosuppression. Small lesions are often asymptomatic or may present with vague symptoms, while locally advanced lesions present with discomfort, pain, ulceration, and difficult in function. OPSCC present with cells at different stages of keratinization, nuclear atypia and are characterized by lymph node metastasis. At the molecular level OPSCC presents with several degrees of nuclear polymorphism, pattern of invasion and also host response by lympho-plasmacytic infiltration is different to each OPSCC presence. Therefore, this study aimed at investigating the clinic pathological features of the OPSCC patients attending MNH.**Objective:** To characterize the clinic - pathological features of OPSCC among patients attending Muhimbili National Hospital, Tanzania.**Methods:** The researcher used both a clinical form and a questionnaire to collect the information from the patients, which was recorded in a personal computer. All patients histologically diagnosed with or pharyngeal squamous cell carcinomas were

required to fill or be assisted to fill a questionnaire, and undergo a clinical examination. Thereafter a biopsy was taken and processed to confirm the clinical diagnosis. The data obtained from the clinical presentations and histological analysis formed the core variables that were analyzed. All information collected was coded and analyzed using SPSS software version 21. Associations between variables were determined using the Chi-square or Fisher's exact test and a P-value less than 0.05 was considered statistically significant.

Results: A total of 64 patients were recruited who comprised of 42 males and 22 females with a male to female ratio of about 1.9:1. The age ranged from 20 to 89 years with mean age of 56 ± 14.43 years. There was a significant number of patients (21.9%) aged under 40 years with squamous cell carcinoma among whom 85.7% were males and 14.3% females. Alcohol use was reported in 70.3% patients and tobacco used by 62.5% patients, and majority (73.7%) of the tobacco users were smokers. Pain was the common presentation with 96.9%, then ulceration and discomfort at 90.6% and 89.1% respectively. About 34.9% of the participants presented with painful non-healing ulcer with duration of 3-6 months. Majority (87.5%) reported the lesion to be a first growing accompanied with some times bleeding. The tongue was the most affected site with 40.6% followed by retro molar gingival. Only three patients were found to have been HIV positive and they had CD4 cells counts ranging from 101-400 cells/mm³. Most of the patients reported with clinical stage IV (87.5%). Histological, the Borders' grading system, grades were nearly equal distributed, with Grade I: 23.5%, Grade II: 29.7%, Grade III: 21.6% and Grade IV 25%. This system of grading was found highly statistically related to the site affected ($P=0.0017$). Bryne's deep invasive cell grading system showed that high keratinization was common which was observed in 22 slides. Moderate nuclear polymorphism was also observed among 22 slides. Most slides (24) showed small groups or cords of infiltrating cells as a mode of host response, and again most slides (21) showed 2-3 mitotic figures. This Bryne's grading system correlated well with clinical stage where 54.5% of clinical stage patients were in Bryne's grade III.

Conclusion: In this study a combination of alcohol drinking and any form of tobacco use was found to have been a significant aetiological factor for manifesting OPSCC. The proportion of young patients was considered to have been high. Patients presented mostly with a painful non-healing ulcer as the main complaint. The common site affected was

found to have been the tongue. Majority of the cases were in clinical stage IV. Bryne's grading system correlated well with clinical stage.

442. **Simon T. Comparing Fréchet and positive stable laws. *Electron J. Probab.* 2014; 19(16): 1-25.**

Let L be the unit exponential random variable and Z_α the standard positive α -stable random variable. We prove that $f(1-\alpha)Z_\alpha$; $0 < \alpha < 1$ is decreasing for the optimal stochastic order and that $f(1-\alpha)Z_\alpha$; $0 < \alpha < 1$ is increasing for the convex order, with $\alpha = \alpha(1-\alpha)$. We also show that $f(1+\alpha)Z_\alpha$; $1/2 \leq \alpha < 1$ is decreasing for the convex order, that Z_α is stochastically larger than $(1-\alpha)L$ and that $(1+\alpha)Z_\alpha$ is convex in L . This allows one to compare Z_α with the two extremal Fréchet distributions corresponding to the behaviour of its density at zero and at infinity. We also discuss the applications of these bounds to the strange behaviour of the median of Z_α and $Z_{1-\alpha}$ and to some uniform estimates on the classical Mittag-Leffler function. Along the way, we obtain a canonical factorization of Z_α for α rational in terms of Beta random variables. The latter extends to the one-sided branches of real strictly stable densities.

443. **Simon CM. Facilitators to Male Participation in Prevention of Mother to Child Transmission of HIV Programme in Namtumbo District Council. Master of Public Health Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: Factors facilitating male participation in Prevention of Mother to Child Transmission of HIV (PMTCT) are understudied – particularly so in the rural areas. Few available studies on enabling factors are urban based and used females to give views of their partners rather than hearing from males themselves. Hence this study focused on males to get more objective information on facilitating factors for their participation in PMTCT in a rural setting. **Aim:** This study aimed at assessing the facilitators of male participation into PMTCT programme among males attending Antenatal Clinic (ANC) in Namtumbo District Council. **Methods:** Two methods were used. First part involved a quantitative study in which a cross sectional study to assess facilitators of male participation in PMTCT from the community was done and second part was qualitative

study, where by in-depth interviews were conducted with health facility in-charges to explore how they get male involved in the programme. **Results:** This study found awareness on the ways HIV can be prevented and transmitted from mother to child as the factor that may influence male to attend with their female partner into ANC and participate in PMTCT. Those who accompanied their partners; Two hundred and twelve participants (90.6%) were aware that transmission can occur during pregnancy ($p=0.047$) and two hundred (91.5%) participants were aware that transmission can occur during breast feeding ($p=0.01$). On mode of prevention one hundred and ninety three (82.3%) were aware that avoiding breast feeding reduces the chance of MTCT of HIV ($p=0.008$) and one hundred and forty two (60.7%) of respondents were aware that caesarean section can reduce the chance of MTCT ($p=0.009$). Two hundred of the participants (83.7%) disagreed with the statement that men should not have male only PMTCT clinic ($p=0.033$) and two hundred and seventeen (83.8%) of respondents who attended ANC with their partner disagreed that ANC for PMTCT are meant for Mothers and children only ($p=0.005$). Health facility arrangements were found to influence male to participate into ANC. In this study confidentiality among health care workers, inviting male by a note, staff motivation to work extra hours and community sensitization were found to be the factors that may influence male to go to clinic for PMTCT services. **Conclusion and Recommendations:** Health system factors and programme awareness have a major role in facilitating male to be involved into ANC for PMTCT services. Institutional arrangements and policy formulation is needed for the programme to be successful.

444. **Specioza SM. Factors That Influence Exclusive Breastfeeding among Mothers in Somangira Ward, Temeke Municipality, Dar Es Salaam, Tanzania Masters of Public Health Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: Exclusive Breast-Feeding (EBF) practice for the first six months of an infant is an effective way of reducing childhood morbidity and mortality. It is also a cost effective intervention in saving children's lives in which 13% to 15% of the 9 million deaths of under-five can be saved. Despite the benefits that are obtained through EBF practice and all the efforts that are taken nationally and internationally, still EBF practice

rates have been shown to be low especially in poor resource settings (prevalence range from 20% to 40%). In Tanzania the prevalence of EBF among infants below six months is 50% with regional variations. **Aim of the Study:** The aim of this study was to determine the proportion of women who practice EBF for the first six months of an infant's life, and to identify factors that are associated with EBF in Somangira ward. The findings from this study are expected to help the government and policy makers to take corrective actions that will lead to increased EBF practice among women in Somangira Ward and the rest parts of Tanzania. **Methods:** A cross-sectional study to investigate women who practice EBF was conducted at Somangira Ward, Temeke Municipality from May 5th through May 17th 2014. Quantitative data collection method was used to gather information from a total of 427 mothers from all four villages in the Ward who had children up to -five years of age. Face-to-face interviews were conducted with mothers of children up to five years using a questionnaire designed specifically to elicit information on infant feeding practices. Statistical analysis was done using Statistical Package for the Social Science (SPSS-Version 20). Chi-square tests and logistic regression models were used to evaluate relationships between different selected variables. **Findings:** This study shows that EBF prevalence among mothers in Somangira ward was 49.1%. About 50.9% did not practice EBF instead they practiced mixed feeding to infants before the age of six months, despite the fact that 96% of those interviewed had information on the recommended duration to practice EBF to infants. The main predictors of EBF identified included: age (AOR = 0.27; 95% CI: 0.08 – 0.86; P-Value = 0.021), marital status (AOR =0.06; 95% CI= 0.37 – 1.02; P-value=0.061), lack of knowledge on EBF benefits (AOR =0.09; 95% CI: 0.03 – 0.24; P-value <0.001), economic status of the family (AOR = 0.37; 95% CI: 0.14 – 0.97; P-value = 0.043), food security status (AOR = 0.26; 95% CI: 0.09 – 0.07; P-Value = 0.011); education level (AOR = 0.30; 95% CI: 0.12 – 0.79; P-Value = 0.013), opinion to EBF (AOR =3.84; 95% CI: 1.99 – 7.42; P-value <0.001) and maternal health status (AOR = 2.98; 95% CI: 1.32 – 6.77; P value = 0.009). **Conclusion:** Despite the fact that almost half of the mothers (49.1%) were reported to practice EBF still the rate is not satisfactory if compared to the prevalence rate recommended by WHO which is 90%. EBF among mothers at Somangira Ward is influenced with multiple factors including age, marital status, education level, economic status, food insecurity,

poor knowledge on EBF benefits and personal factors such as health status of an individuals and opinion to practice EBF. In order to improve EBF practice in Somangira Ward and possibly other parts of Tanzania, improving food security, continuing with breastfeeding education, counselling and publication with more emphasis on EBF benefits are essential. It is also important to find ways to increase incomes and improve food security among families. This can be done through the national program known as 'Kilimo Kwanza' to be established in rural areas.

445. **Sirili N, Kiwara A, Nyongole O, Frumence G, Semakafu A, Hurtig AK. Addressing the human resource for health crisis in Tanzania: the lost in transition syndrome. *Tanzania Journal of Health Research*. 2014; 16(2).**

Tanzania is experiencing a serious Human Resource for Health (HRH) crisis. Shortages are 87.5% and 67% in private and public hospitals, respectively. Mal-distribution and brain drain compound the shortage. The objective of this study was to improve knowledge on the HRH status in Tanzania by analyzing what happens to the number of medical doctors (MD) and doctor of dental surgery (DDS) degree graduates during the transition period from graduation, internship to appointment. We analyzed secondary data to get the number of MDs and DDS; who graduated from 2001 to 2010, the number registered for internship from 2005 to 2010 and the number allowed for recruitment by government permits from 2006 to 2010. Self administered questionnaires were provided to 91 MDs and DDS who were pursuing postgraduate studies at Muhimbili University of Health and Allied Sciences during this study who went through the graduation-internship-appointment (GIA) period to get the insight of the challenges surrounding the MDs and DDS during the GIA period. From 2001 to 2010 a total of 2,248 medical doctors and 198 dental surgeons graduated from five local training institutions and abroad. From 2005 to 2010 a total of 1691 (97.13%) and 186 (126.53%) of all graduates in MD and DDS, respectively, registered for internship. The 2007/2008 recruitment permit allowed only 37.7% (80/218) and 25.0% (7/27) of the MDs and DDS graduated in 2006, respectively. The 2009/2010 recruitment permit allowed 265 MDs (85.48%) out of 310 graduates of 2008. In 2010/2011 permission for MDs was 57.58% (190/ 330) of graduates of 2009 and in 2011/2012 permission for MDs was for 61.03% ((249/408)

graduates of 2010. From this analysis the recruitment permits in 2007/2008, 2009/2010, 2010/2011 and 2011/2012 could not offer permission for employment of 482 (38.10%) of all MDs graduated in the subsequent years. Major challenges associated with the GIA period included place of accommodation, allowance (for internship) or salary delay (for first appointment), difficult working environment, limited career opportunities and concern for job security. The failure to enforce mandatory registration for internship and failure to absorb all produced MDs and DDS results to loss of a substantial number of these graduates during the graduation-internship-appointment period. To solve this problem, it is recommended to establish better human resource for health management system.

446. Siri A. Documentation and Identification of Medicinal Plants Traded In Tanzania By Means Of DNA Bar-coding Master of Science (Traditional Medicine Development) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.

Background: Tanzania is rich in biodiversity and home to a lot of endemic plants that are used in treatment of diseases. The country continues to lose plant biodiversity through trade of medicinal plants. The medicinal plants are traded in the forms ranging from: raw state (leaves, bark and roots) to Unprocessed fragmented materials (chips and slices), and semi-processed materials (powders, extracts and teas) which makes conventional identification challenging. In this study the use of DNA bar-coding was trialed. **Objectives:** The aim of this study was to identify medicinal plants that are trade in Tanzania by means of DNA bar-coding. **Methodology:** A total of 78 respondents were obtained using the "snowball" technique and personal communication. Data collected was done through local market survey using semi-structured questionnaire, botanical collection, literatures, and laboratory works. Microsoft Excel was used to structure frequencies, percentage and figures. **Result:** There is trade in medicinal plants in Dar-es-Salaam and Tanga regions. Most of these medicinal plants are collected from Coast, Tanga and Arusha regions. The trade is much on most important medicinal plants in the markets which include *Zanthoxylum chalybeum* Engl. *Zanha africana* (Radlk.) Exell, *Cassia abbreviata* Oliv. *Albizia anthelmintica* Brongn., *Hymenaea verrucosa* Gaertn.

Rapanea melanoccephalus and Ximenia aegyptiaca L. Threat to medicinal plants have been much on most important plants in the market and those affected through debarking which include: Albizia anthelmintica in Bwawa village and Afzelia quanzensis. Hymenaea verrucosa. And Pterocarpus bussei. Human activities have also impacted on the availability of medicinal plants. Molecular identification of medicinal plants was successful in identification 52% (n=27) of sample sequenced. There is high possibility of contamination of the sample sequenced especial to those that gave wrong identification. **Conclusion and recommendation:** There is high domestic trade in medicinal plants. DNA bar-coding proved to be successful in identifying sample sequenced. This method can be applied in controlling illegal trade of endangered medicinal plants in Tanzania.

447. **Soleimani H, Yahya N, Latiff NRA, Koziol K, Maciejewska BM, Guan BH. Synthesis and Characterization of Mesoporous Multi-Walled Carbon Nanotubes at Low Frequencies Electromagnetic Waves. *Journal of Nano Research*. 2014; 26: 117-122.**

For electromagnetic absorbing and shielding applications, carbon nanotubes (CNT) are widely used due to their excellent electrical and physical properties. Fabrication of microwave absorbing materials involves the use of compounds capable of generating dielectric and/or magnetic losses when impinged by an electromagnetic wave. The presence of lattice defects e.g. vacancies and dislocations contributes to the loss and attenuation in the electromagnetic waves, which in turn remarkably enhance the absorption ability of the material. With the CVD technique which is known to produce several lattice defects in the final product, aligned MWCNTs were successfully synthesized by pyrolyzing toluene and ferrocene in an inert argon environment. The morphology analysis of the aligned MWCNTs was conducted via FESEM and TEM analysis, to reveal the average length of approximately 295 μm , with diameters in the range of 60-200 nm. ED's analysis indicates the high yield of CNTs, with more than 90% in weight composition, with less than 5 % Fe impurities presence. Textural properties of MWCNTs were studied by measuring pore size and BET surface area. To understand the response of CNTs to an electromagnetic field, permeability and permittivity measurement were conducted in the frequency range of 100 Hz to 110 MHz. In conclusion, the

presence of defects in MWCNTs is desirable for enhanced electromagnetic absorption ability.

448. **Soleimani H, Yahya N, Latiff NRA, Zaid HM, Demiral B, Amighian J. Novel enhanced oil recovery method using $\text{Co}_2 + x\text{Fe}_2 + 1-x\text{Fe}_3 + 2\text{O}_4$ as magnetic nanoparticles activated by electromagnetic waves. *Journal of Nano Research*. 2014; 26: 111-116.**

Research on the application of nanoparticles, specifically magnetic nanoparticles in enhanced oil recovery has been increasing in recent years due to their potential to increase the oil production despite having to interact with reservoirs of high salinity, high pressure and temperature and un-natural pH. Unlike other conventional EOR agents e.g. surfactants and polymers, a harsh environment will cause degradation and failure to operate. Magnetic nanoparticles which are activated by a magnetic field are anticipated to have the ability to travel far into the oil reservoir and assist in the displacement of the trapped oil. In this work, ferromagnetic $\text{Co}_2 + x\text{Fe}_2 + 1-x\text{Fe}_3 + 2\text{O}_4$ nanoparticles were synthesized and characterized for their morphological, structural and magnetic properties. At a composition $x = 0.75$, this nanomaterial shows its best magnetisation parameters i.e. highest value of saturation magnetization, remanence and coercivity of 65.23 emu/g, 12.18 emu/g and 239.10 Oe, respectively. Subsequently, a dispersion of 0.01 wt% $\text{Co}_2 + 0.75\text{Fe}_2 + 0.25\text{Fe}_3 + 2\text{O}_4$ nanoparticles in distilled water was used for core flooding test to validate its feasibility in enhanced oil recovery. In a core flooding test, the effect of electromagnetic waves irradiation to activate the magnetization of $\text{Co}_2 + 0.75\text{Fe}_2 + 0.25\text{Fe}_3 + 2\text{O}_4$ nanofluid was also investigated by irradiating a 78 MHz square wave to the porous medium while nanofluid injection was taking place. In conclusion, an almost 20% increment in the recovery of oil was obtained with the application of electromagnetic waves in 2 pore volumes injection of a $\text{Co}_2 + 0.75\text{Fe}_2 + 0.25\text{Fe}_3 + 2\text{O}_4$ nanofluid.

449. **Sommer M, Likindikoki S, Kaaya S. Tanzanian Adolescent Boys' Transitions through Puberty: The Importance of Context. *American journal of public health*. 2014; 104(12): 2290-2297.**

We explored the masculinity norms shaping transitions through puberty in rural and urban Tanzania and how these norms and their social-ecological context contribute to high-risk health behaviors. We conducted a qualitative case study of adolescent boys in and out of school in 2011 and 2012. Tanzania's social and economic development is reshaping the transition into young manhood. Adolescent boys are losing traditional mechanisms of pubertal guidance, and new meanings of manhood are arising from globalization. Traditional masculinity norms, including pressures to demonstrate virility and fertility, remain strong. Adolescent boys in modernizing Tanzania receive inadequate guidance on their burgeoning sexuality. Contradictory masculinity norms from family and society are shaping their sexual expectations, with implications for their engagement in unsafe sexual behaviors.

450. **Sorbets E, Labreuche J, Simon T, Delorme L, Danchin N, Amarenco P, Steg PG. Renin–angiotensin system antagonists and clinical outcomes in stable coronary artery disease without heart failure. *European heart journal*.2014: ehu078.**

Aims: The aim of this study was to determine whether angiotensin-converting enzyme inhibitor (ACEI) or angiotensin-II receptor blocker (ARB) use is associated with lower rates of cardiovascular events in patients with stable coronary artery disease (CAD) but without heart failure (HF) receiving contemporary medical management. **Methods and results:** Using data from the Reduction of Atherothrombosis for Continued Health (REACH) registry, we examined, using propensity score approaches, relationships between cardiovascular outcomes and ACEI/ARB use (64.1% users) in 20 909 outpatients with stable CAD and free of HF at baseline. As internal control, we assessed the relation between statin use and outcomes. At 4-year follow-up, the risk of cardiovascular death, MI, or stroke (primary outcome) was similar in ACEI/ARB users compared with non-users (hazard ratio, 1.03; 95% confidence interval [CI], 0.91–1.16; $P = 0.66$). Similarly, the risk of the primary outcome and cardiovascular hospitalization for atherothrombotic events (secondary outcome) was not reduced in ACEI/ARB users (hazard ratio, 1.08; 95% CI, 1.01–1.16; $P = 0.04$), nor were the rates of any of its components. Analyses using propensity score matching yielded similar results, as did sensitivity analyses accounting for missing covariates, changes in medications over time,

or analysing separately ACEI and ARB use. In contrast, in the same cohort, statin use was associated with lower rates for all outcomes. **Conclusions:** Use of ACEI/ARB was not associated with better outcomes in stable CAD outpatients without HF. The benefit of ACEI/ARB seen in randomized clinical trials was not replicated in this large contemporary cohort, which questions their value in this specific subset.

- 451. Sudfeld C, Duggan C, Aboud S, Kupka R, Manji K, Kisenge RR, Fawzi, WW. Vitamin D and incidence of mortality, morbidity, and growth failure among a cohort of HIV-infected and HIV-exposed Tanzanian infants (804.5). *The FASEB Journal*. 2014; 28(1): 804-5.**

Methods: Serum 25(OH)D was quantified by HPLC-MS/MS at 5-7 weeks of age for 253 HIV-infected and 948 HIV-exposed (uninfected) infants enrolled in a trial of multivitamins (not including vitamin D) conducted in Tanzania. Infants were prospectively followed at monthly clinic visits for 24 months. **Results:** The association of 25(OH)D with mortality appeared to be U-shaped for both HIV-infected and HIV-exposed infants. After adjustment, 25(OH)D ≥ 30 ng/mL (classically defined as sufficient) was significantly associated with increased mortality as compared to 25(OH)D ≥ 20 and < 30 ng/mL for HIV-infected (HR: 2.47; 95% CI: 1.13-5.44; $p=0.02$) and HIV-exposed infants (HR: 4.00; 95% CI: 1.67-9.58; $p<0.01$). 25(OH) D levels < 10 ng/mL also appeared to be associated with increased risk of mortality as compared to ≥ 20 and < 30 ng/mL in both groups, but results were not statistically significant. Among HIV-exposed infants, 25(OH)D < 10 ng/mL was significantly associated with incidence of wasting ($p<0.01$) and oral candidiasis ($p=0.04$), while 25(OH)D ≥ 30 ng/mL was associated with increased diagnosis of malaria ($p<0.01$). **Conclusion:** These results suggest a complex relationship of vitamin D with infant mortality and morbidity in the context of HIV. Trials of vitamin D supplements appear to need rigorous monitoring of safety, particularly for malaria, among those who reach high vitamin D levels in this setting.

- 452. Sukumaran A, James J, Janardhan HP, Amaladas A, Suresh LM, Danda D, Jacob M. Expression of iron-related proteins in the duodenum is up-regulated in**

patients with chronic inflammatory disorders. *British Journal of Nutrition*. 2014; 111(06): 1059-1068.

Mechanisms responsible for derangements in Fe homeostasis in chronic inflammatory conditions are not entirely clear. The aim of the present study was to test the hypothesis that inflammation affects the expression of Fe-related proteins in the duodenum and monocytes of patients with chronic inflammatory disorders, thus contributing to dysregulated Fe homeostasis. Duodenal mucosal samples and peripheral blood monocytes obtained from patients with chronic inflammatory disorders, namely ulcerative colitis (UC), Crohn's disease (CD) and rheumatoid arthritis, were used for gene and protein expression studies. Hb levels were significantly lower and serum C-reactive protein levels were significantly higher in patients in the disease groups. The gene expression of several Fe-related proteins in the duodenum was significantly up-regulated in patients with UC and CD. In patients with UC, the protein expression of divalent metal transporter 1 and ferroportin, which are involved in the absorption of dietary non-haem Fe, was also found to be significantly higher in the duodenal mucosa. The gene expression of the duodenal proteins of interest correlated positively with one another and negatively with Hb. In patients with UC, the gene expression of Fe-related proteins in monocytes was found to be unaffected. In a separate group of patients with UC, serum hepcidin levels were found to be significantly lower than those in the control group. In conclusion, the expression of Fe-related proteins was up-regulated in the duodenum of patients with chronic inflammatory conditions in the present study. The effects appeared to be secondary to anaemia and the consequent erythropoietic drive.

453. Sukums F, Mensah N, Mpembeni R, Kaltschmidt J, Haefeli WE, Blank A. Health workers' knowledge of and attitudes towards computer applications in rural African health facilities. *Global health action*. 2014; 7.

Background: The QUALMAT (Quality of Maternal and Prenatal Care: Bridging the Know-do Gap) project has introduced an electronic clinical decision support system (CDSS) for pre-natal and maternal care services in rural primary health facilities in Burkina Faso, Ghana, and Tanzania. **Objective:** To report an assessment of health providers' computer knowledge, experience, and attitudes prior to the implementation of

the QUALMAT electronic CDSS. Design: A cross-sectional study was conducted with providers in 24 QUALMAT project sites. Information was collected using structured questionnaires. Chi-squared tests and one-way ANOVA describe the association between computer knowledge, attitudes, and other factors. Semi-structured interviews and focus groups were conducted to gain further insights. **Results:** A total of 108 providers responded, 63% were from Tanzania and 37% from Ghana. The mean age was 37.6 years, and 79% were female. Only 40% had ever used computers, and 29% had prior computer training. About 80% were computer illiterate or beginners. Educational level, age, and years of work experience were significantly associated with computer knowledge ($p < 0.01$). Most (95.3%) had positive attitudes towards computers – average score (\pm SD) of 37.2 (\pm 4.9). Females had significantly lower scores than males. Interviews and group discussions showed that although most were lacking computer knowledge and experience, they were optimistic about overcoming challenges associated with the introduction of computers in their workplace. **Conclusions:** Given the low levels of computer knowledge among rural health workers in Africa, it is important to provide adequate training and support to ensure the successful uptake of electronic CDSSs in these settings. The positive attitudes to computers found in this study underscore that also rural care providers are ready to use such technology.

454. Suleman S, Khan SM, Jameel T, Aleem W, Shafiq M. Synthesis and Characterization of Flexible and Rigid Polyurethane Foam. Asian Journal of Applied Sciences. 2014; 2(5).

Polyurethanes are versatile materials used widely in many applications. Annual production of polyurethanes is increasing day by day. The most important application of polyurethane covering its major market is polyurethane foam. Flexible and rigid foams are two major types of polyurethane foam used widely. Flexible and rigid foam samples were synthesized on lab scale by cup foaming. All samples were characterized by finding density of each sample. Cream, gel and rise time were also estimated for each sample. The chemical compositions of all polyurethane foam samples were characterized by FTIR analysis.

455. **Sunguya BF, Poudel KC, Mlunde LB, Urassa DP, Yasuoka J, Jimba, M. Poor Nutrition Status and Associated Feeding Practices among HIV-Positive Children in a Food Secure Region in Tanzania: A Call for Tailored Nutrition Training. *PloS one*. 2014; 9(5): e98308.**

Background: Undernutrition among HIV-positive children can be ameliorated if they are given adequate foods in the right frequency and diversity. Food insecurity is known to undermine such efforts, but even in food rich areas, people have undernutrition. As yet no study has examined feeding practices and their associations with nutrition status among as HIV-positive children in regions with high food production. We therefore examined the magnitude of undernutrition and its association with feeding practices among HIV-positive children in a high food production region in Tanzania. **Methods:** We conducted this mixed-method study among 748 children aged 6 months-14 years attending 9 of a total of 32 care and treatment centers in Tanga region, Tanzania. We collected quantitative data using a standard questionnaire and qualitative data through seven focus group discussions (FGDs). **Results:** HIV-positive children had high magnitudes of undernutrition. Stunting, underweight, wasting, and thinness were prevalent among 61.9%, 38.7%, 26.0%, and 21.1% of HIV-positive children, respectively. They also had poor feeding practices: 88.1% were fed at a frequency below the recommendations, and 62.3% had a low level of dietary diversity. Lower feeding frequency was associated with stunting ($\beta = 0.11$, $p = 0.016$); underweight ($\beta = 0.12$, $p = 0.029$); and thinness ($\beta = 0.11$, $p = 0.026$). Lower feeding frequency was associated with low wealth index ($\beta = 0.06$, $p < 0.001$), food insecurity ($\beta = -0.05$, $p < 0.001$), and caregiver's education. In the FGDs, participants discussed the causal relationships among the key associations; undernutrition was mainly due to low feeding frequency and dietary diversity. Such poor feeding practices resulted from poor nutrition knowledge, food insecurity, low income, and poverty. **Conclusion:** Feeding practices and nutrition status were poor among HIV-positive children even in food rich areas. Improving feeding frequency may help to ameliorate undernutrition. To improve it, tailored interventions should target children of poor households, the food insecure, and caregivers who have received only a low level of education.

456. **Sunil LS. Factors among Patients Undergoing Cesarean Section under Spinal Anesthesia at Muhimbili National Hospital. Master of Medicine (Anesthesiology) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: Spinal Anesthesia is a commonly practiced mode of regional anesthesia for patients undergoing cesarean section and about 80% of the patients will develop hypotension during the procedure with various clinical manifestations such as nausea, vomiting and dizziness. Methods used for the prevention of hypotension include preloading by intravenous fluid which include crystalloids or colloids, left uterine displacement using the wedge, using gravity by leg rising, compression stocking and vasopressors. **Objective:** To determine the proportion of patients developing hypotension and the risk factors for hypotension during spinal anesthesia in pregnant patients undergoing cesarean section at Muhimbili National hospital. **Methodology:** A hospital based descriptive cross sectional study was conducted at Obstetric theatre at Muhimbili National Hospital. Patients were invited to participate in the study who received spinal anesthesia during cesarean section from August to January 2014. Inclusion criteria were: Obstetric patients scheduled for elective and emergency cesarean section patients who received spinal anesthesia with ASA classification I or II. Exclusion criteria: Patients who received sedation, on anti-hypertensive, Pregnancy induced hypertension; modified Bromage score of 0, 1 or 2 and patients who received combination of anesthesia including spinal and then converted to general anesthesia were excluded. A structured questionnaire was used to record patients information preoperatively and intra operatively. Data were collected, cleaned, coded, entered in the SPSS and analyzed to answer the study questions using SPSS version 20. **Results:** A total of 300 pregnant patients made up the study group. Elective cesarean sections were 33.3% and emergency cesarean sections were 66.7%. About 92% of the patients received 0.5% hyperbaric Bupivacaine, while 8% received 5% heavy Lidocaine. The proportion of pregnant patients who develop hypotension, during cesarean section under spinal anesthesia was 56.7%. Patients who had hypotension along with nausea and vomiting were 34.7% and 18.2% respectively ($p < 0.01$). Risk factors for hypotension included, preload of crystalloids volume less than 10 mls/kg ($p < 0.01$) and absence of wedge and sensory

height block level equal to and above T5. **Conclusion and Recommendations:** The proportion of pregnant patients who developed hypotension during cesarean section under spinal anesthesia was 56.7 %. And those who had hypotension along with nausea and vomiting were 34.7% and 18.2% respectively. Risk factors for hypotension, for pregnant patients undergoing cesarean section under spinal anesthesia was, preload of crystalloids less than 10 mls /kg, absence of wedge and sensory height block level above T5. It is recommended to preload patients with crystalloids volume of 20 mls/kg before spinal anesthesia, and applies of left lateral tilt using wedge to reduce the development of hypotension.

457. **Swai CR. Cervical Cancer Recurrence Among Patients Treated With External Beam And Intracavitary Radiotherapy At Ocean Road Cancer Institute. Master of Medicine (Clinical Oncology) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Cervical cancer still represents a significant public health problem with increased incidence of new cases worldwide. Cervical cancer occurs as malignant changes in the squamo-columnar junction in the uterine canal. It is the most common malignancy among Tanzanian women and leading cause of cancer related deaths. Cervical cancer is the first among the top ten cancers at Ocean Road Cancer Institute (ORCI) for the past five years and accounted for 36% of all patients seen at the hospital in 2011. Delayed hospital presentation with advanced disease has lead to poor results of treatment. Cervical cancer recurrence after radical treatment has been a major problem to our patients and medical care providers at the institute for the past several years. Percentage of recurrence is still a challenge depending on different risk factors. Unfortunately there is no exact data that show the trend of recurrence in patients. **Objective:** to determine cervical cancer recurrence among patients treated with external beam and intracavitary radiotherapy at ORCI. **Methodology:** it is a retrospective crosssectional study design to determine the recurrence among cervical cancer patients after treatment and factors related to it, where retrospective secondary data was obtained from patient medical files and filled into data collection form. The data was collected from September to December 2013. The study was conducted at Ocean Road Cancer Institute, Dar es Salaam the only cancer centre in

the country. **Results:** 230 patients were studied with a median age of 52 years (range 30-92). Most of them 90(39.10%) were referred to ORCI with disease stage IIB. Disease recurrence was seen in 92 patients (41.1%), the most recurrence site was pelvic area (98.9%). The recurrence rate was significantly associated with overall treatment time. **Conclusion:** Most of our patients are diagnosed with locally advanced stage a finding that influences treatment results. Receiving radiotherapy in proper time together with chemotherapy and intensive screening methods may improve treatment results.

458. **Talumba S. Non-Occupational Post-Exposure Prophylaxis To HIV: Knowledge, Attitude And Practices Among Primary Health Care Workers In Dar Es Salaam, 2014 Master of Public Health *Dissertation* 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: Non-occupational exposure to Human Immunodeficiency Virus (HIV) poses a significant risk in the transmission of the HIV from one person to the other and hence can contribute to the rise of new HIV infections in our communities. The use of PEP helps to reduce the rate of HIV transmission by 81 %, which shows that the use of PEP is significant after an exposure. Therefore there is an importance in understanding the concept of non- occupational exposure and its treatment so as to reduce the number of new HIV infections countrywide. **Aim:** To determine the knowledge, attitude and practices of health care providers in providing PEP for non-occupational exposure to HIV in primary health care facilities. **Methods:** A cross-sectional study was conducted in Dar es Salaam region among randomly selected primary health care facilities from February to April 2014. Structured questionnaire was used to health care providers of different cadres at the health care facilities. Data analysis and management was done using SPSS program version 20.0. Descriptive analysis has been used to determine frequencies in sociodemographic characteristics. Univariate and Multivariate logistic regression analyses were used to determine factors associated with knowledge, attitude and practices on PEP among health care workers. **Results:** A total of 384 participants participated in the study with a response rate of 100%. Overall mean age of participants was 40 years. Among the participants females constituted 274 (71.4%) and males 110 (2.6%). Three hundred and forty four (89.6%) were married and 232(60.4%) had attained college

education. One seventy six (45.8%) were nurses and 128(33.35%), the remaining percentage being other cadres. One hundred and four (27.1 %) HeWs attended patients with non-occupational exposure to HIV with only 79(75.9%) providing PEP to patients who required it. Knowledge on non-occupational PEP was limited in several aspects. However most HCWs had a positive attitude towards treating non-occupationally exposed patients as an emergency and for referral for further management. In univariate analysis, Duty station ($p=0.000$), cadre ($p=0.000$) and working experience ($p=0.000$) were significantly associated with provision of PEP to patients. With regards to this 41.8% (33 HCWs) and 37.9% (30 HCWs) among the 79 health care workers who provided PEP came from OPD department and CTC department respectively. Also among the 79, 13 nurses (16.5%) and 20 doctors (25.3%) provided PEP to clients whom they attended. Thirty- three Health care providers (41.8%) with more than 16 working years experience and 22 (27.8%) with 11- 15 years of working experience provided PEP among the 79 health care workers who provided PEP. With multivariate analysis, cadre was shown to be significantly associated with provision of PEP to patients who have non-occupational exposure to HIV. **Conclusion and Recommendations:** HIV / AIDS being a disease of public health priority and as it may result into great morbidity and mortality; knowledge on PEP provision for HIV is crucial among health care providers. Clinical mentorship for HCWs and supportive supervision in health care facilities regularly is necessary in ensuring proper management is given to non- occupationally exposed patients.

459. **Tarimo DS, Leshabari MT, Maddox GH, Shelton A, McCurdy SA. Malaria treatment practices in the transition from sulfadoxine-pyrimethamine to artemether-lumefantrine: A pilot study in Temeke municipality, Tanzania. *East African Journal of Public Health*. 2014; 10(3): 550-560.**

Background: Tanzania has changed its malaria treatment policy twice; in the first change Sulfadoxine - Pyrimethamine (SP) replaced chloroquine (CQ) in August 2001. In the second change Artemether –Lumefantrine (ALu) replaced SP in January 2007. It is not known how experiences with previous policies would influence the uptake the new policy.**Objective:** This study assessed malaria treatment practices in the transition from

SP to ALu and the implications for the uptake of the new policy. **Methods:** Two months prior to change from SP to ALu a survey of randomly selected households (HHs) was carried out to explore the factors influencing malaria therapy choices and formulations of antimalarial drugs preferred. Perceptions on single versus multiple doses of antimalarial drugs, awareness on dosage calculation and compliance were also explored. **Results:** Two thirds of the respondents held the perceptions that childhood illness corresponding to malaria would require an antimalarial drug. However, about a quarter (24.3%) held the perception that childhood convulsion is not amenable by modern medicines. Half (50.7%) held the perception that high fever causes convulsions, however only a small percentage (5.8%) linked convulsions with severe malaria. SP was the most commonly available antimalarial drug (81.8%); followed by amodiaquine (35.4%), quinine (25.5%), artemisinin monotherapies (3.2%) and chloroquine (3.2%). The larger majority (85.9%) preferred antimalarial drugs syrup for children below 12 months old; about half (52.2%) also preferred syrup for children 1 – 5 years old. More than half (57.5%) preferred antimalarial drugs as tablets for older children and adults. Less than a quarter were aware that antimalarial drugs doses are calculated based on weight and age by about a half (48.5%). About three quarters (76.5%) were aware that SP is given as a single dose. About two thirds (63.8%) preferred antimalarial drugs as a single dose; only about a third (34.5%) preferred multiple dosages. **Conclusions:** For uncomplicated malaria, the community would seek antimalarial drugs while traditional medicines may initially be sought for severe malaria in the form of convulsions. Experiences with and preference of single SP dose may negatively influence compliance with multiple dose ALu therapy. The absence of ALu syrup formulation may negatively influence its acceptance for young children; while the absence of injectable formulation may negatively influence its acceptance to adult patients.

460. Tarimo DS, Lyimo EO, Moshiro C. Accuracy of Fever and Fraction of Fevers Attributable to Malaria among Under-fives under Reduced Malaria Infection Prevalence in District. *Malar Chemoth Cont.* 2014; 3(121): 2.

A decline in malaria transmission is evident in malaria endemic areas of sub-Saharan Africa and is likely to reduce the proportion of fevers due to malaria. Fever has been used

as a predictor of malaria, however, the proportion of fevers due to malaria vary with prevalence such that low malaria infection prevalence might alter the accuracy of fever as a marker of malaria. This study examined the diagnostic accuracy and proportion of fevers attributable to malaria among under-fives in a cross-sectional survey carried out in Bagamoyo district, Tanzania from April–May 2012 during peak malaria transmission. Consecutive under-fives with and without history of fever were recruited; for each, fever was measured by digital thermometer, and two Giemsa stained thick and thin blood films taken for parasite count and species identification. Accuracy of fever for prediction of malaria was assessed by performance indices, microscopy as gold standard. Proportion of fevers attributable to malaria was computed by the Only 98 out of 925 (10.6%) under-fives had parasitaemia. Among under-fives with a history of fever, the fraction attributable to malaria was 71.4% [95%CI: 54.8–81.9]; in those with measured fever $\geq 37.5^{\circ}\text{C}$, the fraction was 74.3% [95%CI: 61.8–82.7]. In bivariate and multivariate analyses, at 1001-10000 parasites/ μl the attributable fraction was 66%, and 93% for parasitaemia $>10000/\mu\text{l}$. Fever was more likely to be due to malaria among infants <12 months than subsequent months. Despite the recorded decline in malaria infection prevalence, fever is highly likely to be due to malaria among under-fives with fever and malaria infection in peripheral blood. This observation highlights the need to scale up and maintain parasitological confirmation of malaria; and to look for other causes of fever.

461. **Tarimo DS. Uptake of sulfadoxine-pyrimethamine for intermittent preventive treatment and weeks of pregnancy protected in Mbeya urban district, Tanzania. 2014.**

Background: The time-point in pregnancy at which optimal Intermittent Preventive Treatment (IPTp) with Sulfadoxine-Pyrimethamine (SP) is delivered is crucial as optimal protection only occurs when the intervention is used for the entire period when the baby is at greatest risk to placental malaria infection. Placental malaria is known to peak in the 2nd trimester; thus for SP to confer optimal protection to the baby, the 1st and 2nd dose of SP must be received between 20th to 26th and 28th to 34th weeks of gestation. **Objective:** This study investigated the number of visits made for antenatal care (ANC), timing of delivery of SP and number of doses received, and the pregnancy time

protected.**Methodology:** A facility based cross-sectional study was carried out in the Meta maternity hospital, Ruanda and Kiwanja Mpaka health centers located in Mbeya urban district. Consecutive pregnant women on elective delivery and postnatal mothers were recruited in the study. Participants were asked a series of closed questions about their socio-economic background, pregnancy history and attendance for ANC; and receipt of SP for IPTp.**Results:** A total of 299 mothers were studied; only about half (52.8%) received one dose of SP in the 2nd or 3rd trimester of pregnancy and were thus protected against malaria for only 12 weeks. About a third (34.8%) received the 2nd dose in the 3rd trimester of pregnancy and was thus protected for 24 week. Only less than a quarter (23.4%) received the 1st dose of SP in the 2nd trimester between the 20th to 26th weeks of gestation Having made > ANC visits was significantly associated with receipt of 1st and 2nd doses of SP.**Conclusions:** The overall SP coverage (34.8%) was far below the RBM target of 80.0%. Further studies are needed so as to identify the barriers for making > ANC visits that is associated with a high likelihood of receiving optimal doses of SP for IPTp.

462. **Tarimo EA, George J. Providing anti-retroviral therapy in the context of self-perceived stigma: a mixed methods study from Tanzania. *Tanzania Journal of Health Research*. 2014; 16(2).**

Adherence to anti-retroviral treatment (ART) has been a significant step towards improving quality of life among people living with HIV. However, stigma has been described to influence adherence to ART. A cross-sectional mixed methods study was conducted to explore factors related to stigma and perceived influence of stigma on adherence to treatment amongst ART-prescribed patients and health care providers, respectively in Tanzania. Stigma was assessed through interviewer administered survey among 295 patients. The results from patients showed that 279/295 (95%) were satisfied with the services provided at the Care and Treatment Centres (CTCs). The set up of CTCs 107/295 (36%), and queuing at the CTCs 88/295 (30%) were associated with stigma ($P < 0.001$). The perceived influence of stigma on adherence to ART was assessed using focus group discussions (FGDs) of 33 health care providers (HCPs). Through FGDs, HCPs perceived the set up of CTCs as friendly yet violated confidentiality. The

HCPs reported that ART-prescribed patients hide identifiable cards to avoid being recognised by other people. Some patients were reported to rush to avoid familiar faces, and due to the rush they picked wrong medicines. Also some patients were reported to throw away manufacturers' box with dosage instructions written on the box, resulting in use of doses contrary to the prescriptions. We conclude that despite the fact that most patients were satisfied with the services provided at the CTCs, it is important that HCPs provide dosage instructions on another piece of paper or use disposable bags. A common dispensing window for all patients regardless of the diagnosis may be useful to minimize stigma. Also HCPs may introduce appointment system to avoid long queue at the CTCs.

- 463. Tarimo EA, Munseri P, Aboud S, Bakari M, Mhalu F, Sandstrom E. Experiences of Social Harm and Changes in Sexual Practices among Volunteers Who Had Completed a Phase I/II HIV Vaccine Trial Employing HIV-1 DNA Priming and HIV-1 MVA Boosting in Dar es Salaam, Tanzania. *PloS one*. 2014; 9(3): e90938.**

Background: Volunteers in phase I/II HIV vaccine trials are assumed to be at low risk of acquiring HIV infection and are expected to have normal lives in the community. However, during participation in the trials, volunteers may encounter social harm and changes in their sexual behaviours. The current study aimed to study persistence of social harm and changes in sexual practices over time among phase I/II HIV vaccine immunogenicity (HIVIS03) trial volunteers in Dar es Salaam, Tanzania. **Methods and Results:** A descriptive prospective cohort study was conducted among 33 out of 60 volunteers of HIVIS03 trial in Dar es Salaam, Tanzania, who had received three HIV-1 DNA injections boosted with two HIV-1 MVA doses. A structured interview was administered to collect data. Analysis was carried out using SPSS and McNemars' chi-square (χ^2) was used to test the association within-subjects. Participants reported experiencing negative comments from their colleagues about the trial; but such comments were less severe during the second follow up visits ($\chi^2 = 8.72$; $P < 0.001$). Most of the comments were associated with discrimination ($\chi^2 = 26.72$; $P < 0.001$), stigma ($\chi^2 = 6.06$; $P < 0.05$), and mistrust towards the HIV vaccine trial ($\chi^2 = 4.9$; $P < 0.05$). Having a regular sexual partner other than spouse or cohabitant declined over the two follow-up periods

($\chi^2 = 4.45$; $P < 0.05$). **Conclusion:** Participants in the phase I/II HIV vaccine trial were likely to face negative comments from relatives and colleagues after the end of the trial, but those comments decreased over time. In this study, the inherent sexual practice of having extra sexual partners other than spouse declined over time. Therefore, prolonged counselling and support appears important to minimize risky sexual behaviour among volunteers after participation in HIV Vaccine trials. The identification of difficulties in problems solving of mathematics teachers in junior high school of nusa tenggara timur and maluku utara This study aims are determining the difficulties of mathematics teachers in the junior high school to solve mathematics problems in Nusa Tenggara Timur and Maluku Utara, the two of 33 province in Indonesia . This is a descriptive explorative research, using the documentation data that is answers of 114 mathematics teachers in class IX of Junior High School to the 5 items of national examination test. The 5 items are the most difficult item according to the students, particularly in the school that the school graduation has not reached 100 % in the Nusa Tenggara Timur and Maluku Utara. The results showed that the order of difficulties of mathematics teachers for solve the mathematics problems in the region are the execution plan problem solving, understanding the problems , interpreting the results , and planning a problem solving . This is indicated by the percentage of the difficulty teachers at each stage, 45.846 % of teachers had difficulty in understanding the problem, 33.063 % in the problem solving plan, 46.491 % in the completion of the plan execution problem, and interpret the results of 43.129 % on completion the problem.

- 464. Tarimo EA, Munseri P, Aboud S, Bakari M, Mhalu F, Sandstrom E. Experiences of Social Harm and Changes in Sexual Practices among Volunteers Who Had Completed a Phase I/II HIV Vaccine Trial Employing HIV-1 DNA Priming and HIV-1 MVA Boosting in Dar es Salaam, Tanzania. *PloS one*. 2014; 9(3): e90938.**

Background: Volunteers in phase I/II HIV vaccine trials are assumed to be at low risk of acquiring HIV infection and are expected to have normal lives in the community. However, during participation in the trials, volunteers may encounter social harm and changes in their sexual behaviours. The current study aimed to study persistence of social

harm and changes in sexual practices over time among phase I/II HIV vaccine immunogenicity (HIVIS03) trial volunteers in Dar es Salaam, Tanzania. **Methods and Results:** A descriptive prospective cohort study was conducted among 33 out of 60 volunteers of HIVIS03 trial in Dar es Salaam, Tanzania, who had received three HIV-1 DNA injections boosted with two HIV-1 MVA doses. A structured interview was administered to collect data. Analysis was carried out using SPSS and McNemars' chi-square (χ^2) was used to test the association within-subjects. Participants reported experiencing negative comments from their colleagues about the trial; but such comments were less severe during the second follow up visits ($\chi^2 = 8.72$; $P < 0.001$). Most of the comments were associated with discrimination ($\chi^2 = 26.72$; $P < 0.001$), stigma ($\chi^2 = 6.06$; $P < 0.05$), and mistrust towards the HIV vaccine trial ($\chi^2 = 4.9$; $P < 0.05$). Having a regular sexual partner other than spouse or cohabitant declined over the two follow-up periods ($\chi^2 = 4.45$; $P < 0.05$). **Conclusion:** Participants in the phase I/II HIV vaccine trial were likely to face negative comments from relatives and colleagues after the end of the trial, but those comments decreased over time. In this study, the inherent sexual practice of having extra sexual partners other than spouse declined over time. Therefore, prolonged counselling and support appears important to minimize risky sexual behaviour among volunteers after participation in HIV Vaccine trials.

465. **Taylor SM, Parobek CM, DeConti DK, Kayentao K, Coulibaly SO, Greenwood BM, Juliano JJ. Absence of putative artemisinin resistance mutations among Plasmodium falciparum in sub-Saharan Africa: a molecular epidemiologic study. *Journal of Infectious Diseases*. 2014; jiu467.**

Plasmodium falciparum parasites that are resistant to artemisinins have been detected in Southeast Asia. Resistance is associated with several polymorphisms in the parasite's K13-propeller gene. The molecular epidemiology of these artemisinin resistance genotypes in African parasite populations is unknown. We developed an assay to quantify rare polymorphisms in parasite populations that uses a pooled deep-sequencing approach to score allele frequencies, validated it by evaluating mixtures of laboratory parasite strains, and then used it to screen P. falciparum parasites from >1100 African infections collected since 2002 from 14 sites across sub-Saharan Africa. We found no

mutations in African parasite populations that are associated with artemisinin resistance in Southeast Asian parasites. However, we observed 15 coding mutations, including 12 novel mutations, and limited allele sharing between parasite populations, consistent with a large reservoir of naturally occurring K13-propeller variation. Although polymorphisms associated with artemisinin resistance in *P. falciparum* in Southeast Asia are not prevalent in sub-Saharan Africa, numerous K13-propeller coding polymorphisms circulate in Africa. Although their distributions do not support a widespread selective sweep for an artemisinin-resistant phenotype, the impact of these mutations on artemisinin susceptibility is unknown and will require further characterization. Rapid, scalable molecular surveillance offers a useful adjunct in tracking and containing artemisinin resistance.

466. **Temina M. Priority Setting Process on Nutrition and Use of Guidelines in Resource Allocation in Arusha District Council. Master of Public Health Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: Health priority setting is a complex yet important process within resource allocation systems due to competing health activities, especially in resource-constrained countries. In Tanzania, priority setting for health activities is done during the planning and budgeting process through the Comprehensive Council Health Plan (CCHP). Although the Prime Minister's office has issued the CCHP Guidelines to guide the allocation of resources for nutrition activities, evidence shows that these guidelines have not been very successful in adequate resource allocation to necessary nutrition activities. Therefore, there is a need to understand the process as well as the criteria currently used to allocate resources to nutrition activities and to evaluate how well they follow the CCHP Guidelines. **Aim:** This study explored the process and criteria used in allocating resources at the district level for various competing health issues, specifically nutrition. **Materials and Methods:** This was a cross sectional-exploratory qualitative study designed to capture and analyse how districts in Tanzania conduct their priority setting process for nutrition activities as compared to other preventive health activities. Specifically, this study was conducted in Arusha District Council and involved the entire council health planning team, which includes the District Nutrition Officer, District

Planning Officer and the District Medical Officer. Two types of data were collected – primary data included key informant interviews, while secondary data included a literature review of the CCHP Guidelines, District Plan Rep tool, and the CCHPs for FY 2009/11 through FY 2013/14. In addition, annual budget expenditure reports were assessed to determine actual expenditure on nutrition and these were compared to family planning, immunization, malaria and HIV, which together with nutrition are categorized as essential child survival interventions. Data was analyzed using content analysis, which involved transcribing, editing, coding and categorizing information into various themes.**Results:** This study found a number of shortfalls in the Arusha District Council’s priority setting process, the criteria, and the use of CCHP Guidelines. Consequently, this may have led to inefficient priority setting decisions and insufficient resource allocation for nutrition activities that included priority setting tools not adequately adapted for nutrition needs and low level of nutrition knowledge among the Council Health Management Team (CHMT) members.**Conclusion:** In Tanzania, nutrition is mentioned in general development policies and sector policies. However, the current priority setting process for nutrition at district level is inadequate in several aspects rendering the priority setting process for nutrition inefficient. To improve district level priority setting process for nutrition, this study recommends 1) ensuring that the CCHP Guidelines are linked to nutrition planning and budgeting guidelines; 2) involving districts in the development of guidelines; 3) updating of guidelines that reflect actual needs of the districts; 4) integrating nutrition into the pre-service curriculum for district health personnel; 5) developing education materials for the CHMT; and 6) prioritizing the inclusion of nutrition into planning and budgeting tools.

467. **Teyha PS. Short Term Outcome of Conservative Management for Distal Radial Fractures at Muhimbili Orthopedic Institute, Dar es Salaam. Master of Medicine (Orthopedics and Trauma) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: Fractures of the distal radius are common with a reported incidence of 640,000 per year in the United States. Although these fractures are common and often reviewed; there remains little evidence in the support of different treatment options.

Closed reduction and casting has historically been the mainstay of treatment. In most developing countries limited health care facilities and doctor expertise make conservative methods of treatment not only the method of choice but also the only practical one. Closed reduction and cast application is a commonly applied treatment modality at MOI but no data available on its outcome. **Objective:** To determine short term treatment outcome of conservatively managed adult patients at Muhimbili Orthopedic institute from May 2013 to March 2014. **Methodology:** A hospital based cross sectional study was carried out on adult patients with distal radius fractures managed conservatively at Muhimbili orthopedic Institute (MOI) from May 2013 to March 2014. Sixty five patients met the inclusion criteria for study and were recruited. A structured questionnaire was administered to collect information on participants. Radiographs were taken and reduction and plaster of Paris cast immobilization done. Patients re-evaluated at 6th and 12th week for wrist range of motion, complications and the PRWE score was evaluated at 12th week. The obtained data was analyzed using SPSS version 16.0. **Results:** Over half of the patients were AO type A, with a male to female ratio of 5.5:1. The most common cause of injury was a motor traffic crash (52.3%) followed by falling from standing (20.0). There was a significant mean difference in the range of motion of the wrist taken between the 6th and 12th weeks following treatment. A majority of patients experienced minimal disability by the PRWE score at 12th week following treatment. Skin complications and loss of reduction were the frequently reported complications. **Conclusion:** The majority of patients treated by conservative treatment for distal radius fracture experienced minimal disability by PRWE score. Hence conservative treatment is an acceptable treatment modality in adults; however meticulous follow-up is required in order to recognize complications when they occur.

468. **Tibandebage P, Mackintosh M, Israel C, Mhede E, Mujinja PG. The Tanzanian health sector as buyer and user of medicines and other essential supplies. Research on Poverty Alleviation (REPOA). 2014.**

The research findings presented in this working paper are drawn from an independent research project funded by the UK Economic and Social Research Council with financial support from UK DFID. The project is collaboration between Tanzanian, Kenyan, and

UK researchers. It aims to investigate the hypothesis that improved local industrial production – through higher productivity, more appropriate and cheaper products, and innovative production methods – could improve health service performance in each country, while raising economic output, and hence contribute to inclusive growth. If this hypothesis is correct, then better integration between industrial and health policies in each country could contribute to higher employment, industrial upgrading, and improved health system performance and accessibility. This working paper provides early access to new evidence, from four districts of Tanzania, on several aspects of health sector performance as concerns essential medicines and medical supplies: availability, price, and supply chain effectiveness by sector. The paper confirms that availability of essential medicines, equipment, and medical supplies remains unsatisfactory, especially in rural areas and in lower level public sector facilities, with damaging effects for patients and staff. It shows that supply chains for medicines and other essential supplies are sharply segmented; the public sector facilities rely on one large public wholesaler, while the faith-based and private sector facilities and shops source items mainly from competing private wholesalers. The public sector's supply chain strengths lie in low prices and quality assurance of medicines, while the key problems are supply gaps and delays. The private sector's strengths include higher availability; however, private facilities and retailers face quality uncertainty, fluctuating prices, and need for credit and try to overcome these by building working relationships with particular wholesalers. A second working paper (Israel et al. 2014) documents to what extent health sector interviewees thought that public and private supply chains might be strengthened by more local production and procurement of essential supplies.

- 469. Tolley EE, Kaaya S, Kaale A, Minja A, Bangapi D, Kalungura H, Baumgartner JN. Comparing patterns of sexual risk among adolescent and young women in a mixed-method study in Tanzania: implications for adolescent participation in HIV prevention trials. *Journal of the international AIDS society*. 2014; 17(3): 12.**

Introduction: Despite the disproportionate impact of HIV on women, and adolescents in particular, those below age 18 years are underrepresented in HIV prevention trials due to

ethical, safety and logistical concerns. This study examined and compared the sexual risk contexts of adolescent women aged 15–17 to young adult women aged 18–21 to determine whether adolescents exhibited similar risk profiles and the implications for their inclusion in future trials. **Methods:** We conducted a two-phase, mixed-method study to assess the opportunities and challenges of recruiting and retaining adolescents (aged 15–17) versus young women (18–21) in Tanzania. Phase I, community formative research (CFR), used serial in-depth interviews with 11 adolescent and 12 young adult women from a range of sexual risk contexts in preparation for a mock clinical trial (MCT). For Phase II, 135 HIV-negative, non-pregnant adolescents and young women were enrolled into a six-month MCT to assess and compare differences in sexual and reproductive health (SRH) outcomes, including risky sexual behaviour, incident pregnancy, sexually transmitted infections (STIs), reproductive tract infections (RTIs) and HIV. Results: In both research phases, adolescents appeared to be at similar, if not higher, risk than their young adult counterparts. Adolescents reported earlier sexual debut, and similar numbers of lifetime partners, pregnancy and STI/RTI rates, yet had lower perceived risk. Married women in the CFR appeared at particular risk but were less represented in the MCT. In addition, adolescents were less likely than their older counterparts to have accessed HIV testing, obtained gynaecological exams or used protective technologies. **Conclusions:** Adolescent women under 18 are at risk of multiple negative SRH outcomes and they underuse preventive services. Their access to new technologies such as vaginal microbicides or pre-exposure prophylaxis (PrEP) may similarly be compromised unless greater effort is made to include them in clinical trial research.

- 470. Tomori C, Kennedy CE, Brahmabhatt H, Wagman JA, Mbwambo JK, Likindikoki S, Kerrigan DL. Barriers and facilitators of retention in HIV care and treatment services in Iringa, Tanzania: the importance of socioeconomic and sociocultural factors. *AIDS care*.2014; 26(7): 907-913.**

Although an increasing number of people living with HIV (PLHIV) in sub-Saharan Africa are benefiting from the rapid scale-up of antiretroviral therapy (ART), retention in HIV care and treatment services remains a major concern. We examined socioeconomic

and sociocultural barriers and potential facilitators of retention in ART in Iringa, Tanzania, a region with the second highest prevalence of HIV in the country. In 2012, 116 in-depth interviews were conducted to assess community members' perceptions, barriers and facilitators of HIV treatment in Iringa, including key informants, persons at heightened risk for infection, and HIV service-delivery users. Data were transcribed, translated, entered into Atlas.ti, coded, and analyzed for key themes. In order to provide the full range of perspectives across the community on issues that may affect retention; we report findings from all 116 participants, but draw on verbatim quotes to highlight the experiences of the 14 PLHIV who reported that they were receiving HIV care and treatment services. Despite the growing availability of HIV care and treatment services in Iringa, participants reported significant barriers to retention, including lack of knowledge and misperceptions of treatment, access problems that included difficulties in reaching distant clinics and pervasive poverty that left PLHIV unable to cope with out-of-pocket costs associated with their care, persistent stigmatization of PLHIV and frequent reliance on alternative healing systems instead of biomedical treatment. Positive perceptions of the efficacy of ART, improved ART availability in the region, improved access to care through supplemental aid, and social support were perceived to enhance treatment continuation. Our findings suggest that numerous socioeconomic and sociocultural barriers inhibit retention in HIV care and treatment services in this setting. Intervention strategies that improve ART accessibility, incorporate supplemental aid, enhance social support, reduce stigma, and develop partnerships with alternative healers are needed to improve HIV-related outcomes.

471. Valenti M, Mtonga R, Gould R, Christ M. The Arms Trade Treaty (ATT): A public health imperative. *Journal of public health policy*. 2014; 35(1): 14-25.

The United Nations adopted an historic international Arms Trade Treaty (ATT) in April 2013. A 1997 meeting of Nobel Peace Prize laureates who called for an International Code of Conduct to address the 'destructive effects of the unregulated arms trade' initiated discussions that led to the Treaty. Public health institutions, including the World Health Organization and the International Committee of the Red Cross, and nongovernmental health groups such as International Physicians for the Prevention of

Nuclear War, made adoption of the ATT a public health imperative. The poorly regulated \$70 billion annual trade in conventional arms fuels conflict, with devastating effects on global health. The ATT aims to 'reduce human suffering'. It prohibits arms' sales if there is knowledge that the arms would be used in the commission of genocide, attacks against civilians, or war crimes. The health community has much to contribute to ensuring ratification and implementation of the ATT.

472. Varghese J, Jacob M. Do medical students require education on issues related to plagiarism? *Indian journal of medical ethics*. 2014; 12(2): 82-87.

In the course of our professional experience, we have seen that many medical students plagiarise. We hypothesised that they do so out of ignorance and that they require formal education on the subject. With this objective in mind, we conducted a teaching session on issues related to plagiarism. As a part of this, we administered a quiz to assess their baseline knowledge on plagiarism and a questionnaire to determine their attitudes towards it. We followed this up with an interactive teaching session, in which we discussed various aspects of plagiarism. We subjected the data obtained from the quiz and questionnaire to bivariate and multivariate analysis. A total of 423 medical students participated in the study. Their average score for the quiz was 4.96 ± 1.67 (out of 10). Age, gender and years in medical school were not significantly associated with knowledge regarding plagiarism. The knowledge scores were negatively correlated with permissive attitudes towards plagiarism and positively correlated with attitudes critical of the practice. Men had significantly higher scores on permissive attitudes compared to women. In conclusion, we found that the medical students' knowledge regarding plagiarism was limited. Those with low knowledge scores tended to have permissive attitudes towards plagiarism and were less critical of the practice. We recommend the inclusion of formal instruction on this subject in the medical curriculum, so that this form of academic misconduct can be tackled.

473. Venkatesan M, Gadalla NB, Stepniewska K, Dahal P, Nsanzabana C, Moriera C, Ogutu B. Polymorphisms in Plasmodium falciparum chloroquine resistance transporter and multidrug resistance 1 genes: parasite risk factors that

affect treatment outcomes for *P. falciparum* malaria after artemether-lumefantrine and artesunate-amodiaquine. *The American journal of tropical medicine and hygiene*. 2014; 91(4), 833-843.

Adequate clinical and parasitologic cure by artemisinin combination therapies relies on the artemisinin component and the partner drug. Polymorphisms in the Plasmodium falciparum chloroquine resistance transporter (pfcrt) and P. falciparum multidrug resistance 1 (pfmdr1) genes are associated with decreased sensitivity to amodiaquine and lumefantrine, but effects of these polymorphisms on therapeutic responses to artesunate-amodiaquine (ASAQ) and artemether-lumefantrine (AL) have not been clearly defined. Individual patient data from 31 clinical trials were harmonized and pooled by using standardized methods from the WorldWide Antimalarial Resistance Network. Data for more than 7,000 patients were analyzed to assess relationships between parasite polymorphisms in pfcrt and pfmdr1 and clinically relevant outcomes after treatment with AL or ASAQ. Presence of the pfmdr1 gene N86 (adjusted hazards ratio = 4.74, 95% confidence interval = 2.29 – 9.78, P < 0.001) and increased pfmdr1 copy number (adjusted hazards ratio = 6.52, 95% confidence interval = 2.36–17.97, P < 0.001) were significant independent risk factors for recrudescence in patients treated with AL. AL and ASAQ exerted opposing selective effects on single-nucleotide polymorphisms in pfcrt and pfmdr1. Monitoring selection and responding to emerging signs of drug resistance are critical tools for preserving efficacy of artemisinin combination therapies; determination of the prevalence of at least pfcrt K76T and pfmdr1 N86Y should now be routine. Disclaimer: The opinions and assertions contained herein are the personal opinions of authors and are not to be construed as reflecting the views of the U.S. Army Medical Research Unit-Kenya or the U.S. Department of Defense.

474. Vincent JL, Russell JA, Jacob M, Martin G, Guidet B, Wernerman J, Gattinoni L. Albumin administration in the acutely ill: what is new and where next?. *Crit Care*. 2014; 18: 231.

Albumin solutions have been used worldwide for the treatment of critically ill patients since they became commercially available in the 1940s. However, their use has become the subject of criticism and debate in more recent years. Importantly, all fluid solutions

have potential benefits and drawbacks. Large multicenter randomized studies have provided valuable data regarding the safety of albumin solutions, and have begun to clarify which groups of patients are most likely to benefit from their use. However, many questions remain related to where exactly albumin fits within our fluid choices. Here, we briefly summarize some of the physiology and history of albumin use in intensive care before offering some evidence-based guidance for albumin use in critically ill patients.

- 475. Wade D, Daneau G, Aboud S, Vercauteren GH, Urassa WS, Kestens L. WHO Multicenter Evaluation of FACSCount CD4 and Pima CD4 T-Cell Count Systems: Instrument Performance and Misclassification of HIV-Infected Patients. *Journal of acquired immune deficiency syndromes* (1999), 66(5). 2014; e98.**

Background: CD4+ T-cell counts are used to screen and follow-up HIV-infected patients during treatment. As part of the World Health Organization prequalification program of diagnostics, we conducted an independent multicenter evaluation of the FACSCount CD4 and the Pima CD4, using the FACSCalibur as reference method. **Methods:** A total of 440 paired capillary and venous blood samples were collected from HIV-infected patients attending the HIV outpatient clinic in Antwerp, Belgium, and the HIV care and treatment center in Dar es Salam, Tanzania. Capillary blood was run on Pima analyzer, whereas venous blood was analyzed on FACSCount, Pima, and FACSCalibur instruments. Precision and agreement between methods were assessed. **Results:** The FACSCount CD4 results were in agreement with the FACSCalibur results with relative bias of 0.4% and 3.1% on absolute CD4 counts and an absolute bias of -0.6% and -1.1% on CD4% in Antwerp and Dar es Salam, respectively. The Pima CD4 results were in agreement with the FACSCalibur results with relative bias of -4.1% and -9.4% using venous blood and of -9.5% and -0.9% using capillary blood in Antwerp and Dar es Salam, respectively. At the threshold of 350 cells per microliter, the FACSCount CD4 and Pima CD4 using venous and capillary blood misclassified 7%, 9%, and 13% of patients, respectively. **Conclusions:** The FACSCount CD4 provides reliable CD4 counts and CD4% and is suitable for monitoring adult and pediatric HIV patients in moderate-volume settings. The Pima CD4 is more suitable for screening eligible adult HIV patients for antiretroviral treatment initiation in low-volume laboratories.

476. Walker RW, Dewhurst M, Gray WK, Jusabani A, Aris E, Unwin N Mugusi F. **Electrocardiographic Assessment of Coronary Artery Disease and Stroke Risk Factors in Rural and Urban Tanzania: A Case–control Study.** *Journal of Stroke and Cerebrovascular Diseases.*2014; 23(2): 315-320.

Background: Although the association between cerebrovascular and coronary artery disease (CAD) is well known in high-income countries, this association is not well documented in black Africans. **Aims:** The aim of this study was to document electrocardiographic (ECG) evidence of CAD in stroke cases and controls and to identify other common ECG abnormalities related to known stroke risk factors in a community-based population of incident stroke cases in Tanzania, East Africa. **Methods:** This was a case–control study. Incident stroke cases were identified by the Tanzanian Stroke Incidence Project. Age- and sex-matched controls were randomly selected from the background population. Electrocardiograms were manually analyzed using the Minnesota Coding System, looking for evidence of previous myocardial infarction (MI), atrial fibrillation (AF) or atrial flutter (AFI), and left ventricular hypertrophy (LVH). **Results:** In Hai, there were 93 cases and 241 controls with codable electrocardiograms and in Dar-es-Salaam; there were 39 cases and 72 controls with codable electrocardiograms. Comparing cases and controls, there was a higher prevalence of MI and AF or AFI (but not LVH) in cases compared with controls. **Conclusions:** This is the first published study of ECG assessment of CAD and other stroke risk factors in an incident population of stroke cases in sub-Saharan Africa. It suggests that concomitant CAD in black African stroke cases is more common than previously suggested.

477. William RA. **Management Outcome Of Sigmoid Volvulus In Patients Seeking Health Services At Muhimbili National Hospital, Tanzania.** Master of Medicine (General Surgery) *Dissertation* 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.

Background: Sigmoid Volvulus is the most common form of Volvulus of the gastrointestinal tract. In MNH; this condition accounts for a significant contribution among causes of intestinal obstruction. It is associated with a pre-existing redundant

sigmoid colon which has a narrow attachment of the sigmoid mesentery to the posterior abdominal wall. **Objectives:** To assess management outcome of patients with sigmoid volvulus at MNH. **Results:** A total of 86 patients with sigmoid volvulus managed in the surgical department during the study period were enrolled, It accounted for 19% of all patients with intestinal obstruction (Out of 463 patients of intestinal obstruction), Males were 68 (79.1%) and Females were 18 (20.9%) with a mean age of 49.8 years, Most frequent clinical features were abdominal pain (100%), distension (100%), constipation (95.3%) and empty rectum (95.3%). The correct preoperative diagnosis was made in 74.4% (64/86) of cases. Resection and primary anastomosis were done in 63 (73.3%) and Twenty two (25.6%), consequently underwent resection and colostomy. We had one patient underwent Resection and primary anastomosis with additional defunctioning colostomy. Twenty one (24.4%) had adverse outcome (mortality and morbidity). A mortality of 10.5% and morbidity of 13.9% were recorded and mean duration of hospital stay was 10.5 days. It was found that there is a highly statistically significant association between hemodynamic status, urine output, and the adverse outcomes of sigmoid volvulus ($P = 0.001$), and it is observed that there was significant associations between co morbidity and adverse outcomes of sigmoid volvulus ($P = 0.019$). **Conclusion:** Sigmoidectomy should be the basic principle in management of sigmoid volvulus with viable and gangrenous bowel, Primary anastomosis can be performed safely in selected patients without increasing morbidity and mortality in viable bowel, Patients with gangrene must be treated by emergency resection followed by colostomy. In patients with gangrenous bowel primary anastomosis should only be done in highly selected patients who are young, hemodynamic stable, without significant co-morbidity and surgeon is experienced enough to perform a tension free anastomosis. The outcome was better when the patients are haemodynamical stable.

478. Yahya N, Kamel NS, Malik AS. Subspace-based technique for speckle noise reduction in SAR images. Geoscience and Remote Sensing, Transactions on. 2014; 52(10): 6257-6271.

Image-subspace-based approach for speckle noise removal from synthetic aperture radar (SAR) images is proposed. The underlying principle is to apply homomorphic framework

in order to convert multiplicative speckle noise into additive and then to decompose the vector space of the noisy image into signal and noise subspaces. Enhancement is performed by nulling the noise subspace and estimating the clean image from the remaining signal subspace. Linear estimator minimizing image distortion while maintaining the residual noise energy below some given threshold is used to estimate the clean image. Experiments are carried out using synthetically generated data set with controlled statistics and real SAR image of Selangor area in Malaysia. The performance of the proposed technique is compared with Lee and homomorphic wavelet in terms of noise variance reduction and preservation of radiometric edges. The results indicate moderate noise reduction by the proposed filter in comparison to Lee but with a significantly less blurry effect and a comparable performance in terms of noise reduction to wavelet but with less artifacts. The results also show better preservation of edges, texture, and point targets by the proposed filter than both Lee and wavelet and less required computational time.

479. Yahya N, Kamel NS, Malik AS. Subspace-based technique for speckle noise reduction in ultrasound images. Biomedical engineering online. 2014; 13(1): 154.

Background and purpose: Ultrasound imaging is a very essential technique in medical diagnosis due to its being safe, economical and non-invasive nature. Despite its popularity, the US images, however, are corrupted with speckle noise, which reduces US images qualities, hampering image interpretation and processing stage. Hence, there are many efforts made by researches to formulate various despeckling methods for speckle reduction in US images. **Methods:** In this paper, a subspace-based speckle reduction technique in ultrasound images is proposed. The fundamental principle of subspace-based despeckling technique is to convert multiplicative speckle noise into additive via logarithmic transformation, then to decompose the vector space of the noisy image into signal and noise subspaces. Image enhancement is achieved by nulling the noise subspace and estimating the clean image from the remaining signal subspace. Linear estimation of the clean image is derived by minimizing image distortion while maintaining the residual noise energy below some given threshold. The real US data for validation purposes were acquired under the IRB protocol (200210851-7) at the University of California Davis,

which is also consistent with NIH requirements. **Results:** Experiments are carried out using a synthetically generated B-mode ultrasound image, a computer generated cyst image and real ultrasound images. The performance of the proposed technique is compared with Lee, homomorphic wavelet and squeeze box filter (SBF) in terms of noise variance reduction, mean preservation, texture preservation and ultrasound despeckling assessment index (USDSAI). The results indicate better noise reduction capability with the simulated images by the SDC than Lee, Wavelet and SBF in addition to less blurry effect. With the real case scenario, the SDC, Lee, Wavelet and SBF are tested with images obtained from raw radio frequency (RF) data. Results generated using real US data indicate that, in addition to good contrast enhancement, the autocorrelation results shows better preservation of image texture by SDC than Lee, Wavelet and SBF. **Conclusion:** In general, the performance of the SDC filter is better than Lee, Wavelet and SBF in terms of noise reduction, improvement in image contrast and preservation of the autocorrelation profiles. Furthermore, the filter required less computational time compared to Lee, Wavelet and SBF, which indicates its suitability for real time application.

480. Yan W, Shin KS, Wang SJ, Xiang H, Divers T, McDonough S, Chang YF. Equine hyperimmune serum protects mice against Clostridium difficile spore challenge. *Journal of veterinary science*, 15(2), 249-258.

Clostridium (*C.*) *difficile* is a common cause of nosocomial diarrhea in horses. Vancomycin and metronidazole have been used as standard treatments but are only moderately effective, which highlights the need for a novel alternative therapy. In the current study, we prepared antiserum of equine origin against both *C. difficile* toxins A and B as well as whole-cell bacteria. The toxin-neutralizing activities of the antibodies were evaluated in vitro and the prophylactic effects of in vivo passive immunotherapy were demonstrated using a conventional mouse model. The data demonstrated that immunized horses generated antibodies against both toxins A and B that possessed toxin-neutralizing activity. Additionally, mice treated with the antiserum lost less weight without any sign of illness and regained weight back to a normal range more rapidly compared to the control group when challenged orally with 10⁷ *C. difficile* spores 1 day

after serum injection. These results indicate that intravenous delivery of hyperimmune serum can protect animals from *C. difficile* challenge in a dose-dependent manner. Hence, immunotherapy may be a promising prophylactic strategy for preventing *C. difficile* infection in horses.

- 481. Ye C, Yan W, McDonough PL, McDonough SP, Mohamed H, Divers TJ, Yang Z. Serodiagnosis of equine leptospirosis by enzyme-linked immunosorbent assay using four recombinant protein markers. *Clinical and Vaccine Immunology*. 2014; 21(4): 478-483.**

Leptospirosis, caused by *Leptospira* spp., is one of the most common zoonotic diseases in the world. We tested four recombinant proteins of *Leptospira interrogans*, namely, rLipL21, rLoa22, rLipL32, and rLigACon4-8, to evaluate their potential for use as antigens for the diagnosis of equine leptospirosis. We employed equine sera (n = 130) that were microscopic agglutination test (MAT) negative and sera (n = 176) that were MAT positive for the 5 serovars that most commonly cause equine leptospirosis. The sensitivity and specificity of ELISA compared to MAT were 82.39% and 86.15%, respectively, for LigACon4-8, 77.84% and 92.31%, respectively, for Loa22, 77.84% and 86.15%, respectively, for LipL32, and 84.66% and 83.85%, respectively, for LipL21. When one of the two antigens was test positive, the sensitivity and specificity of ELISA were 93.75% and 78.46%, respectively, for rLigACon4-8 and LipL32, 93.18% and 76.15%, respectively, for rLigACon4-8 and LipL21, 89.77% and 80.77%, respectively, for rLigACon4-8 and Loa22, 91.48% and 78.46%, respectively, for LipL21 and Loa22, 93.75% and 76.92%, respectively, for LipL21 and LipL32, and 90.34% and 80.77%, respectively, for Loa22 and LipL32. In conclusion, we have developed an indirect ELISA utilizing rLigACon4-8, rLoa22, rLipL32, and rLipL21 as diagnostic antigens for equine leptospirosis. The use of four antigens in the ELISA was found to be sensitive and specific, the assay was easy to perform, and the results concurred with the results of the standard *Leptospira* MAT.

- 482. Yé M, Aninanya GA, Sié A, Kakoko DCV, Chatio S, Kagoné M, Sauerborn JWR. Establishing sustainable performance-based incentive schemes: views of rural**

health workers from qualitative research in three sub-Saharan African countries. *Rural and remote health*. 2014; 14(2681).

Background: Performance-based incentives (PBIs) are currently receiving attention as a strategy for improving the quality of care that health providers deliver. Experiences from several African countries have shown that PBIs can trigger improvements, particularly in the area of maternal and neonatal health. The involvement of health workers in deciding how their performance should be measured is recommended. Only limited information is available about how such schemes can be made sustainable. This study explored the types of PBIs that rural health workers suggested, their ideas regarding the management and sustainability of such schemes, and their views on which indicators best lend themselves to the monitoring of performance. In this article the authors reported the findings from a cross-country survey conducted in Burkina Faso, Ghana and Tanzania. **Methods:** The study was exploratory with qualitative methodology. In-depth interviews were conducted with 29 maternal and neonatal healthcare providers, four district health managers and two policy makers (total 35 respondents) from one district in each of the three countries. The respondents were purposively selected from six peripheral health facilities. Care was taken to include providers who had a management role. By also including respondents from district and policy level a comparison of perspectives from different levels of the health system was facilitated. The data that was collected was coded and analysed with support of NVivo v8 software. **Results:** The most frequently suggested PBIs amongst the respondents in Burkina Faso were training with per-diems, bonuses and recognition of work done. The respondents in Tanzania favoured training with per-diems, as well as payment of overtime, and timely promotion. The respondents in Ghana also called for training, including paid study leave, payment of overtime and recognition schemes for health workers or facilities. Respondents in the three countries supported the mobilisation of local resources to make incentive schemes more sustainable. There was a general view that it was easier to integrate the cost of non-financial incentives in local budgets. There were concerns about the fairness of such schemes from the provider level in all three countries. District managers were worried about the workload that would be required to manage the schemes. The providers themselves were less clear about which indicators best lent themselves to the purpose of performance monitoring. District managers and

policy makers most commonly suggested indicators that were in line with national maternal and neonatal healthcare indicators. **Conclusions:** The study showed that health workers have considerable interest in performance-based incentive schemes and are concerned about their sustainability. There is a need to further explore the use of non-financial incentives in PBI schemes; as such incentives were considered to stand a greater chance of being integrated into local budgets. Ensuring participation of healthcare providers in the design of such schemes is likely to achieve buy-in and endorsement from the health workers involved. However, input from managers and policy makers are essential to keep expectations realistic and to ensure the indicators selected fit the purpose and are part of routine reporting systems.

483. Yonah G, Fredrick F, Leyna G HIV serostatus disclosure among people living with HIV/AIDS in Mwanza, Tanzania. AIDS Res Ther.2014; 11(5).

Background: Disclosing HIV serostatus is important for HIV prevention and maintenance of health for people livingwith HIV their spouses and the community, it plays a role in the social relation which is critical in reducing HIVtransmission. The process may have positive and negative effects to the HIV infected people who disclose theirstatus. The present study was undertaken to describe HIV serostatus disclosure among HIV infected peopleattending care and treatment clinic at Sekou-Toure hospital in Mwanza, Tanzania.**Methods:** A cross-sectional study was carried out on 270 HIV infected adults attending Care and Treatment Clinic (CTC) at Sekou-Toure hospital between September and October, 2010. A Swahili questionnaire was used to obtain demographic and HIV disclosure information.**Results:** Hundred and ninety five (72.5%) of all recruited participants were females, 88.1% (238/270) were agedabove 30 years and 44.1% (119/270) were married. The prevalence of serostatus disclosure was 93.3% (252/270)with participants aged above 30 years having significantly higher proportion of serostatus disclosure compared tothose aged below 30 years (94.5% vs. 84.4%, $p < 0.05$). Among the participants who disclosed their status, 69.3%reported closeness to the disclosed person as the reason for disclosure while 25.8% (65/252) disclosed because theyneeded help. Two hundred (79.4%) reported to have received emotional support following disclosure while 25.8%and 29.7% received financial support

and freedom to use their anti-retroviral drugs around the person they disclosed their status respectively. Thirty four participants reported to have been discriminated following disclosure and 12 participants reported to have been divorced. **Conclusions:** Rate of disclosure of HIV serostatus was noted to be high in this study. Delayed disclosure was also noted in small proportion of participants. Negative outcomes following disclosure of serostatus were reported by participants. Efforts need to be increased to promote disclosure of HIV serostatus in Tanzania through health education and awareness for both HIV infected individuals and the community.

484. **Yuda EM. Magnitude, Clinical Presentation, Management and Outcome of Ectopic Pregnancy at Muhimbili National Hospital. Master of Medicine (Obstetrics and Gynecology) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: Ectopic Pregnancy (EP) is one of the commonest causes of first trimester maternal deaths. Severe maternal morbidity and mortality is related to fallopian tube rupture with intra abdominal bleeding in case the diagnosis and treatment is delayed. A periodic appraisal of its magnitude and management is important in our hospital. **Objective:** The objective of the study was to determine the magnitude, clinical presentation management and outcome of EP at Muhimbili National Hospital. **Methodology:** This was retrospective case review study. The files of cases with diagnosis of EP between January 2010 and December 2012 were retrieved from medical records and information extracted using a checklist. The number of admissions was obtained from medical records and emergency gynecological operations done over the same period was obtained from operation register books. Data were analyzed and presented in frequency tables. **Results:** During the study period there were 9362 admissions and 624 emergency gynecological surgeries. There were 494 EP cases confirmed during surgery. Ectopic pregnancy contributed to 5.3% of admissions and 79% of emergency gynecological operations. Tubal EP accounted for 95%, ovarian 3.2% and 1.8% were abdominal pregnancies. Most cases were ruptured and unruptured tubal ectopic accounted for 3.8%. More than three quarter of cases got blood transfusion of at least one unit. Three quarter of cases underwent salpingectomy. Eight percent of cases

had EP for the second time. **Conclusion:** Ectopic pregnancy contributes significantly to emergency gynecological surgery. Most cases were ruptured at the time of diagnosis. All ruptured and unruptured cases were managed by laparotomy and three quarter of cases received blood transfusion. Efforts need to be focused on early case detection and prompt management to prevent tubal rupture; hence reducing maternal morbidity and mortality due to EP.

485. **Yusof FA, Yaacob KI, Mohd-Yusof N, Mohamed F, Shafri M, Affendi M. Formulation and stability testing of gentamicin-Nigella sativa emulsions for osteo-healing application.2014.**

An alternative osteo-healing formulation with osteo-healing properties was formulated by combining gentamicin and Nigella sativa (N. sativa) oil in an emulsion to reduce gentamicin toxicity effect over prolonged use in osteo-infection treatment. This work aims to test the aqueous solubility and physicochemical properties of the emulsion. Four emulsions (emulsion A, B, C and D) had been formulated, with final concentration of gentamicin was made constant at 0.1% (w/v) whereas N. sativa oil concentration was varied between 32.5% (v/v) to 46.4% (v/v) in all formulations. Then, stability studies of all emulsion were performed by centrifugation at (5000rpm, 5 minutes), at different storage conditions (8oC, 25oC and 50oC), organoleptic characteristics, freeze-thawcycle, pH determination, particle size measurement, zeta-potential analysis, and pH titration analysis. Results showed no phase separation after centrifugation for freshly prepared emulsions. Storage at 8oC, all emulsions also showed no phase separation at all-time points. At 25oC storage condition, three formulations were stable at day 7 but phase separation was formed in all emulsions by day 14. At 50oC storage condition, all emulsions formed phase separation at day 14. No emulsions were stable in storage temperature of 50oC. The particle size of the emulsions increased with an increment of N. sativa oil concentration. Zeta-potential analysis showed a range of -32.2 ± 0.15 mV to -48.0 ± 0.45 mV. When pH titration analysis was performed, the zeta potential indicated that the emulsion stability was affected by acidic conditions. We concluded that the use of gentamicin-N. Sativa emulsions must take into account the storage condition with

preference of low temperature and fresh preparation at higher alkalinity and the lowest possibility of *N. sativa* oil.

486. **Yusufali ME. Pattern Of Ocular Manifestation Among Adult Patients With HIV/AIDs Attending HIV Clinic At Muhimbili National Hospital - Dar Es Salaam, Master of Medicine (Ophthalmology) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Introduction: HIV, the virus that causes AIDS, "acquired immunodeficiency syndrome," has become one of the world's most serious health and development challenges. The estimated prevalence of HI V infection among adults in Tanzania is 5.6%, there are about 1,400,000 total HIV cases. About 86000 people have died from the disease. The available evidence show that an estimate of 70-80% of adult AIDS patients will develop an ocular complication (Orbital and its adnexa) at some point of their illness. Untreated ocular manifestations may cause irreversible blindness or loss of the affected eye and even death. Early detection of these conditions is necessary to allow early diagnosis and appropriate management. Currently no studies have been done in Tanzania on the pattern of ocular manifestations among HIV infected patients. Results of this study will inform the policy makers, eye health stakeholders including health personnel, HIV patients and the general public to put in place strategies that would enable early detection, diagnosis and appropriate management for ocular manifestations in order to prevent blindness and loss of eyes among HIV patients. **Aims:** To determine the pattern of ocular manifestations among adults patients with HIV/AIDS attending HIV clinic at Muhimbili National Hospital, Dar es Salaam. **Methodology:** This study was a hospital based cross sectional study conducted at Muhimbili National Hospital, Dar es salaam, Tanzania among adult patients attending HIV clinic. Systematic sampling was used to select patients for the study. All consenting patients underwent a through history for particulars and to determine whether they were on AR V medication. A detailed ocular examination was then done. The results for CD4 count done within 6 months of the study were extracted from the HIV clinic cards. Data were recorded on a semi structured questionnaire and later analyzed using the SPSS version 12.0. **Results:** A total of 296 patients were recruited, where 153 (51.7%) patients were on ARVs and 143 (48.3%)

patients were not on ARV medication. The prevalence of ocular manifestation was 124(41.9%) ,of which 28(18.3%) patients were on ARV and 96(67.1 %) were not on ARV's. Anterior segment Ocular manifestations occurred in 84(14.2%) eyes, followed by the neuro-ophthalmic 79(13.3%) eyes and posterior segment 31,(5.2%).The most common anterior segment manifestation was cataract 25,(29.8%), keratitis 23,(27.4%)eyes and conjunctiva mass in 16,(19 %) eyes. The most common posterior segment manifestation was HIV retinopathy which occurred in 21(67.7%) eyes followed by toxoplasmosis 7, (22.6%) eyes and CMV retinitis 1, (3.2%) eyes. Optic atrophy was the commonest neurophthalmology ocular manifestation that affected 54, (68.4%) eyes. Others eyes had papilloedema 13, (16.5%) and pappilitis 12, (15.2%). Most ocular manifestations occurred in patients not on ARV medication. Except for optic atrophy other ocular manifestations tended to increase with decreasing CD4 cell count.

Conclusion: The study has found out that the prevalence of ocular manifestations in HIV/AIDS patients at Muhimbili National ~ospital HIV clinic is high. Most OM occurred in patients who were not on ARV and whose CD4 counts was less than 200 cells per cnr'. Cataract, keratitis and conjunctival mass were the leading anterior segment OM while HIV retinopathy, toxoplasmosis and optic atrophy were the commonest posterior segment and neurophthalmic manifestations respectively. The main causes of blindness were cataract, HIV retinopathy and optic atrophy. **Recommendation:** It is recommended that routine ocular screening of all patients with HIV be established to identify patients with OM for early diagnosis and appropriate management.

487. Zack RM, Golan J, Aboud S, Msamanga G, Spiegelman D, Fawzi WW. Risk Factors for Preterm Birth among HIV-Infected Tanzanian Women: A Prospective Study. *Obstetrics and gynecology international*. 2014.

Premature delivery, a significant cause of child mortality and morbidity worldwide, is particularly prevalent in the developing world. As HIV is highly prevalent in much of sub-Saharan Africa, it is important to determine risk factors for prematurity among HIV-positive pregnancies. The aims of this study were to identify risk factors of preterm (<37 weeks) and very preterm (<34 weeks) birth among a cohort of 927 HIV positive women living in Dar es Salaam, Tanzania, who enrolled in the Tanzania Vitamin and HIV

Infection Trial between 1995 and 1997. Multivariable relative risk regression models were used to determine the association of potential maternal risk factors with premature and very premature delivery. High rates of preterm (24%) and very preterm birth (9%) were found. Risk factors (adjusted RR (95% CI)) for preterm birth were mother <20 years (1.46 (1.10, 1.95)), maternal illiteracy (1.54 (1.10, 2.16)), malaria (1.42 (1.11, 1.81)), Entamoeba coli (1.49 (1.04, 2.15)), no or low pregnancy weight gain, and HIV disease stage ≥ 2 (1.41 (1.12, 1.50)). Interventions to reduce pregnancies in women under 20, prevent and treat malaria, reduce Entamoeba coli infection, and promote weight gain in pregnant women may have a protective effect on prematurity.

488. **Zahran E, Risha E, AbdelHamid F, Mahgoub HA, Ibrahim T Effects of dietary Astragalus polysaccharides (APS) on growth performance, immunological parameters, digestive enzymes, and intestinal morphology of Nile tilapia (*Oreochromis niloticus*). *Fish & shellfish immunology*. 2014; 38(1): 149-157.**

This work investigated the potential immunomodulatory and growth-promoting effects of Astragalus polysaccharides (APS) in Nile tilapia (*Oreochromis niloticus*). The dietary supplementation with APS (1500 mg/kg of diet) caused a significant increase in growth parameters (initial and final weight, weight gain (WG), specific growth rate (SGR), feed conversion ratio (FCR) and feed intake (FI), when compared to non-supplemented control basal diet. In addition, APS upregulated the phagocytic activity, the respiratory burst activity, plasma lysozyme, the bactericidal activity, superoxide dismutase (SOD), glutathione peroxidase (GPx), and amylase activity. However, it had no effect on serum nitric oxide (NO) or Malondialdehyde (MDA) levels. While APS had no effect of intestinal histology, a slight increase in the villi length was recorded. Collectively, our results indicate that dietary APS supplementation could improve the growth performance and the immune parameters of cultured tilapia fish.

489. **Zaid HM, Latiff A, Rasyada N, Yahya N. The Effect of Zinc Oxide and Aluminum Oxide Nanoparticles on Interfacial Tension and Viscosity of Nanofluids for Enhanced Oil Recovery. In *Advanced Materials Research*. 2014; 1024: 56-59.**

Application of nanotechnology in enhanced oil recovery (EOR) has been increasing in the recent years. After secondary flooding, more than 60% of the original oil in place (OOIP) remains in the reservoir due to trapping of oil in the reservoir rock pores. One of the promising EOR methods is surfactant flooding, where substantial reduction in interfacial tension between oil and water could sufficiently displace oil from reservoir. The emulsion that is created between the two interfaces has a higher viscosity than its original components, providing more force to push the trapped oil. In this paper, the recovery mechanism of the enhanced oil recovery was determined by measuring oil-nanofluid interfacial tension and the viscosity of the nanofluid. Series of core flooding experiments were conducted using packed silica beads which replicate core rocks to evaluate the oil recovery efficiency of the nanofluid in comparison to that using an aqueous commercial surfactant, 0.3wt% sodium dodecyl sulfate (SDS). 117 % increase in the recovery of the residual oil in place (ROIP) was observed by the 2 pore volume (PV) injection of aluminium oxide nanofluid in comparison with 0.3wt% SDS. In comparison to the type of material, 5.12% more oil has been recovered by aluminium oxide compared to zinc oxide nanofluid in the presence of EM wave. The effect of the EM wave on the recovery was also studied by and it was proven that electric field component of the EM waves has been stimulating the nanofluid to be more viscous by the increment of 54.2% in the oil recovery when aluminium oxide nanofluid was subjected to 50MHz EM waves irradiation.

490. **Zaid HM, Latiff NRA, Yahya N, Soleimani H, Shafie A. Application of electromagnetic waves and dielectric nanoparticles in enhanced oil recovery. *Journal of Nano Research*. 2014; 26: 135-142.**

Enhanced oil recovery (EOR) refers to the recovery of oil that is left behind in a reservoir after primary and secondary recovery methods, either due to exhaustion or no longer economical, through application of thermal, chemical or miscible gas processes. Most conventional methods are not applicable in recovering oil from reservoirs with high temperature and high pressure (HTHP) due to the degradation of the chemicals in the environment. As an alternative, electromagnetic (EM) energy has been used as a thermal method to reduce the viscosity of the oil in a reservoir which increased the production of

the oil. Application of nanotechnology in EOR has also been investigated. In this study, a non-invasive method of injecting dielectric nanofluids into the oil reservoir simultaneously with electromagnetic irradiation, with the intention to create disturbance at oil-water interfaces and increase oil production was investigated. During the core displacement tests, it has been demonstrated that in the absence of EM irradiation, both ZnO and Al₂O₃ nanofluids recovered higher residual oil volumes in comparison with commercial surfactant sodium dodecyl sulfate (SDS). When subjected to EM irradiation, an even higher residual oil was recovered in comparison to the case when no irradiation is present. It was also demonstrated that a change in the viscosity of dielectric nanofluids when irradiated with EM wave will improve sweep efficiency and hence, gives a higher oil recovery.

491. **Zainabu N. Availability Of Medicines For Chronic Diseases Among Insured And None Insured Patients Attending Public Health Facilities In Singida And Dar es Salaam Regions. Master of Science (Pharmaceutical Management) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: As of 2010, chronic diseases in Tanzania contributed to about 27% of all deaths occurring in the country, of which cardiovascular disease, cancer, respiratory diseases, diabetes and other chronic diseases accounted for 12%, 3%, 3%, 2% and 7%, respectively. Under treatment significantly contributes to increased mortalities due to chronic diseases. The Medicine financing in Tanzania has mainly been provided through the Ministry of Health and Social Welfare (MOHSW) funds. In addition, other funds collected at facility level such as user charge and National Health Insurance Fund (NHIF) reimbursement have also been used. This descriptive cross sectional study assessed the extent of medicines availability for chronic diseases among insured and non insured patients in public health facilities in Singida and Dar es salaam regions. **Objectives:** The objectives of the study were to determine the availability of tracer medicines in main stores and pharmacy dispensing outlets serving insured and non insured patients in public health facilities, to find out the proportion of patients among insured and non insured who receive prescribed medicines for chronic diseases at pharmacy dispensing outlets on the day of the visit and to determine the type and number of dispensed

medicines for chronic diseases among insured and non insured patients.**Methodology:** This was a descriptive cross sectional study. It involved physical inventory and inventory record review to obtain current and past availability of medicines for chronic diseases. Outpatients with hypertension, diabetes and epilepsy who met the inclusion criteria were interviewed. Prescriptions were reviewed from each patient to determine the types of medicines prescribed and dispensed. Furthermore, the amounts of dispensed medicines were compared to the amount stated in the prescriptions to assess the completeness of the given dosage.**Results:** A total of 12 public hospitals in Singida and Dar es Salaam Region were included in the study. Additionally, a total of 306 patients were included where 181 were females and 125 were males. Findings showed that the mean availability of 15 tracer medicines within the two regions during the time of survey in pharmacies serving insured patients was ($77.1 \pm 22.4\%$ & $71.4 \pm 22.4\%$) and in pharmacies serving non insured patients was ($62.8 \pm 27\%$ & $58.1 \pm 18.6\%$) for Singida and Dar es Salaam regions, respectively . Data suggested that there was no significant difference in average stock out duration for chronic diseases medicines between the two regions, antihypertensive (75.2&71.3days), anti diabetic (71.3 &70.6 days) and antiepileptic (73.9 & 73.1days) for Singida and Dar es Salaam regions respectively. Furthermore, the study shows that the proportion of insured patients in Dar es Salaam who were dispensed with medicines was high compared to non insured patients and the difference was statistically significant ($P<0.05$) . Moreover, data suggested that in Singida, there was no significant difference in dispensed medicines among insured and non insured patients ($P>0.05$).**Conclusion:** The study found that, the exemption policy has not been able to solve the problem of medicines availability among the non insured patients. Thus, there is a need to improve equity in availability of medicines for chronic diseases in order to reduce availability gap among insured and non insured patients.

492. **Zaituni M. Investigations for Toxicity, Antimicrobial and Antioxidant Activities of Crude Extracts and Isolated Compounds from Fruits of *Mammea Usambarensis* Verdc. Master of Science (Traditional Medicine Development) *Dissertation* 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

In this study of the fruits of *Mammea usambarensis*, the column chromatography of the crude extract led to the isolation of mammea B/AB (I) and mammea B/AB cyclo D (II). The isolated compounds as well as the crude extract, (80:20) PE/DCM and (95:5) DCM/MeOH fractions were subjected to three bioassays. The assays conducted were toxicity test in brine shrimps and mice, antimicrobial activity by disc diffusion and broth dilution method and antioxidant activity by DPPH scavenging activity. In the brine shrimps toxicity test, crude extract, (80:20) PE/DCM fraction, (95:5) DCM/MeOH fraction and mammea B/AB showed strong activity with LC50 values of 1.58, 1.14, 3.89 and 5.21 $\mu\text{g/ml}$ respectively. In the acute toxicity test in mice the crude extract was non-toxic even at a dose above 2000 mg/kg body weight. In disc diffusion method, the crude extract, mammea B/AB, (80:20) PE/DCM and (95:5) DCM/MeOH fractions showed lower activity with zone of inhibition range of 8.3-16 mm for *Salmonella kisarawe*, 8.3-10 mm for *Staphylococcus aureus* and 8.7-14 mm for *Klebsiella oxytoca*. The minimum inhibitory concentrations for the crude extract, (80:20) PE/DCM, (95:5) DCM/MeOH fractions and mammea B/AB ranged from 3.75 $\mu\text{g}/\mu\text{l}$ to 25 $\mu\text{g}/\mu\text{l}$. All of the tested samples had no activity against *Candida albicans* and *Cryptococcus neoformans*. The results of antioxidant assay showed that crude extract, (80:20) PE/DCM, (95:5) DCM/MeOH fractions and mammea B/AB had a DPPH scavenging activity of 86, 69, 72 and 77 $\mu\text{g/ml}$: mM, respectively, compared to 93 $\mu\text{g/mL}$: mM for propagyl gallate, (the standard compound). Therefore, from this study it is interesting to note that compound II is reported for the first time in the genus *Mammea*. The high toxicity values in brine shrimps predict the possibility of getting anticancer drug. However the crude extract was non toxic in mice during gross tissue examination and therefore more studies are recommended to investigate other toxicological profiles.

493. **Zarina AS. Cancellation Of Patients Scheduled For Elective Surgery In Two Tertiary Care Hospitals In Dar es Salaam. Master of Medicine (General Surgery) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Introduction: Muhimbili National Hospital is the tertiary and teaching hospital in Dar es Salaam offering multidisciplinary services. Muhimbili Orthopedic Institute is the tertiary

and teaching hospital for Orthopedics, Trauma and Neurosurgery. Patients scheduled for elective surgery are cancelled on the day of surgery despite improvement of laboratory services and theatre facilities. The aim of this study was to establish the reasons for cancellation and come up with feasible measures to rectify the situation. **Methodology:** This was a prospective descriptive hospital based study conducted at the main theatres of MNH and MOI and the respective wards of the respective patients. All details of patients cancelled on the day of the scheduled surgery were included in the study through a structured checklist and analysed with SPSS software. Ethical clearance was sought. The study costed one million five hundred sixty thousand nine hundred and thirty shillings only. **Results:** The overall average cancellation rate in the two hospitals was 23.2%, being highest at MOI where it was 29.9%. The department with the highest cancellation rate in MOI was Orthopedics (33.6%) followed by Neurosurgery (25.9%). The least cancellation rate was in pediatric Orthopedics (19.4%). In MNH the department with the most cancellation rate was Maxillofacial surgery (25.2%) followed by General Surgery (20.0%). Least cancellations were in ENT department (11.5%). Public patients were the most cancelled in both institutions, a finding that was statistically significant (p-value <0.001). For both institutes hospital related factors were the leading cause of cancellation. **Conclusion:** Cancellation of elective surgeries has been seen to be due to avoidable and unavoidable reasons mainly hospital related. Meticulous pre operative work up of patients, institution of standard cancellation protocols, proper counseling of patients and improved hospital working facilities may help to significantly reduce most of the avoidable factors for cancellations on the day of surgery. This will ensure a more efficient operating theatre; reduce patient inconveniences and better job satisfaction of hospital staff.

494. Ziwa MH, Matee MI, Hang'ombe BM, Lyamuya EF, Kilonzo BS. Plague in Tanzania: an overview. Tanzania Journal of Health Research. 2014; 15(4).

Human plague remains a public health concern in Tanzania despite its quiescence in most foci for years, considering the recurrence nature of the disease. Despite the long-standing history of this problem, there have not been recent reviews of the current knowledge on plague in Tanzania. This work aimed at providing a current overview of plague in

Tanzania in terms of its introduction, potential reservoirs, possible causes of plague persistence and repeated outbreaks in the country. Plague is believed to have been introduced to Tanzania from the Middle East through Uganda with the first authentication in 1886. *Xenopsylla brasiliensis*, *X. cheopis*, *Dinopsyllus lypusus*, and *Pulex irritans* are among potential vectors while *Lophuromys* spp, *Praomys delectorum*, *Graphiurus murinus*, *Lemniscomys striatus*, *Mastomys natalensis*, and *Rattus rattus* may be the potential reservoirs. Plague persistence and repeated outbreaks in Tanzania are likely to be attributable to a complexity of factors including cultural, socio-economical, environmental and biological. Minimizing or preventing people's proximity to rodents is probably the most effective means of preventing plague outbreaks in humans in the future. In conclusion, much has been done on plague diagnosis in Tanzania. However, in order to achieve new insights into the features of plague epidemiology in the country, and to reorganize an effective control strategy, we recommend broader studies that will include the ecology of the pathogen, vectors and potential hosts, identifying the reservoirs, dynamics of infection and landscape ecology.

495. Zuckerman R, Manji K, Matee M, Naburi H, Bisimba J, Martinez R, Palumbo P. HSV oropharyngeal shedding among HIV-infected children in Tanzania. *International journal of STD & AIDS*. 2014; 0956462414543122.

HSV oral shedding has not been studied among HIV-positive children in Africa. We sought to evaluate longitudinal oral HSV reactivation in HIV positive and negative children. Twenty HIV-positive antiretroviral-naive and 10 HIV-negative children aged 3–12 years in Tanzania were followed prospectively for 14 days. Oral swabs were collected daily and submitted for HSV DNA PCR analysis. Clinical data were collected via chart review and daily diaries. HSV DNA was detected in 10 (50%) of HIV-positive and 4 (40%) of HIV-negative children. Children who shed HSV had virus detected in a median of 21.4% of samples; shedding was intermittent. Median CD4 count among HIV-infected children was 667 in those with positive HSV DNA and 886 in those who were negative ($p=0.6$). Of the HIV-positive children reporting prior sores, five (83%) had positive HSV swabs, whereas the one HIV-negative child with prior sores did not have a PCR-positive swab. HSV is detected frequently in children with and without HIV. HIV-

infected children reporting oral sores have a high rate of HSV detection. Given the proven strong interactions between HIV and HSV, further study of co-infection with these viruses is warranted in children.

496. Zühlke L, Engel ME, Karthikeyan G, Rangarajan S, Mackie P, Cupido B, Mayosi BM. Characteristics, complications, and gaps in evidence-based interventions in rheumatic heart disease: the Global Rheumatic Heart Disease Registry (the REMEDY study). *European heart journal*. 2014; ehu449.

Aims: Rheumatic heart disease (RHD) accounts for over a million premature deaths annually; however, there is little contemporary information on presentation, complications, and treatment. **Methods and results:** This prospective registry enrolled 3343 patients (median age 28 years, 66.2% female) presenting with RHD at 25 hospitals in 12 African countries, India, and Yemen between January 2010 and November 2012. The majority (63.9%) had moderate-to-severe multivalvular disease complicated by congestive heart failure (33.4%), pulmonary hypertension (28.8%), atrial fibrillation (AF) (21.8%), stroke (7.1%), infective endocarditis (4%), and major bleeding (2.7%). One-quarter of adults and 5.3% of children had decreased left ventricular (LV) systolic function; 23% of adults and 14.1% of children had dilated LVs. Fifty-five percent (n = 1761) of patients were on secondary antibiotic prophylaxis. Oral anti-coagulants were prescribed in 69.5% (n = 946) of patients with mechanical valves (n = 501), AF (n = 397), and high-risk mitral stenosis in sinus rhythm (n = 48). However, only 28.3% (n = 269) had a therapeutic international normalized ratio. Among 1825 women of childbearing age (12–51 years), only 3.6% (n = 65) were on contraception. The utilization of valvuloplasty and valve surgery was higher in upper-middle compared with lower-income countries. **Conclusion:** Rheumatic heart disease patients were young, predominantly female, and had high prevalence of major cardiovascular complications. There is suboptimal utilization of secondary antibiotic prophylaxis, oral anti-coagulation, and contraception, and variations in the use of percutaneous and surgical interventions by country income level.

497. **Zuwena B. Magnetic Resonance Imaging Patterns Among Adult Patients Presenting With Knee Joint Pain At Muhimbili National Hospital And Aga Khan Hospital In Dar Es Salaam. Master of Medicine (Radiology) Dissertation 2014. Muhimbili University of Health and Allied Sciences, Dar es Salaam.**

Background: Pain in the major joints including knee is an increasingly health problem, leading to significant disability among patients and increasing the burden of disease. Since there is no documentation about patterns of knee MRI for patients with knee pain in our set up, it was thought there is a need to determine the common MRI findings among adults with knee pain so as to establish MRI patterns hence increase awareness of structural abnormalities and their therapeutic potential. **Materials and Methods:** A retrospective cross-sectional hospital based study which involved 88 MRI records (socio-demographic and images) of adults with knee joint pain referred to MRI unit at Aghakhan and Muhimbili National hospitals done from January to December 2013. Data extraction forms were used to collect socio-demographic, clinical information and the MRI findings. Data was processed and analysed using SPSS version 20. **Results:** The majority of knee MR images evaluated were found to have abnormal MR findings (93.2%), and bone marrow oedema was more prevalent abnormal knee MR pattern (82%). Medial meniscus was more affected than lateral meniscus (68% vs 44.7%). Meniscal tear was more prevalent than meniscal cyst (89.4% vs 10.4%). Among trauma patients, cruciate ligament was found to be more injured than collateral ligament (42.7% vs 8.5%) in which anterior cruciate ligament was more affected than posterior cruciate ligament (77% vs 31%). Osteophytes, bone erosion and subchondral cyst were significantly more frequent in non-traumatic patients (3.2% vs 36.7% $p=0.001$, 0% vs 16.4% $p=0.02$, 0% vs 20% $p=0.011$ respectively), whereas bone fracture and bone marrow oedema occur more in trauma than non-trauma patients (16.1% vs 3.3% $p=0.195$ and 96.8% vs 66.7% $p=0.03$ respectively). **Conclusion:** Bone marrow oedema is the commonest pattern seen in patients with knee pain being more prevalent in trauma patients. The prevalence of meniscal tear increases with increasing age, ligament injury is frequently seen in trauma patients.

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